

Improving Instructional Design for Online Learning by Using the Online Top-Down Modeling Model

Buncha Samruayruen
University of North Texas, USA
bs0142@unt.edu

Abstract: Through the Internet, the process of teaching and learning are finding increased use as know as distance learning or online learning. Online learners especially in the course which requires “hands-on” programming independent of classroom instruction, certainly need adequate facilitated resources and models to arouse their interests and motivations in order to get better learning and creating new projects. The Online Top-Down Modeling Model (OTMM) is a new model of the integration Internet technology that can alleviate the current problems and improve instructional design for online learning. This article focused on analyzing and exploring the effectiveness of using this model in an online learning.

Introduction

Nowadays, distance education, especially Internet-based learning or online learning is finding increased use, and may prove effective in facilitating advanced study coursework for remotely located and rural area students. Online learning can provide effective strategies for offering courses and field experiences in special education teacher preparation programs (Collins, Schuster, Ludlow, & Duff, 2002). Knapczyk, Hew, Frey, & Wall-Marencik (2005) surveyed in-service teachers completing an online course on behavior disorders and reported ratings of this experience as equal or superior to conventional coursework in such areas as engagement in course activities, interaction with classmates, instructor feedback and overall quality of learning. Evidence shows that such approaches can serve to supplement on-campus teaching activities and to replace conventional coursework and practicum supervision for students at distance education sites (Knapczyk et al., 2005). Under environments such as online instruction can give prospective teachers broad-based, comprehensive, and high quality learning experiences. Caywood and Duckett (2003) presented that no significant differences in student learning between an online course and an on-campus course on behavior management. Other research reported similar findings in comparing course evaluations from an online and an on-campus methods course on learning disabilities (Beattie, Spooner, Jordan, Algozzine, & Spooner, 2002).

However, Beattie et al. (2002) cited an important caution that online teaching will not be successful if instructors use the same approaches as in a conventional course. Also, Young (1999) reported that when online courses are taught using a conventional model of face-to-face instruction, problems such as high rates of student dropout, learner dissatisfaction, and low motivation result. This is because conventional teaching methods such as lectures, class discussions, reviews of handouts, and presentations using PowerPoint slides are based on an oral teaching tradition. Perhaps, because of the student attitude; they rely heavily on an instructor and students speaking and listening to one another to provide information, clarify expectations, structure activities, give feedback, and in other ways convey meaning of course content. Online instruction, in contrast, mostly relies on asynchronous communication in which instructors must account for not having a live audience with whom they can communicate freely, gauge reactions, obtain feedback, and adjust teaching methods on an as-needed basis (Dennen, 2005).

One consistent principle that pertains to both online instruction and on-campus teaching is that the approach which an instructor uses should facilitate achievement of the objectives learners need to attain. In teacher preparation coursework, there is typically an array of instructional objectives an instructor needs to address that can include such areas as helping learners understand theoretical concepts, apply the concepts to classroom instruction, compare and evaluate concepts based on teaching situations, and synthesize several concepts into teaching lessons. However, dissimilar to conventional face-to-face instruction for which there are models and strategies for achieving such objectives, the online literature provides little information on the effectiveness of specific instructional activities in teaching areas like these. This is unfortunate because the lack of such information hinders novice online

educators from having clear guidelines and models for developing activities that can foster the learning of specific instructional objectives. According to Anderson (2002), "To facilitate observational learning, observable models and behaviors must be provided." When the learner's curiosity and interest are aroused, he or she will be engaged in imitating the model's behavior if the model possesses characteristics or traits, such as intelligence, talent, personal values, power, popularity, or good looks, that the learner finds attractive or desirable (Anderson, 2002). However, observational learning is not simply a thoughtless imitating behavior. It involves higher-order thinking as the learning process develops, and it rewards the learner when the creativity and inventions are engendered on the learner's side (Tucker-Ladd, n.d., cited in Li & Liu, 2005).

Alessi & Trollip (2001) reported that students struggle when searching for models in a technology-assisted learning environment, so they often feel uncomfortable and inefficient when switching to this new learning paradigm. Also, Li & Liu (2005) mentioned that educators are trying to improve the delivery of models to students in this circumstance. In the conventional face-to-face instruction, the traditional way of providing models for a computer literacy class is via the paper printout or demonstrating digital projects through a projector from a computer disk drive in the class. Both are often time consuming and have limitations in variation and diversity, as well as having constraints with time, location, materials and instant support. Learning through modeling is an effective approach to inspire the learner's interests and motivations and results in deeper understanding (Stauffer, 1996). Particularly in a computer literacy class, most learners usually expect better resources and facilitations. Li & Liu (2005) stated that the Online Top-Down Modeling Model (OTMM), a technology-assisted instructional model designed which had effectively used in the FED 529: Computer-Based Instructional Technology class at Alabama A&M University in the years 2003, able to alleviate the current problems and enhance learning and teaching in a traditional graduate computer literacy class.

