Instructional Design Strategies for Intensive Online Courses: An Objectivist-Constructivist Blended Approach

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Abstract

Due to the time constraints of intensive online courses, instructional design strategies should be modified in order to retain the quality of learning without reducing the quantity of the course content. This paper presents how a blended approach combining objectivist and constructivist instructional strategies was used in the design of an intensive summer online course in the context of a support-based online learning environment. The implementation results revealed that students had a positive learning experience in the course and were highly satisfied with their learning outcomes.

Introduction

Online learning has become a new paradigm for teaching and learning given the capability of modern technologies and the widespread concepts of distance and life-long learning. Academic institutions are offering a variety of online courses and programs to meet the needs of students not only during regular semesters but also during short summer sessions.

Since the mid 1990s, theoretical and empirical instructional models for designing online learning environments and instruction have been proposed and tested (e.g., Duffy & Cunningham, 1996; Hannafin, Land, & Oliver, 1999; Harasim, 2003; Jonassen, 1999; Moallem, 2003; Morrison, 2003). In general, such models have been proposed for online courses conducted during regular semesters. Instructional design models and strategies for intensive online courses such as brief, concentrated summer courses have not been specified.

The lack of guiding principles for intensive online course design may reflect the perception that a summer online course is merely a condensed version of a regular semester online course, in much the same way as summer face-to-face classroom instruction often reflects the squeezing of 15-week worth of course content into a five-week time frame; if students just triple their time and effort working online then their learning experience will be the same as in a regular semester online course. However, this may be an inappropriate assumption. Due to the nature of online communication, asynchronous mode (e.g., forum discussion, e-mail) in particular, both teachers and students typically spend much more time in a course taught online than in the same course taught in a traditional classroom (Cavanaugh, 2005; Palloff & Pratt, 1999). Thus, compressing the course content and extending the study hours may not be an effective approach for teaching and learning in an intensive summer online course. Retaining the quality of instruction without sacrificing the quantity of course content is a challenge for instructional designers and instructors of intensive online courses. It calls for new design models and approaches that take into consideration the constraints of instructional time as well as the characteristics of the online learning environment.

This paper presents instructional design strategies based on an objectivist-constructivist blended approach for the design of intensive online courses within the context of a support-based online learning environment. The paper also reports the evaluation results of the course after an initial implementation.

Objectivist versus Constructivist: Applying Theory to Instructional Design Practice

Instructional Design Principles and Theories of Learning

Effective teaching begins with effective planning. Instructional design provides a systematic process for planning instructional events based on a systematic process of applying principles of learning and instruction to plans for instructional systems (Gagné & Driscoll, 1988; Gagné, Wager, Golas, & Keller, 2005). An instructional system (e.g., lesson plan) is an arrangement of resources and procedures to promote learning (Dick, Carey, & Carey, 2005; Morrison, Ross, & Kemp, 2004; Smith & Ragan, 2005). Instructional design principles are drawn from many different disciplines such as educational psychology, cognitive sciences, and systems theory (Driscoll, 2005; Seels & Richey, 1994). Thus, instructional designers and developers use principles of learning and instruction to inform their instructional design practices (Seels & Glasgow, 1998). Although the concept of instructional design was derived from behaviorist psychology, the evolution of instructional design reflecting principles of cognitive psychology, especially information processing theories, has greatly influenced the processes of instructional design. Cognitive models for instructional design emphasize learners' cognitive and affective learning processes. Learners are assumed to use their memory and thought processes to generate strategies as well as store and manipulate mental representation of images and ideas. Instructional theorists such as Gagné (1984) argue that a well-designed instructional process facilitates learners' internal cognitive structures at the time of learning and increases the likelihood of successful learning. From this cognitive perspective, when designing instruction, instructional designers must articulate the goals and objectives of instruction, classify goals by the domains and types of learning outcomes, select effective strategies based on the type of learning outcome, logically sequence instructional activities, and assess expected learning outcomes (or goals) to determine the effectiveness of instruction. When implementing instruction, teachers should inform learners about the goals and objectives, assess learning prerequisites, present instructional stimuli, provide learning guidance, elicit performance, provide feedback, and assess learning outcomes (Gagné, 1985). This commonly used process is an objectivist, teacher-centered approach to instructional design and practice. Many instructional design models have been developed based on this approach.

