

A Case Study: E-Learning Strategies for Diverse Middle School Students

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Abstract: The emerging significance of e-learning in higher education and the workplace compels educational professionals and policy makers to provide preparatory e-learning experiences for primary and secondary students. Instructional designers must consider how students learn, cultural background and developmental considerations in constructing effective experiences. This paper will present a case study documenting how the course management system, Moodle, facilitates a culturally dynamic learning environment for diverse middle school students. It will demonstrate how integrating Moodle into the classroom engages students, thus, enabling them to incorporate e-learning into both cognitive and metacognitive processes.

Introduction

“As we move toward the 21st century, anyone who is not “computer literate” will find themselves at a disadvantage when competing in the job market.” (Johnson, Gatling, Hill, 1997)

Educators seek to prepare students to become self-sufficient, contributing and participatory members of our American and global society. Teachers live for the success of their students. Their goal is to prepare children to take their place as active members of society. E-learning and the technological tools that are required in the workplace are the new currency in the 21st century global marketplace.

Philosophical Perspective

Scholars, parents, educators and citizens of our global society the world over have supported this view in one way or another. One of the ways teachers of culturally diverse learners can address the needs of their students is to consider the ways in which their students process information. What is the learning style of your students (Fleming, Bonwell, 1998)? Teachers may need to develop sensitivity to the learning styles of all of the learners in their classroom environment.

Students today come from a variety of cultural backgrounds and educational experiences outside of the traditional classroom. How do students construct meaning from prior knowledge and new experiences? By integrating online learning tools and technology, instructors are able to facilitate this process. This case study examines Moodle, a culturally dynamic online course management system as it is implemented with diverse middle school students. The design and development of Moodle is guided by a particular philosophy of learning, a way of thinking that has been described as social constructionist pedagogy. The four major underpinnings of this philosophy are:

- People actively construct new knowledge interacting with their environment
- Learning is especially effective when individuals construct something for others to experience
- Collaborative creation of shared artifacts with shared meaning facilitates understanding
- Understanding the motivations for individuals behavior with discussions across an objective-subjective continuum

How do we engage the student in the class who has a particular ability or multiple intelligence that may not be revealed in a paper and pencil test (Gardner, 1983)? In the test sensitive society we live in now, teachers are held accountable for the test results of their students. Test results however do not always mean learning has taken place. Educators, as a rule, accept this premise.

When students are in the learning environment the process or manner in which they take in information differs for each individual. The question of how individual students learn must be considered.

- Learning style affects student information intake.
- Multiple intelligences broaden students understanding of what constitutes “smartness.”
- Culture forms the basis of the students belief and confidence in themselves.
- Teachers who communicate an awareness and appreciation of their students’ culture and ability have fewer classroom management issues.

Demographic Analysis

This paper will examine a diverse American middle school class modeled as a culturally dynamic learning environment (Stevens, Gatling, Murdock, 2004). The class is located in the suburban village of Amityville on Long Island twenty miles east of New York City. Amityville School District is identified by the New York State Education Department as a low-performing school district in need of improvement. The students’ socioeconomic status can be described as lower middle or working class as evidenced by 46.3% being eligible for free or reduced lunch. The North Amityville community in which the students in this study reside is 68.7% Black/African American, 13.8% White/Non-Hispanic, 13.5% Latino/Hispanic, 0.5% Asian /Indian, and 13% multiracial/other. 18% of the residents are foreign born

This case study includes 41 sixth grade students divided into two sections with two teachers providing interdisciplinary instruction. The students range in age from 10-13 years of age, with 61% male and 39% female. The ethnic composition is 53.7% Black/African American, 46.3% Latino/Hispanic and 0% White/Caucasian. The Black/African Americans students represent Caribbean and southern United States heritage. The Latino/Hispanic students originate from Guatemala, El Salvador, Colombia and the Dominican Republic and they all speak English as a Second Language. Fourteen percent (14%) of the students receive supplementary English Language Learner classes and 5% of the students receive special education services. Approximately one-third of students have computer and internet access at home.

Moodle-Specific Instructional Strategies

This paper will demonstrate how *Moodle* engages students, improves performance, facilitates cooperative learning, peer tutoring, and enhances the quality of teaching-learning interactions.

Moodle is an online course management system. The use of Moodle in the classroom presupposes high teacher expectations for all students. In terms of cognition and metacognition, the online learning environment provides robust activities that promote higher order thinking skills, collaborative projects, persuasive and reflective speech, etc. within a middle school classroom. This case study will document cognitive and metacognitive outcomes that result from implementing Moodle specific strategies in a culturally dynamic learning environment, namely:

- Classroom Management/Self-discipline
- Self Knowledge
- Effective Practice
- Authentic Assessment
- Lifelong Learning

Instructional Overview

Moodle was introduced to sixth graders in September, as school began. Students were given passwords, and their pictures were taken to be used within the online classroom. Initially the students were unsure of themselves within this new environment. They had not had computers in their previous classroom, or gone regularly to the computer

lab. The classes in sixth grade are departmentally designed. Teachers are assigned two sections of English Language Arts, two sections of Social Studies, one reading class and one math lab class. Teachers see their homeroom students for reading and math lab.

