

The Digital Media ZONE: A Model for Online Digital Media Instruction

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Abstract: "The Digital Media ZONE" is a supportive physical and virtual environment for students enrolled in digital media and web development courses taught online by faculty of the School of Information Science & Learning Technologies at the University of Missouri. The ZONE uses practices rooted in the theories of situated learning and cognitive apprenticeship and in scaffolding the learning of users in an authentic and meaningful task. ZONE Mentors are used to help facilitate a cooperative learning community through the integration of physical learning, virtual learning (Sakai course management system), and collaborative communication technologies (chat, discussion board, instant messenger, and phone). In implementing this model, there is increased flexibility, interaction, and engagement in the online learning experience for both instructors and students.

Introduction

The School of Information Science and Learning Technologies (SISLT) at the University of Missouri offers more than thirty-five online courses for students who are enrolled in graduate programs, especially in Education Technology, Technology in School, and Library Science. Currently, there are over four hundred students from different places taking SISLT online courses. Despite the success of online graduate programs in term of high enrollments, SISLT instructors and students often experienced difficulties in teaching and learning effectively in the virtual classroom. Although online learning allows the flexibility in term of time and location, unresolved limitations can become frustrating. In asynchronous learning environments, delayed response times is a common frustration. While students might wait hours to days for an answer, an instructor may feel overloaded in answering these questions, in addition to correcting wrong guidance students may give each other. Feelings of isolation and a lack of community are also common in online learning.

The Digital Media ZONE was established in 2003 to address the limitation of online courses by creating physical and virtual support for online students as well as the instructors. The Digital Media ZONE was created to support learning for students enrolled in digital media and web development courses taught online by SISLT faculties. It is staffed by doctoral students who work as ZONE Mentors to assist students in the learning process by answering students' questions via discussion boards, e-mail, instant-messaging, telephone, and in-person consultations (Digital Media ZONE, 2008).

Classes offered through the Digital Media ZONE use meaningful and authentic projects in which students can practice their skills, share their knowledge, and share/observe one another's work. In this manner, situated learning among students is facilitated. In this paper, we describe a model for online instruction of various digital media and web development courses in a manner that facilitates student learning.

Theoretical Framework

Just imagine: would you prefer to learn how to ride a bike by practicing riding a bike with some assistance and support from ZONE Mentors who know how to ride a bike, or by sitting in the classroom and listening to a lecture from the instructor about the instruction how to ride a bike? With this question in mind, we are going to use

two theoretical frameworks as scaffold in our mentoring within the Digital Media ZONE model. Unlike classroom activities that mostly involve knowledge, which is abstract, Lave and Wenger (1991) argued that learning is situated; it normally occurs within the activity, context, and culture. Because of this, knowledge needs to be presented in authentic contexts, settings, and situations. Social interaction is a critical component in situated learning – students become involved in a "community of practice", which incorporates the behavior and knowledge to be acquired. As the beginner moves from the periphery of this community to the center, he or she becomes more actively engaged within the culture; over time the beginner evolves to take on the role of an expert. Thus, situated learning is usually unintentional rather than on purpose. These ideas are what Lave and Wenger (1991) call the process of "legitimate peripheral participation."

Furthermore, Brown, Collins & Duguid (1989) emphasized the idea of cognitive apprenticeship, a teaching method primarily aimed to teach the process that experts use to handle complex tasks. The focus of this teaching method is through guided experience in cognitive and metacognitive skills. Often the expert describes the thought processes used to problem-solve in a particular situation while the beginner applies the techniques when engaged in the authentic task. In other words, the beginner will learn by doing while guided by the expert. For example, cognitive apprenticeship can be applied to students who learn digital media and web development skills, which we believe is the best method for engaging in hands-on activities. Students build an apprenticeship relationship with ZONE Mentors on the course projects and engage one-on-one in learning and problem-solving, facilitated by ZONE Mentors. Initially, ZONE Mentors will scaffold and assist students' attempts at learning, and then incrementally the Mentors will retreat and leave students to solve the problems by themselves.

Model

Both a Physical and Virtual Presence

The Digital Media ZONE has both a physical and virtual presence. The ZONE and its mentors are housed within a technology-rich education library. The ZONE is staffed by doctoral students from the School of Information Science & Learning Technologies department who have skills and experience in digital media and web development. While an instructor may only be available for certain office hours, ZONE Mentors are staffed within the ZONE during most weekday business hours. A few days of the week, the hours extend into the evening which allow those not available during business hours to have access to guidance and support. While the physical presence obviously caters to those nearby, the virtual presence of the ZONE is nondiscriminatory in regard to location, and it maintains a strong virtual presence through instant message, videoconferencing, email, and most importantly, the discussion boards within the ZONE courses (Digital Media ZONE, 2008). It is this combination of frequency, duration, quality, and quantity of ZONE staffing that enhances both student and instructor flexibility and interaction in the online learning experience.