However, over the past two decades, instructional design principles and practices have shifted from objectivism to constructivism (Bonk & Cunningham, 1998; Cooney, 1998; Jonassen, 1992; Tam, 2000; Vrasidas, 2000). Constructivism postulates that "knowledge is individually constructed and socially re-constructed by learners based on their interpretations of experiences in the world" (Jonassen, 1999, p. 217), reflecting the perspective that knowledge should be generated by learners, learned in a "real world" context through collaboration and social negotiation. This meaning-making process is referred as "meaningful learning."

Constructivist instructional design principles involve embedding learning in complex real world problems, providing a rich and flexible learning environment with goals and objectives set by the learner, emphasizing continuous assessment that is embedded in the instruction, facilitating multiple perspectives and social negotiation as integral parts of learning, and

encouraging ownership in learning by actively engaging in the process of knowledge construction. Such prescriptive instructional guidelines, known as "the constructivist approach," are more frequently being used by instructional designers. Table 1, created by the author, summarizes and compares the main features of objectivist and constructivist learning and instruction discussed in the above literature review. These variations call for different instructional design approaches.

Table 1: *Comparison of objectivist and constructivist learning and instruction*

Objectivist	Constructivist
Teacher controls learning process	Student controls learning process
Instructional strategies are well-defined and selected based on the domain and type of learning goals/objectives	Learning is embedded in complex, problem-based real-world tasks
Learning environment is structured and sequenced properly	Learning environment is open and flexible
Goals and objectives are set by the designer or teacher	Goals and objectives are set by the learner
Assessment is aligned with the goals and objectives and conducted at the end of instruction	Assessment is continuous and embedded in learning tasks
Cognitive process of knowledge acquisition is emphasized	Multiple perspective and social negotiation is emphasized

Applying Instructional Design Principles in Online Courses

An increasing number of online course instructors seem interested in adopting constructivist approaches for the design and delivery of online courses. Modern technology provides multiple accessible forms of communication tools making this pedagogical change both possible and appealing. However, in a constructivist learning environment, to successfully promote active and meaningful learning, the instructor has to commit a significant amount of time and energy to develop complex, problem-based learning tasks; arrange an open and resource-rich learning environment; provide ample opportunities for social interactions; form and norm groups; offer a cognitive scaffold, continuously monitor and coach performance; and encourage collaboration and interaction to gain multiple perspectives. Students engaged in constructivist learning also have to spend a substantial amount of time and effort on their learning experience and on managing logistical tasks, such as coordinating with other group members. Compared with typical objectivist-based instruction, constructivist-based teaching and learning require more time and effort from both the instructor and the students (Cavanaugh, 2005*;* Hughes, Wickersham, Ryan-Jones, & Smith, 2002; Rajandran, 2003).

All these efforts to conduct a constructivist-based online course can be effectively managed during the regular semester. Students have more time to collaborate with their peers to construct knowledge through problem-solving tasks. Implementing this approach in an intensive summer online course, however, presents a significant challenge for an instructor due to the time constraints. If time is an essential factor affecting the successful completion of a constructivist-based intensive online course, a blended approach combining the strengths of constructivist and objectivist methods of teaching and learning could be used for the design of the course; thus, meaningful learning may still be achieved despite the intensive and abbreviated time frame.

A Blended Approach for Intensive Online Courses

Conceptual Framework for Designing a Support-based Online Learning Environment

As with any online learning environment, conceptually, an intensive online course environment consists of four components: 1) technology, 2) course content, 3) people (i.e., instructor, students, guest experts), and centered by 4) goals/learning tasks. Figure 1 depicts the author's conceptual framework for the design of a support-based online learning environment to house an intensive online course.