Classroom Management/Self-discipline

Classroom management is simplified using Moodle. Because students are engaged in activity from the first moment of class, there is little room for poor behavior or problems. Assignments for the day are posted online. If group collaboration is the day's activity, students can break up into their group or work with a peer on a task.

Social constructionism is evidenced by the way in which the group tasks are administered. The students develop ongoing knowledge bases through interactions with each other. "Using the social constructionist model the social constructivist assumes all knowledge is social in nature." (Gavelek, 1986, Smagorinski, 1995, Vgotsky, 1978 and Wertsch, McName, McLare & Budwig, 1980)

"Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own "rules" and "mental models," which we use to make sense of our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences." (Funderstanding, 2004)

Students using Moodle develop throughout the year self-discipline in being responsible for doing their work and keeping up with their assignments and projects. The students in the sixth grade class at E. W. Miles Middle School commented in the online Moodle journal:

*"I use moodle for when ever I need help or information on a project or an assignment. So if I forget an assignmen,. it is like an online teacher that is always there for my needs. The other thing I like about it is only Mrs. Gatling's classes are allowed on it. There are a lot of things on what we are doing in class and what are we going to be doing or learning in the future. We type letters, we do PowerPoint's and we learn new things about the computer. There are pictures on moodle because if you don't understand the reading you can study the pictures. It makes you focus on one thing and that thing is your computer. I have a computer at home I use it everyday to get the homework. The discussion part is like an interview, because the teacher has to check it. I like the privacy of moodle. The log in system could be improved. There are a lot of tests that I have to study for. Moodle helps me because if don't copy it down I don't have to worry ." **Darryl***

I use moodle so i can find information about we got to do, and do my essays. No other classes are using moodle. On our classroom moodle sites has online essay and questions. I do online essays and questions. There are pictures on moodle the pictures that are on it are pictures of kids. These computers do make me do better because I don't have to write I can type faster. I don't have a computer at home.

*The discussing part of moodle is answering questions and replying back to the person you want to write back. I don't have a computer at home so I go to the library to get internet access. If you dicuss something in moodle people can see what you wrote and they can replied back to you. I haven't answer someone on moodle. I can get a picture from moodle and put in my power point. I did that with my project on Egypt." **Ronald***

Self-Knowledge

In the first weeks of school students were given an online learning styles inventory and a multiple intelligences test. Both of these instruments were used to begin a class discussion on how the way in which learners take in and process information affects their classroom performance. Knowing yourself and appreciating how students learn in a variety of ways made for an interesting and robust discussion.

Initially, students were surprised to hear of the visual, aural, read and write and kinesthetic ways of taking in information. As we discussed the questions asked on the VARK learning styles inventory, they realized their ways of interacting with information fit the questions posed. When asked as a group if when putting together a toy or computer when it was delivered to the home, they started putting the item together without reading the directions,

hands shot into the air. Kinesthetic was a word unfamiliar to the sixth graders but readily adopted when they learned of its meaning.

“My primary learning styles are Reading/writing .I thought it was great because reading is my favorite subject. My Multiple Intelligence are Music Smart and Rhythm Smart. I haven’t demonstrated my multiple intelligence in the past. I was a little bit surprised at first for my results.” Victor

“I learned about my self that I have a multi-modal learning style and I learn by read and write and by hearing and doing it myself and by visual. I think that learning that way is the perfect way to learn. My multiple intelligence is musical. I have demonstrated multiple intelligences in the past” Teanna

“Learning occurs in a context of social interactions leading to understanding. Learners are active risk takers who accept challenges and understand how and why to learn. They are given opportunities to restructure information in ways that make sense to them. Learners connect with their previously known information. They generate questions and comments as information becomes internalized. Learners first experience active problem-solving activities with others, but gradually they become independent problem solvers”. (Roehler and Cantlon,1996)

As the sixth graders muddled this year, their increasing awareness of themselves as learners was easily observed.. They worked on determining their individual learning styles and their multiple intelligences. Multiple intelligences is the way in which learners express their brilliance. In his 1983 book, *Frames of Mind*, Howard Gardner asserts that intelligence consists of seven parts, and that we all have different strengths and weaknesses among our seven parts.

“I use moodle by typing in my password or I go there to work on projects. Nobody else at the middle school uses moodle. The thing that is on my classroom moodle site is projects and typing. The kinds of things we do on Moodle is projects and type letters and we also do our learning styles”. Sancho

“I learned that when I try my best I could do everything right. My primary learning styles is reading and writing. I think they were nice. My multiple intelligences are people smart and self smart. My scores surprised me.” Brenda.