The purpose of this study is to analyze, better understand, and explore the innovative instructional strategies for the online environment. This study will use the Online Top-Down Modeling Model in analysis of a computer literacy class, especially in the Educational Computer Languages course (CECS 5100) which Requires "hands-on" programming independent of classroom instruction, and which is taught in the College of Education at University of North Texas in the Spring' 2009 semester. The research question in this study is following; how the OTMM can improve an instructional design for an online learning?

The Online Top-Down Model

According to the Online Learning Center (2003) at the University of Houston-Victoria, effective online instruction involves translating the unique benefits of face-to-face interaction to online activities. The center encourages professors teaching online to get students to be actively involved in their learning by designing activities that promote student interactions and build a sense of community among students and faculty. Also, the Illinois Online Network (2005) cited that "effective online instruction depends on learning experiences appropriately designed and facilitated by knowledgeable educators." Obviously, the quality of online interaction with the learning resource is vital to successful teaching and learning as researchers have indicated in terms of learning in distance education classes (Milton, 1998; Muirhead, 1999; Oblinger & Rush, 1997, cited in Li & Liu, 2005). Many educational websites discuss how to use the Internet to deliver information and facilitated for distanced instruction, but few of them present how to take advantage of the Internet to create a teacher-prepared resource-rich website for traditional classroom instruction. To take advantage of the Internet, educators are trying to put learning and instructional resources online to facilitate education. For example, a Web portfolio is a way of putting students' e-portfolios online to show what students have learned (Kimball, 2003). Creativity of integrating Internet technology into the traditional classroom has been bypassed while people are highlighting the relationship between the Internet and distance education (Anderson, 2002b). Developing a curriculum web enables the teacher to put his or her instructional materials online and access them anytime they are needed (Cunningham & Billingsley, 2003).

Fullan (1994) indicates that the top-down strategy is regarded as effective in gaining attention for instructional content and has been frequently used in instructional design. Many people have used the top-down method in reading programs in order to design effective and time-saving reading classes and tutorials for elementary students (Boothe, Walter, & Waters, 1999). Li & Liu (2005) mentioned that materials designed to facilitate online learning through the transfer of the top-down modeling strategy to technology-assisted instruction offers opportunities to focus students' attention on the intended learning content and the expected outcome. Due to the

computer and Internet capabilities with multi-media programs and digital file formats, top-down modeling resources online could be more vivid, interesting, stimulating, and relevant to the students' learning tasks (Li & Liu, 2005). From mimicry and reproduction to creativity and invention, the environment of model-rich facilitation could tap the learners' potential and foster their creative minds, helping them reach an extended learning goal and become more productive learners.

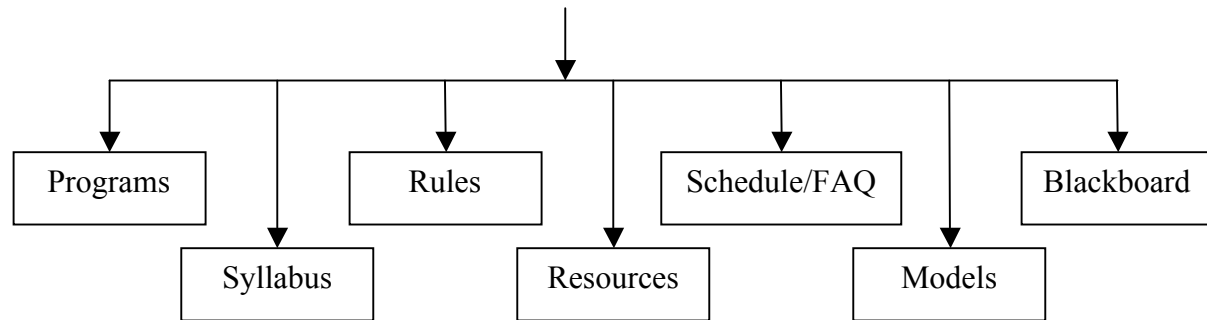


Figure 1: The Instruction Web Site Map in the OTMM (Li & Liu, 2005)

The Online Top-Down Modeling Model (OTMM) is a strategy for integrating Internet technology to provide models (samples) and facilitations for learners as a model. Thorsen (2003) cited “An instructional model is based on research that has been done on how people best learn certain kinds of information.... It is a series of steps or techniques for presenting information in a way that helps learners remember and use it” (Thorsen, 2003, cited in Li & Liu, 2005). In the study of Li & Liu (2005), the Online Top-Down Modeling Model (OTMM) refers to the use of model projects or samples online to involve learners and facilitate active participation in learning activities, and includes the hands-on tutorials and resources for projects which are provided online at the scheduled time alongside the assigned tasks. The OTMM not only gives students the whole and completed projects to spur their interest and motivation for setting goals for learning new skills, but it also shows how to break the project into small units technically to help them master each related technique and skill during the assignments, overcoming the frustration and intimidation that often arise in a computer literacy class (Li & Liu, 2005).