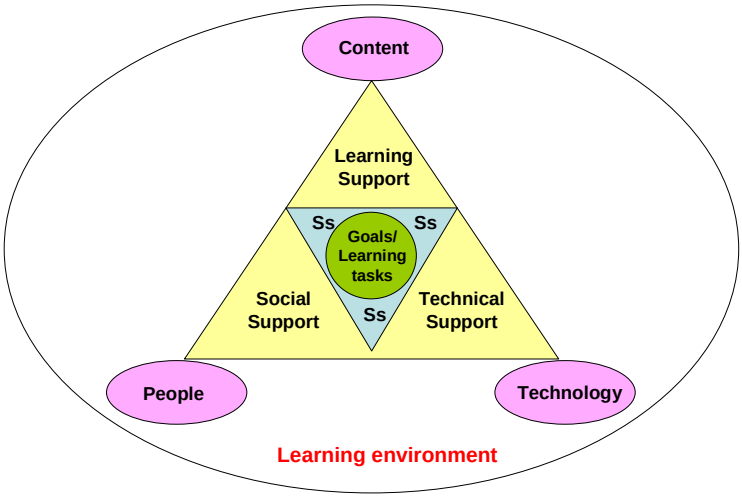

Figure 1. Support-based Online Learning Environment

Students (abbreviated as "Ss") construct knowledge by interacting with people and course content through the use of technology to complete learning tasks and achieve learning goals. To optimize learning outcomes, given the limited time frame, each component must be sustained by a specific support system–technical support for technology, learning support for course content, and social support for people. The need for each support system in this structure is critical due to the constraints of time and the complexity of constructivist learning tasks that require extensive learning time and effort. To yield meaningful and efficient learning (i.e., learning /per unit of time), a blended approach combining objectivist and constructivist instructional strategies was used to design the learning tasks and each support system.

Learning Task. Learning tasks must be designed to facilitate the achievement of learning goals and should be the focal point of the course design. Jonassen, Howland, Moore, and Marra (2003) indicate that providing the learners with meaningful and consequential tasks can help form and foster learning communities (p.72) and improve learning attitude and motivation. In other words, the nature and complexity of a learning task has a direct influence on group process and performance (Gladstein, 1984; Goodman, 1986). Although problem-based, ill-structured learning tasks, advocated by constructivists, carry the potential to promote higher-level thinking and interpersonal and teamwork skills, they demand more time for learning and community

activities such as collaboration and interaction. Thus, it is difficult to implement such problem-based tasks in an intensive course. Assigning students fairly well-structured and clearly-defined consequential learning tasks, while providing opportunity for collaborative knowledge construction and peer interaction, is more suitable for intensive online courses as they require less time for learning and community activities. The nature and structure of the learning task should then define the level and type of supports that are needed to achieve learning goals.

Technology and Technical Support. Online learning requires a certain level of technological knowledge and skill. Inadequate technological skill and technical difficulties not only can result in anxiety, frustration, confusion, and disorganization for the student but also can impede the communication and interaction process, thus hindering group collaboration (Ge, Yamashiro, & Lee, 2000; Ragoonaden & Bordelrau, 2000). The impact of technology problems is more serious and urgent in an intensive than a regular semester online course because the short time-span of the intensive course leaves little room for technical problem-solving and skill development. Thus, providing an easily accessed, user-friendly technical support system to efficiently develop students' competence and comfort with technology is essential for an intensive online course. The support system for technology should be designed to facilitate the completion of learning tasks.

Content and Learning Support. Providing learning support structures, known as scaffolding, during the learning process will help task engagement and goal achievement. Scaffolding, to succeed, must be designed based on the nature of the learning task. According to Briggs (1999), aligning scaffolds with learning task and assignment design ensures consistency and structure in course design. The design decision about the timing, level, form, and amount of learning support to be provided in the course should be directed by the learning task and goal. Given the time-limit of an intensive online course, a highly structured learning support system is more suitable for complex learning task in order to bring about an effective and efficient learning.

People and Social Support. Constructivists view learning as a social process through the interaction with more capable others using language (Vygostsky, 1978). Providing social support will assist not only in learning but also in meeting psycho-emotional needs of the learners. To facilitate meaningful learning, a learning community must be formed within an environment in which community members trust each other and feel comfortable in sharing knowledge, feelings, experiences, and values. However, social activities demand a significant amount of time of both instructor and students which is not available by an intensive course; thus a social support system must be deliberately designed so that it yields efficient learning through harmonious collaboration and interaction.