Anderson in "Toward a Theory of Online Learning" (2004) describes the role of interaction through various educational media in online learning. Frustrations of delayed responses are not rare in a predominantly asynchronous learning environment. It is this lack of interaction which often puts a damper on more independent and flexible media choices, whereas more interactive media choices constrict the individual's flexibility to do it at their own time and place.

Figure 1 shows Anderson's model of educational media (p. 44) in relation to its (1) independence in time and location, and (2) level of interactivity. The model illustrates how a face-to-face interaction (such as an appointment between instructor and student) is highly interactive, yet is severely restrictive in regards to independence of time and distance (flexibility). However, correspondence, such as email or asynchronous learning environment, is typically very independent of time and distance (highly flexible), yet the interaction level is low. Figure 2 shows the influence of ZONE and ZONE Mentors on the interaction and independence of time and distance with the grey arrow. The educational media used most by the ZONE is displayed. By adding the presence of the Zone Mentors, this dramatically increases the independence of time and location factor as well as interaction level of all media uses for both students and instructors alike. This is mainly due to the full-day staffing hours of ZONE Mentors in addition to the number of ZONE Mentors available at any one time for answers, feedback, and support. Thus, it slightly increases the level of interaction (available for more numerous and in-depth support) and greatly increases the independence of time and distance for both the students and instructors (ability to obtain support at a variety of times, frequent feedback and support).

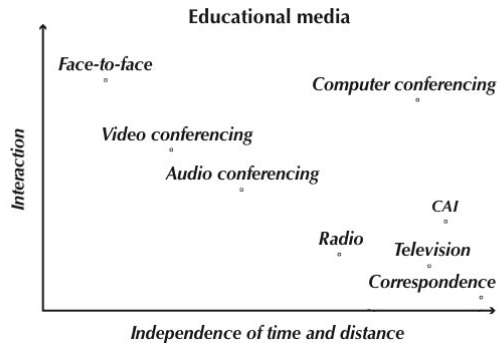


Figure 1: Anderson's model of educational media (2004, p. 44)

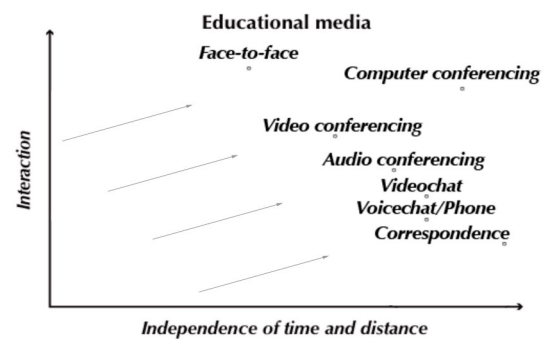


Figure 2: ZONE influence on individual flexibility and interaction level

Authentic and Situated

Although situational learning cannot be forced, it can be designed for and facilitated. Thus, the Digital Media ZONE courses are designed so that they are authentic and meaningful to the learner; it is therefore the learner's role to take that assignment and apply it in a meaningful manner.

Rather than directly teaching the content, students are provided with the needed resources to complete their projects; these projects are designed with authenticity in mind. Students are given a rubric for each project and shown what skills must be demonstrated in their project; the content is not dictated. It is therefore up to the individual to decide on how to demonstrate their learning through their project. It is through this way of guiding students through tasks that they mold to become authentic to their own situations, context, and cultures that situated learning is fostered.

In addition, the ZONE utilizes the asynchronous discussion boards as the primary tool for conveying knowledge and facilitating a community of support, sharing, and supportive and corrective feedback. It allows those students who may feel more comfortable on the periphery to observe and, over time, move in to the center to become an expert along with their peers.

For example, a web development assignment may be to create an HTML page demonstrating proper coding and aesthetic design. While a working teacher may choose to use this assignment as a starting page for her class home page, a full-time graduate student might choose to start a page for what is to become his graduate portfolio. In this manner, projects become more meaningful and authentic to the students.

Mentoring for Independence

Mentoring is a large component employed in Digital Media ZONE courses. As stated earlier, content is not directly taught; rather, learning is facilitated through a mentoring process, often through the use of cognitive apprenticeship. This communication can be done textually (email, discussion board or chat), verbally (phone, voicechat or podcast), or visually (face to face, videochat or video podcast). While traditional apprenticeship involved teaching how to perform a certain physical skill, cognitive apprenticeship involves teaching how to think in a certain area through various modeling, coaching, and thinking strategies.

A main benefit of cognitive apprenticeship is the enhanced opportunities to convey tacit knowledge. Whereas conveying traditional information includes the concrete and observable, cognitive apprenticeship, in attempting to convey how one thinks when performing certain skills, allows an opportunity to convey tacit knowledge (Dennen & Burner, 2008). Tacit knowledge becomes even more important in practices where knowledge comes with practice and experience. The use of cognitive apprenticeship when mentoring would be vital to success in approaching how to think about a topic, event, and/or problem.