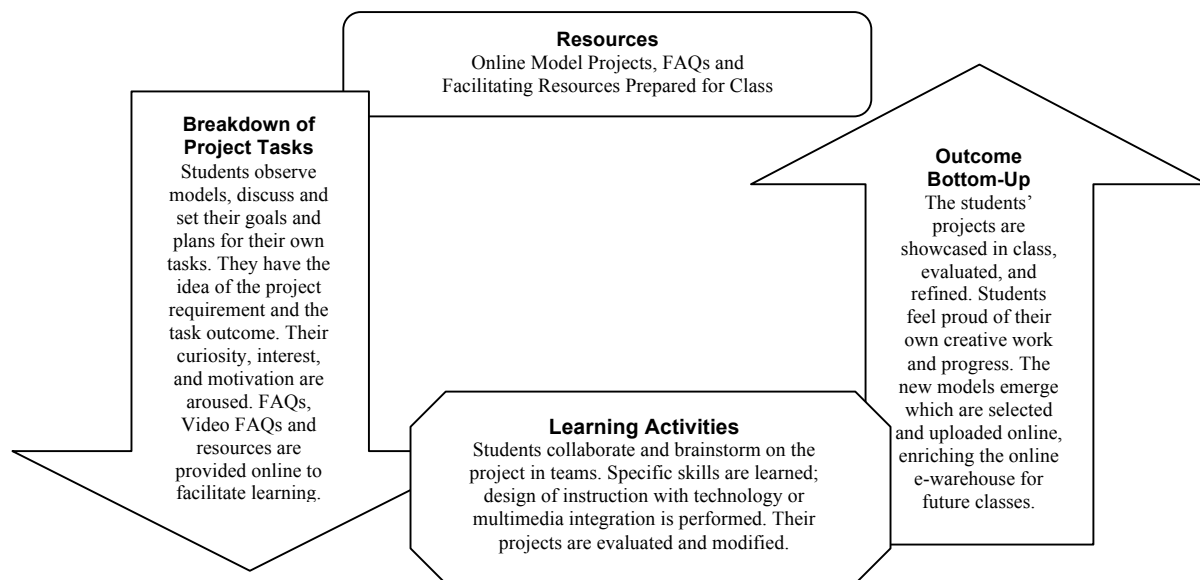


Figure 2: The Cycle of the Online Top-Down Modeling Model (Li & Liu, 2005)

Gavrin & Enger (1998) mentioned that today's classroom is typically filled with a mixture of traditional and nontraditional instruction. The OTMM, as a nontraditional approach, integrated Internet technology into a traditional computer literacy class. Traditional instruction and technology-integrated nontraditional instruction are combined. The e-learning resources were implemented as an effective supplement to classroom instruction. Li & Liu (2005) presented that the model emphasized the "TOPS and DOWNS."

The TOPS provided models and opportunities for modeling to students, letting students observe, enjoy, and think about the intended tasks and generate potential preference, questions and puzzles in their minds.

The DOWNS provided learning support on specific tasks which "broke down" the model project into small units or parts in FAQ so that the learners could better understand and learn the specific features, techniques, and skills.

The OTMM Website was designed to provide ample models, samples, and project resources for students to observe and create their own experience after the models. Through the whole process of projecting, mimicking, collaborating, and inventing on the student side, students were led to experiencing and understanding the use of an instructional Web site for their own class in public schools (Li & Liu, 2005).

Conclusion

By using the OTMM, students seemed to have entered a virtual art museum plus concert, where varieties of visually appealing digital projects were displayed, with melodious music played and videos ran. The students were captivated by the beauty of the projects. They were brought into a new world where instruction and aesthetics were woven together. Also, they were involved, immersed, motivated, and engaged (Li & Liu, 2005).

Instructional designers may use the OTMM in some computer courses, such as Educational Computer Languages with needs to be "hands-on" programming independent of classroom instruction. The confirmatory factor analysis method could be used in the process of course design. In this case, instructor might decide to track the class for one semester to do the qualitatively research to find out; how the OTMM can improve an instructional design for an online learning? The data can be collected and analyzed from the perspectives and experiences of both the teacher and the learners.