The scaffolds for community activities must be aligned with the nature of the learning task and must take into account the time required by the social activities. In addition, the support of the instructor in monitoring and guiding the group process is critical and must be carefully structured and implemented.

The Course and Design Specifications

About the Course

The course being redesigned was a three-credit 100% online course for graduate education majors regarding the integration of technology in the K-12 curriculum. The course was originally offered as a 15-week regular semester online course by a university in the north-central region of the United States. However, to meet the demand for the course, it was redesigned using the blended approach described above to fit into a five-week summer session schedule which was then offered in both short summer sessions in addition to the regular semester offering. The course was housed in an online course management system (CMS) developed by the university.

Design Specifications

A mix of objectivist and constructivist instructional design strategies were adopted for the design of the learning task and each of the three support systems.

Learning Task. The course redesign was based on the same learning goals as those in the regular semester course. To facilitate meaningful and consequential learning emphasized by the goals, this course assigned the students a problem-based capstone learning task with a real world context. The learning task was designed to provide opportunities for collaboration and social interaction during learning and reflection after learning. To scaffold the complexity of the capstone task and define its structure, objectivist approach was used to break the capstone task into several subtasks and provide a set of clear and detailed guidance for each subtask to direct group interactions for completing the problem/task.

The culminating task required the students (K-12 pre- and in-service teachers) to develop a course plan integrating technology into teaching and learning. In order to accomplish this task, students had to know how to devise and use an instrument to search and evaluate the quality of web resources to be used in the course as well as locate and comply with the state technology standards and instructional design principles. The culminating task was thus broken down into subtasks such as creating a website evaluation instrument, evaluating web resources for instruction, and developing a web-enhanced lesson plan. Each subtask is designed as a unit. A project was assigned for each unit.

Technology Support. To efficiently develop students' competence and comfort with technology and to provide efficient technical assistance, the following strategies were used for the design of the technical support system:

- Providing easily-accessed, user-friendly, and focused technology resources such as job aid, FAQ, helpdesk contact information, and technical support page in the course website–These resources were identified as critical to the completion of the learning task with regard to the use of technology tools. For instance, the "how-to" job aid provided a step-by-step, to-the-point, action-based instruction for each required technology tool by the course.
- Creating a community technical assistance center - A discussion topic entitled "S.O.S." was created in the forum area for community members to ask, give, and receive help when encountering a technology difficulty. This just-in-time, peer-to-peer mutual assistance saved time on waiting for the assistance from the helpdesk.

The S.O.S. technical assistance center also enhanced the sense and feeling of belonging to the community.

- Providing efficient technical training - During the course orientation, students are required to complete a technical background survey, technical training session, and short virtual tour of the course environment. The survey result revealed information for providing individualized technical support when needed. This increased students' comfort level with technology and learning efficiency. The technical training session focused only on the communication and production tools required by the course. This just-in-time focused training efficiently provided the students with needed technical skills for completing the learning tasks. The short virtual tour served as a cognitive map to familiarize the students with the organization of the course website and the CMS learning environment so that students could efficiently locate the resources for technical and learning support.

Learning Support. To achieve meaningful and efficient learning, the following strategies were employed for the design of the learning support system:

- Increasing the level, frequency, and amount of scaffolding in instructional materials and procedures to assist in learning engagement and task completion. Some example of using this strategy to design learning activities and materials are as follows:
  - Creating rich, easily accessed, well-structured resources such as course calendar, best examples, FAQ, Internet resources, online library, and online experts. These resources directly responded to the information needed for effective and efficient learning and task completion. For example, a well-structured course calendar was created indicating the topic for each unit, the starting and ending dates for each learning activity, and deadline for each assignment. This helped students organize their time and study plan.
  - Requiring students to read the information about prerequisites and expectation of the course in the syllabus and e-mail the instructor their expectations. This helped promote effective learning by connecting students' existing cognitive structure with the new content information and helped the instructor tailor the assistance to meet the students' expectations.
  - Constant monitoring and assessing students' learning process by reviewing forum and chat room discussions and e-mail messages to provide just-in-time assistance. For instance, if students seemed to have difficulty locating specific resources to explore ideas or were spending too much time arguing an issue, the instructor would intervene to speed up the group process for completing the task by providing suggestion or guidance for a focused discussion.
- Aligning the design of task engagement, learning activities and assessment to bring about seamless learning experience. For example, a detailed assignment specification for each project was provided which included objectives statements of the unit, guidance for completing an assignment, submission procedure and due date, and grading criteria. Students were also required to write a reflection paper at the completion of the course to self-evaluate their own learning experiences.
- Embedding independent and interdependent learning in assignments to enable efficient and meaningful learning. For example, assigning group-supported independent projects were assigned so that each student could complete the projects at his/her own time and pace while still collaborating with other group members for

improving the learning products. This design saved the time spent on coordinating group members' schedules and waiting for their share of work.