Collins et al. (1989) outlines the basic model of cognitive apprenticeship as having following 5 strategies regarding the mentor:

- Modeling: Demonstrating the thinking process
- Coaching: Assisting and supporting student cognitive activities as needed (includes scaffolding)
- Reflection: Self-analysis and assessment
- Articulation: Verbalizing the results of reflection
- Exploration: Formation and testing of one's own hypothesis

ZONE Mentors exercise cognitive apprenticeship to assist students in increasing their knowledge and skills, both explicit and tacit, in a project that is meaningful and situated. For example, the student who is creating a web page for their future portfolio has difficulty with the web page displaying correctly. Rather than simply tell the student what code is incorrect, the ZONE Mentor demonstrates the thinking process of troubleshooting, something which is usually gained through experience and is often tacit. The student then follows the example by thinking about and performing troubleshooting and is therefore able to find the errors in his code. Over time, the students are able to be more independent in their learning, and over time may also evolve to become a mentor to their peers.

Facilitating Cooperative Learning

Benefits of Cooperative Learning

As Garrison and his colleagues mentioned in community inquiry model, “socio-emotional interaction and support are important and sometimes essential in realizing meaningful and worthwhile educational outcomes” (Garrison, Anderson, & Archer, 2000, p. 95). Since the early 1970s, many studies have supported the superiority of cooperative learning in tasks requiring problem solving skills (e.g. Johnson and Johnson, 1974; Johnson, Maruyama, Johnson, Nelson and Skon, 1981; Sharan, 1980). To summarize its benefits, cooperative learning provides students with a giving and receiving help structure (King, 1997), a zone of proximal development area (Vygotsky, 1978) or cognitive conflict situations (Piaget, 1926), and a chance to elaborate thoughts (Webb, 1989). In this vein, Digital Media ZONE courses often contain cooperative or collaborative team project and discussion activities.

While cooperative learning tends to produce better outcomes, students struggled with managing group works and communicating with other peers (Kwon & Liu, under review). To guide students to be ready for the cooperation, ZONE Mentors encourage them to introduce themselves and to set group rules up in the early phase. This guidance is very helpful to those students who have little experience in online cooperative learning because in many cases, the failure of communication produced misunderstanding and resulted in disappointment among peers (Salmon, 2002).

Cooperation through Discussion

Within Sakai, the discussion boards and announcements are the main source for discussing course content with the students. Students are given resources in which they utilize in order to complete their projects. As attempts are made to complete various projects, students are encouraged to display and share their work with others on the discussion board. ZONE Mentors provide feedback, and in doing so, model for other students how to provide clear and helpful feedback to their peers.

A participation requirement is often helpful to initially encourage students to help others; students increasingly participate throughout the semester by sharing their own work with others, asking questions, and providing corrective and supportive feedback to their peers. Often the modeling of cognitive apprenticeship used by the ZONE Mentors are taken on by the students who take on the role of mentor to their peers as they move to the center of the community.

Peer Grading

Some ZONE courses have adopted a peer grading system which considers theoretical and practical values. First, it gives students an opportunity to review others' products and evaluate them. Topping (1999) argued that “Reciprocal same-ability peer assessment, between partners who are equally but differently competent, seems to fit better into the Piagetian model of cognitive conflict.” (p. 254). The argument implies the possibility of the benefits

of giving and receiving peer evaluation in terms of cognitive conflict and adjustment. Students need to provide persuasive criticism and justify their position when they provide feedback. In addition they learn how to negotiate and accept peers' comments and as a result can improve their work (Marcoulides & Simkin, 1991).

Second, the peer grading system reduces the instructor's work load. It does not mean that the instructor does not need to grade students' work, but they are able to monitor the grading process and manage the validity of grades rather than focus on scoring students' work. ZONE Mentors can spend an extensive amount of time assisting the instructor in the grading of students work, yet there is limited time for extensive and in-depth feedback, whereas the amount of feedback from multiple peers is commonly extensive and detailed (see Topping, 1999).

Of course, there are pitfalls to overcome in the peer grading system. To guarantee the quality of the peer grades, an instructor provides a rubric describing the criteria and scale of the grading. By using the rubric, students practice evaluating and learning what is important and how to improve their product. When students do not agree with their peer's grade, they are able to appeal to the instructor to grade again. Then, students will receive a grade from the instructor. These supporting components make the peer grading system more reliable and valid.

Summary

This paper described The Digital Media ZONE as a model for online digital media instruction. Through staffing of ZONE Mentors, this provides instructors and students with greater support, increased interaction, and greatly increased flexibility when seeking support either asynchronously or in real-time. The theoretical framework of situated learning and cognitive apprenticeship guides the instructional strategies implemented in the ZONE, allowing students to learn by doing in a meaningful and authentic context while supported by a community both through observation and participation. Cooperative learning occurs naturally through the asynchronous discussion board as well as in more structured ways of collaborative assignments. We see this as a model not only for online digital media instruction, but also for other entirely online content area instruction that may also benefit from this model.

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