Students need to feel that their contribution in the classroom is valued. They need to see that their work on a project, test or worksheet is important, and counts in the overall assessment of themselves as students. They learn to use an individual’s learning style as a collaborative project management strategy that has real world applications. When students work in a group, they appreciate that Jacqueline is a really good artist, that Darryl knows how to find information on the internet, that Kevin can best explain the group project to the class and that Sancho can type the finished report quickly and accurately

“It is nice to work with a group to do a project on the UNITED STATES map. I don’t think that we contributed equally, because we all do different work in the group. We had a little difficulty because we all want to do the same thing and then we won’t finish the map project. I learned that some people just want to do the easy work. I think that I would work with the group again because we all work quickly and we all will agree to work together again.” Victor

“Working with my group was great and I had lots of fun. But I didn't work as hard as everyone in my group because I always had something else to do like classwork that I missed because I work too slow. We didn't have any trouble working together with each other we work together perfectly fine. I have learned talents that people in my group have. I learned that Donovan is a good cutter, Sancho can color, draw, and trace good. Victor also can color very good.” Ian

“Working on my group project was bad. It wasn't bad but the people I was working with was. None of the people I was working did all of the work. I drew the whole map shape because they couldn't see it. No I didn't have any problems except that one problem. I didn't learn about anybody's talent. I might work with Cheneava only because she is my friend and she gets her work done and don't play around.” Sommer

They understand who the Visual, Aural, Read and Write and Kinesthetic persons are in their project group. They play to those strengths when self-selecting people to work with on a project. They comment to the teacher in the journal reflection how they evaluate the peer collaboration on the project. They begin to learn about their most positive abilities and those of their classmates.


Effective Practice

All of the class assignments, projects, class discussions, instructions, journal work, lesson plans, objectives and assessments are in the online Moodle classroom. As a management tool, Moodle allows teachers to add online resources and materials to their classes easily.

If teachers are working on a unit like Ancient Egypt, students can access the website resources included in the days lesson. They may work together as they visit the British Museum in a scavenger hunt. They may work together to research pictures and materials for their diorama project. They may use the website resources to import pictures into their peer PowerPoint on an aspect of the Egyptian civilization. They may write in their journals their findings on the days activities. They may even listen to a song, Nights Over Egypt, and write a reflection online of what the song meant in the context of Ancient Egypt. Then, in the discussion thread about the listening activity, students can respond to their peers opinions and thoughts about the music they heard.

"I would like to live in an ancient civilization because there is so much history to learn. It would help me with our new unit in social studies." **Darryl**

They can also write a question for their teacher to respond to in the discussion thread. They may take a quiz, add vocabulary terms to our classroom glossary or add emoticons to their threaded discussion responses.

"I wouldn't like to live in an ancient civilization because there wouldn't be any electricity and it would be too hot. Now in modern day I probably would like to visit Rome or Greece because those places are interesting." **Andry**


Authentic Assessment: Definition

"Simply testing an isolated skill or a retained fact does not effectively measure a student's capabilities. To accurately evaluate what a person has learned, an assessment method must examine his or her collective abilities. This is what is meant by authentic assessment. Authentic assessment presents students with real-world challenges that require them to apply their relevant skills and knowledge. " (Funderstanding, 2004)

In the sixth grade classroom in Amityville, students worked on a variety of performance tasks in English and Social Studies. Their individual work was compiled in several theme-based portfolios covering specific units of study in both classes.

"Since children learn much through interaction, curricula should be designed to emphasize interaction between learners and learning tasks." (Vgotsky ,1978)

Performance Task 3- Ancient Life Portfolio

As an archaeologist it is your job to combine both the Diorama Project and the PowerPoint Presentation into *one combined portfolio*. Pictures of your diorama, along with the Ancient Egypt PowerPoint are to be placed in a colorful folder with the following contents: Letter to the Reader, Table of Contents, Scavenger Hunt of Mesopotamia, Scavenger Hunt of Egypt, LI Science Trip Essay, Ancient Egypt Mini Book, Ancient Egypt PowerPoint, Pictures of your diorama , Reflections of each item in the Portfolio, Learning List, Bio of Work Log, Self Assessment and Rubric.

Lifelong Learning

It is hoped that students will ultimately become learners throughout their lives. The thirst for knowledge is an individual pursuit. Wanting to know why, just because you want to know is satisfying to the individual. Students continue to bring to the classroom little bits of knowledge that excite them and encourage them to

want to learn more about a subject. The recent advent and popularity of television channels like the Discovery Channel or National Geographic and Animal Planet encourage exploration in our nations children. Similarly, online classrooms like Moodle, encourage children to think critically and develop new real world skills. It is the aim of education to have its citizens become literate, thinking people. Moodling in an online classroom perpetuates critical thinking, peer collaboration, daily writing practice and reflective evaluation of concepts learned.

Conclusion

In today's global workplace, technological skills are the currencies that run governments and corporations. E-learning is the vehicle that workers will have to learn to use in order to advance successfully in school and in the job market. Providing primary and secondary school students with a repertoire of e-learning experiences will contribute to the growth and success of our global society.

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