To complete a group-supported independent project, group members were required to use forum and/or chat room messaging to brainstorm and contribute ideas for building a framework for the project. Each student then worked on his/her own individual project based on the group-generated framework. In addition to the instructor's review, students were required to review and comment on other members' draft projects in the same team to help improve the quality of the work and to learn from each other before the final submission of the project. The completion of group-supported independent projects required collaboration and social interaction with group members through the use of technology. The social support strategies used for facilitating the task accomplishment are explained in the following social support section.

Social Support. To support collaboration and interaction among members of the community, the following strategies were adopted for the design of a social support system:

- Forming heterogeneous groups - The learning community was organized by project groups assigned by the instructor, each consisting of three to four students with heterogeneous backgrounds (gender, geographic location, racial) to help develop multiple perspectives.
- Fostering trust and comfort working in the community - Students were introduced to the information regarding the value of collaboration, how to work with others using appropriate netiquette during orientation. They then had to apply the netiquette to post a self-introduction message to a designated social forum, respond to their peers' postings, and upload their digital photo to their student profile page. These activities helped develop a sense of community and initiated the social presence and interaction of the class members as a community.
- Offering emotional support - The social forum was available throughout the course for social dialogue.
- Ensuring accountability - A set of grading criteria articulating the performance expectation was devised and announced to guide and ensure students' participation and contribution during group process.
- Enhancing effective peer review - A rubric with clear grading criteria for each project was developed and provided to the students to guide their critique of team member's work as well as their own work.
- Promoting dynamic interaction - Using both instructor and peer review processes to improve the quality of students' work. The learning community remained active and supportive due to continuous student-content, student-student, and student-instructor interactions.

Summative Evaluation of the Course

To assess the effects of the course design using the blended approach, a summative evaluation was conducted. Two general questions were developed to guide the data gathering and to make sense of the results: What were students' feelings, attitudes and opinions about their learning experiences of this course? How did the course design impact students' learning? The following data were collected to answer the above questions:

- Students' anonymous responses to the online course evaluation administered by the university at the completion of the course.

- Students' final reflections on their learning experiences.

The anonymous online course evaluation contained 38 questions using a five-point rating scale (with 4 being strongly agree, 1 being strongly disagree, and 0 for not applicable) and seven open-ended items to survey students' feelings, attitudes and opinions about their learning experiences of this course. The open-ended items asked the students to list the most and least valuable aspects of the course, most and least liked learning activities, and overall learning experience of the course. All items included in the course evaluation were selected from the item bank provided by the university. All 11 students enrolled in the course completed the course evaluation (100% return rate).

A descriptive data analysis procedure was conducted to analyze students' responses to the rating items which were collapsed and classified into five categories (see Table 2) to address students' feelings, attitudes and opinions about their learning experiences in this course. Students' narrative responses to the open-ended items were analyzed qualitatively using content analysis. Content analysis procedures were also applied to students' final reflections to evaluate the impact of the course design on students' learning.

Results

What were students' feelings, attitudes and opinions about their learning experiences of this course?

Table 2 reports the descriptive statistics of students' ratings in the course evaluation. The results showed that the students were highly satisfied with the quality, content, and design of the course; instructional methods used by the instructor; and experiences of learning and team collaboration. Students also valued these experiences as personal and professional growth.