The Online Top-Down Modeling Model offered a new strategy of integrating Internet technology. The impact of the OTMM on the students' learning to integrate technology into instruction might be powerful and long-lasting. The results of this study could be helpful for instructors in order to improve or make any modifications and updates their instructional design by using the online internal resources and the quality integration of instructional technology.

References

- Alessi, S. M., & Trollip, S. R. (2001). *Multimedia for learning: Method and development*. (3rd ed.). Boston: Allyn and Bacon.
- Anderson, T. (2002). Emerging issues in distance education research and practice. Retrieved July 7, 2009, from http://crdol.athabascau.ca/brazil%20keynote_files/frame.htm
- Anderson, T., & Garrison, D. R. (1998). Learning in a networked world: New roles and responsibilities. In C. C. Gibson (Ed.), *Distance learners in higher education* (pp. 97-112). Madison, WI: Atwood.
- Beattie, J., Spooner, F., Jordan, L., Algozzine, B., & Spooner, M. (2002). Evaluating instruction in distance learning classes. *Teacher Education and Special Education*, 25, 124-132.
- Boothe, K., Walter, L. B., & Waters, G. (1999). What is a top-down reading model? Retrieved July 7, 2009, from <http://www.sil.org/lingualinks/literacy/referencematerials/glossaryofliteracyterms/WhatIsATopDownReadingModel.htm>
- Caywood, K., & Duckett, J. (2003). Online vs. on-campus learning in teacher education. *Teacher Education and Special Education*, 26, 98-105.
- Collins, B., Schuster, J., Ludlow, B., & Duff, M. (2002). Planning and delivery of online coursework in special education. *Teacher Education and Special Education*, 26, 171-186.
- Cunningham, C. A., & Billingsley, M. (2003). *Curriculum webs: A practical guide to weaving the Web into teaching and learning*. New York: Pearson.
- Dennen, V. P. (2005). From message posting to learning dialogues: Factors affecting learner participation in asynchronous discussion. *Distance Education*, 26(1), 127-148.
- Fullan, M. G. (1994). Coordinating top-down and bottom-up strategies for educational reform. Retrieved July 7, 2009, from <http://www.ed.gov/pubs/EdReformStudies/SysReforms/fullan1.html>
- Gavrin, A., & Enger, R. C. (1998, May). Just-in time teaching: Active learner pedagogy with WWW. *Paper presented at IASTED International Conference on Computers and Advanced Technology in Education*, Cancun, Mexico. Retrieved July 7, 2009, from <http://webphysics.iupui.edu/JITT/ccjitt.html>
- Illinois Online Network. 2005. Instructional strategies for online courses. *Illinois Online Network and the Board of Trustees of the University of Illinois*. Available online at <http://www.ion.uillinois.edu/resources/tutorials/pedagogy/instructionalstrategies.asp>
- Kimball, M. A. (2003). *The Web portfolio guide: Creating electronic portfolios for the Web*. New York: Longman.
- Knapczyk, D., Hew, K., Frey, T., & Wall-Marencik, W. (2005). An evaluation of web conferencing in online teacher preparation. *Teacher Education and Special Education*, 28, 114-127.
- Li, S., & Liu, D. (2005, Winter2005). The Online Top-Down Modeling Model. *Quarterly Review of Distance Education*, 6(4), 343-359. Retrieved October 7, 2008, from Academic Search Complete database.
- Online Learning Center. 2003. Instructional strategies: Elements of instructional design. *University of Houston-Victoria*. Available online at <http://www.uhv.edu/webet/faculty/design/strategies.htm>
- Stauffer, K. (1996). Student modeling and Webbased learning systems. Retrieved July 7, 2009, from <http://ccism.pc.athabascau.ca/html/students/stupage/Project/initsm.htm>
- Thorsen, C. (2003). *TechTactics: Instructional models for educational computing*. Boston: Pearson.

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University of North Texas

Purpose:

To explore the innovative instructional strategies for the online environment.

Problem:

Online instruction relies on asynchronous communication cannot facilitate achievement, lack of information & activities.

Online learners struggle when searching for models in a technology-assisted learning environment, so they feel uncomfortable and inefficient.

Solution:

Using instructional design model that can provide sample modeling, resources, and facilitations online.

“OTMM is the answer”

Strategies:

- Provide overall project models/samples
- Provide facilitations material & AV resources
- Active participation with Schedule / FAQ / Blackboard
- Arouse learners' interests and motivations