Table 2: *Results of Students' Feelings, Attitudes and Opinions about Course Learning*

Item category	Mean	SD
Outstanding quality of the course	3.60	.07
Positive learning experiences including group-supported activities	3.87	.06
Effective design of learning tasks, activities and instruction	3.68	.26
Effective instructional methods used by the instructor	3.73	.06
Satisfactory learning outcome in terms of personal and professional development	3.60	.13

Students' narrative responses to the open-ended items were organized into categories of most and least valuable aspects of the course, most and least liked learning activities, and overall learning experience of the course. Under each category, students' responses were classified and ranked based on the percentage of observations; one-hundred percent means eleven out of eleven students indicated that response.

The content analysis results indicated that, in general, students thought the authentic hands-on projects (100%), instructor's feedback (82%), and user-friendly technology (73%) were the most valuable aspects of the course. Nothing related to the course design was indicated under least valuable aspects of the course. Below are some sample excerpts:

"Kinesthetic experience with technology and Internet projects."

"The instructor was very helpful in holding us to where she wanted us to be!"

> "The simple use of the computer and the Internet to accomplish what was needed for this class."

The class activities that the students liked the most were: working on class projects (100%); working with their groups to support and assist each other (91%); interacting with diverse students (82%); and communicating with each other through online discussion and chat (64%). The following are some sample excerpts:

> "I liked learning the process for designing Internet lesson."
> "I enjoyed working with a wide variety of students from different regions within the USA and even different countries."
> "I enjoyed the online chat with my group members."
> "I liked how groups were set up to help each other and that groups could arrange their own meeting time to do online chat discussions that suited EVERYONE'S needs."

One "least liked activity" was indicated by two students: the procedures of accessing the course announcements and upload/download the files required by the course management system (CMS). During the troubleshooting, the cause of the technical problems was determined to be related to students' prior experience using different CMS for online courses offered by a different institution. Therefore, students' prior experience with other CMS and technology systems should be addressed in the technology competence survey during the orientation.

In sum, students' overall learning experience with this course was very positive across the class. They enjoyed (91%) the learning experiences and felt their learning was positive (100%) and fruitful (100%); they learned a lot within the short period of time without feeling the time pressure or being rushed throughout the course. The support of the learning community might have contributed to the favorable outcome.

> "My learning experience was wonderful…"
> "I learned something each lesson and did not feel my time was wasted."
> "I learned a great deal about evaluating Web sites."
> "I enjoyed the course work and the development of new items and plans."

How did the course design impact students' learning?

The content analysis of students' reflections on their learning experiences yielded parallel but more in-depth findings to those of the course evaluation. To understand the link between the course design and students' learning, the content analysis results are reported in alignment with instructional design components of the course.

Learning Task. All students (100%) indicated that the course projects were practical and applicable, especially the culminating final project. It was a valuable, practical, and fruitful learning experience. They enjoyed the learning process and were satisfied with the outcomes of learning and planned to implement the knowledge and skills learned in this course.

> "I enjoyed doing the final project even though it was a lot of work, and I look forward to creating future projects on my own."
> "I look forward to putting what I learned about Internet projects, evaluations, Web sites, into practice."

"I not only was introduced to a variety of learning activities but was also forced to use them in the projects. I am a better teacher for that."

Technology and Technical Support. Generally, students not only felt more confident and comfortable in using technology to perform and complete the learning requirements but also changed their views of technology and Internet applications in education.

"… I was concerned about my technical skill. The user friendly design of the course made me feel comfortable about learning technology with technology. Now I have a new found appreciation for using the Internet as a tool for learning. I look forward to taking more classes through the Internet."

"I am a novice at using this teaching tool so this class opened my eyes to all the possibilities. I feel like my technological skills are so much more up to speed than I was before I took the course."

Content and Learning Support. Ten of eleven students expressed that the course content was practical and informative. The instructional materials and course website was resourceful, well-organized, and easily accessed. The instructor provided helpful feedback contributing to learning improvement.

"User friendly, easy/universal access, and a well organized site with rich information are the exceptional components of the online offerings."

"Instructor provided significant feedback, which in correlation improved my assignments and promoted learning."

Learning Community and Social Support. Students enjoyed the diversity of the class and the support they gave to the group members and received from both the instructor and classmates, especially the peer critique of the assignments. Students also noted that group collaboration and interaction were beneficial not only to their learning but also to their personal experience.

"I really liked the collaboration and team learning parts of the course. I thought it was very helpful to have people with different backgrounds and points of view to give feedback on the individual projects. They thought of some aspects that I might not have on my own and vice versa."

"…Thanks to all who helped me refine my thinking and thoughts on the projects… It is fun when you can find people with thoughts that are as in common as your own."

"I truly enjoyed all the diversity of the classmates and what each person brought to the class."

However, while the majority of the class enjoyed the learning community, one student indicated that the press of time and his personal schedule made collaborative work difficult.

Discussion and Conclusion

While the summative evaluation demonstrated the positive results of using a blended approach to design an intensive online course, some practical implications can be drawn from the evaluation results and from the process of designing and implementing this course.

Providing a resourceful and supportive learning environment has a significant impact on students' learning success. The proposed model shown in Figure 1, which systematically

integrates the essential components involved in online learning, seems to contribute to satisfactory learning according to the evaluation results. Practitioners may consider adopting such a model to guide the design of a support-based online learning environment.

When encountering a short-term online course pressed by limited instructional time, the objectivist-constructivist blended design approach may be employed because constructivist instructional design has the strength to result in meaningful learning whereas objectivist instructional design has the advantage to produce efficient learning. The design of group-supported independent projects is an example of applying the blened approach. The evaluation results have evidenced the effects of this approach.

Although scaffolding is focal point of the design for all three support systems, it is essential for learning support system. Due to the time constraints, tighter and more frequent scaffolds should be provided to achieve efficient learning.

An intensive online course provides little room for trial and error, which can lead to frustration; thus, instructor's close and continuous monitoring and assessing students' performance during the learning process and providing immediate feedback (or scaffolding) has a direct impact on the success of students' learning. It is critical that online instructors acquire the knowledge and technique of scaffolding so that they know when to provide what scaffolds and how.

Course orientation plays a critical role in an intensive online course. When students are well and efficiently prepared for learning in the course during their orientation, teaching and learning will be facilitated. Thus, the course orientation must be deliberatly designed to ensure that students are familiar with the learning environment (e.g., the available resources and tools) and peer learners and acquired the technology, learning, and social skills needed for learning and communication.

The study results reported in this paper reflect graduate course design. Empirical studies implementing this approach in different subject areas and with different learner groups are needed to validate the effects of the proposed instructional design method.

References

Bonk, C. J., & Cunningham, D. J. (1998). Searching for learner-centered, constructivist, and socio-cultural components of collaborative learning tools. In C. J. Bonk & K. S. King (Eds.), *Electronic collaborators: Learner-center technologies for literacy, apprenticeship, and discourse*. Mahwah, NJ. Lawrence Erlbaum Associates, Inc.

Briggs, J. (1999). *Teaching for quality learning at university.* Oxford: Society for Research into Higher Education and Open University Press.

Cavanaugh, J. (2005). Teaching online - A time comparison. *Online Journal of Distance Learning Administration*, *8*(1), 2005. Retrieved January 14, 2006, from http://www.westga.edu/~distance/ojdla/spring81/cavanaugh81.htm

Cooney, D. H. (1998). Sharing aspects within aspects: Real-time collaboration in the high school English classroom. In C. J. Bonk & K. S. King (Eds.), *Electronic collaborators: Learner-center technologies for literacy, apprenticeship, and discourse*. Mahwah, NJ. Lawrence Erlbaum Associates, Inc.

Dick, W., Carey, L., & Carey, J. O. (2005). *The systematic design of instruction* (6th ed.). New York: Allyn and Bacon.

Driscoll, M. P. (2005). *Psychology of learning for instruction* (3rd ed.). Boston, MA: Allyn & Bacon.

Duffy, T. M., & Cunningham, D. J. (1996). Constructivism: Implications for the design and delivery of instruction. In D. H. Jonassen (Ed.), *Handbook of Research for Educational Communications and Technology* (pp. 170-198). New York: Simon & Shuster Macmillan.

Gagné, R. M. (1984). Learning outcomes and their effects: Useful categories of human performance. *American Psychologist, 39*(4), 377-385.

Gagné, R. M. (1985). *The Conditions of Learning and Theory of Instruction* (4th ed). New York: Holt, Rinehart and Winston.

Gagné, R. M., & Driscoll, M. P. (1988). *Essentials of learning for instruction* (2nd ed.). Englewood cliffs, NJ: Prentice-Hall.

Gagné, R. M., Wager, W. W., Golas, K. C., & Keller, J. M. (2005). *Principles of instructional design* (5th ed.). Belmont, CA: Wadsworth/Thomson Learning.

Ge, X., Yamashiro, K., & Lee, J. (2000). Pre-class planning to scaffold students for online collaborative learning activities. *Educational Technology and Society*, *3*(3), 1-16.

Gladstein, D. (1984). A model of task group effectiveness. *Administrative Science Quarterly*, *29*, 499-517.

Goodman, P. S. (1986). Impact of task and technology on group performance. In P. S. Goodman (Ed.), Designing effective work groups (pp. 120-167). San Francisco, CA: Jossey-Bass.

Hannafin, M., Land, S., & Oliver, K. (1999). *Open learning environments: Foundations, methods, and models*. In C. Reigeluth (ed.), Instructional design theories and models: A new paradigm of instructional theory (Vol. 2, pp. 115-142). New Jersey: Lawrence Erlbaum Associates.

Harasim, L. (2003). What makes online learning communities successful? In C. Vrasidas & G. V. Glass (Eds.), *Distance education and distributed learning* (pp. 181-200). Greenwich, CT: Information Age Publishing.

Hughes, S., Wickersham, L., Ryan-Jones, D., & Smith, S. (2002). Overcoming social and psychological barriers to effective on-line collaboration. *Educational Technology & Society, 5*(1), 86-92.

Jonassen, D. H. (1992). Objectivism versus constructivism: Do we need a new philosophical paradigm? *Educational Technology Research and Development*, *39*(3), 5-14.

Jonassen, D. H. (1999). Designing constructivist learning environments. In C. Reigeluth (Ed.) *Instructional design theories and models: A new paradigm of instructional theory* (Vol. 2, pp. 215-239), New Jersey: Lawrence Erlbaum Associates.

Jonassen, D. H., Howland, J. L., Moore, J. L., & Marra, R. M. (2003). *Learning to solve problems with technology: A constructive perspective* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Moallem, M. (2003). An interactive online course: A collaborative design model. *Educational Technology Research and Development, 51*(4), 85–103.

Morrison, D. (2003). Using activity theory to design constructivist online learning environments for higher order thinking: A retrospective analysis. *Canadian Journal of Learning and Technology*, *29*(3). Retrieved August 31, 2005, from http://www.cjlt.ca/content/vol29.3/cjlt29-3_art2.html

Morrison, G., Ross, S., & Kemp, J. (2004). *Designing effective instruction.* (4th ed.). Indianapolis, IN: Wiley & Sons.

Palloff, R., & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco: Jossey-Bass.

Palloff, R., & Pratt, K (2001). *Lessons from the cyberspace classroom: The reality of online teaching*. San Francisco, CA: Jossey-Bass.

Ragoonaden, K., & Bordelrau, P. (2000). Collaborative learning via the Internet. *Educational Technology and Society, 3*(3), 1-16.

Rajandran, V. (2003). A study investigating the impact of web-enhanced learning on student motivation. *CDTL Brief*, *6*(9), 2005. Retrieved September 14, 2005, from http://www.cdtl.nus.edu.sg/brief/V6n9/sec3.htm

Seels, B., & Glasgow, Z. (1998). *Making Instructional design decisions* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Seels, B. B., & Richey, R. C. (1994). *Instructional technology: The definitions and domains of the field*. Washington, D.C.: Association for Educational Communications and Technology.

Smith, P., & Ragan, T. (2005). *Instructional design*. (3rd ed.). San Francisco, CA: Jossey-Bass.

Tam, M. (2000). Constructivism, instructional design, and technology: Implications for transforming distance learning. *Educational Technology & Society*, *3*(2). Retrieved January 16, 2006, from http://ifets.ieee.org/periodical/vol_2_2000/tam.html

Vrasidas, C. (2000). Constructivism versus objectivism: Implications for interaction, course design, and evaluation in distance education. *International Journal of Educational Telecommunication*, *6*(4), 339-361.

Vygostsky, L. S. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.

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