An Official Publication of the United States Distance Learning Association

Volume 8 Number 4 2011

# DISTANCE LEARNING

## ... For Educators, Trainers, and Leaders

### *ARTICLES*



### *COLUMNS*



USDLA United States Distance Learning Association

in partnership with:

NSU Fischler School of Education and Human Services

IAP INFORMATION AGE PUBLISHING

# DISTANCE LEARNING

## *Featured Articles*



## *Columns and Commentary*

**EDITOR**
Michael Simonson
simsmich@nsu.nova.edu

**MANAGING EDITOR**
Charles Schlosser
cschloss@nsu.nova.edu

**ASSISTANT EDITOR**
Anymir Orellana
orellana@nsu.nova.edu

**EDITORIAL ASSISTANT**
Khitam Azaiza
azaiza@nova.edu

**COPY EDITOR**
Margaret Crawford
mec@netins.net

**ASSOCIATION EDITOR**
John G. Flores
jflores@usdla.org

**PUBLISHER**
Information Age Publishing
1600 North Community House Road, Ste. 250
Charlotte, NC 28277
(704) 752-9125
(704) 752-9113 Fax
www.infoagepub.com

**ADVERTISING**
United States Distance Learning Association
8 Winter Street, Suite 508
Boston MA 02108
800-275-5162 x11

**EDITORIAL OFFICES**
Fischler School of Education and Human Services
Nova Southeastern University
1750 NE 167th St.
North Miami Beach, FL 33162
954-262-8563
FAX 954-262-3905
simsmich@nova.edu

**PURPOSE**
*Distance Learning*, an official publication of the United States Distance Learning Association (USDLA), is sponsored by the USDLA, by the Fischler School of Education and Human Services at Nova Southeastern University, and by Information Age Publishing. Distance Learning is published four times a year for leaders, practitioners, and decision makers in the fields of distance learning, e-learning, telecommunications, and related areas. It is a professional magazine with information for those who provide instruction to all types of learners, of all ages, using telecommunications technologies of all types. Articles are written by practitioners for practitioners with the intent of providing usable information and ideas for readers. Articles are accepted from authors with interesting and important information about the effective practice of distance teaching and learning.

**SPONSORS**
***The United States Distance Learning (USDLA)*** is the professional organization for those involved in distance teaching and learning. USDLA is committed to being the leading distance learning association in the United States. USDLA serves the needs of the distance learning community by providing advocacy, information, networking and opportunity.
www.usdla.org

***The Fischler School of Education and Human Services (FSEHS)*** of Nova Southeastern University is dedicated to the enhancement and continuing support of teachers, administrators, trainers and others working in related helping professions throughout the world. The school fulfills its commitment to the advancement of education by serving as a resource for practitioners and by supporting them in their professional self development. The school offers alternative delivery systems that are adaptable to practitioners' work schedules and locations. School programs anticipate and reflect the needs of practitioners to become more effective in their current positions, to fill emerging roles in the education and related fields, and to be prepared to accept changing responsibilities within their own organizations.
FSEHS—NSU
1750 NE 167th St.
North Miami Beach, FL 33162
800-986-3223
www.schoolofed.nova.edu

**INFORMATION AGE PUBLISHING**
11600 North Community House Road, Ste. 250
Charlotte, NC 28277
(704) 752-9125
(704) 752-9113 Fax
www.infoagepub.com

**SUBSCRIPTIONS**
Members of the United States Distance Learning Association receive *Distance Learning* as part of their membership. Others may subscribe to *Distance Learning*.
Individual Subscription: $60
Institutional Subscription: $150
Student Subscription: $40

***DISTANCE LEARNING* RESOURCE INFORMATION:**
Visit http://www.usdla.org/html/resources/dlmag/index.htm
Advertising Rates and Information:
800-275-5162, x11
Subscription Information:
Contact USDLA at
800-275-5162
info@usdla.org

***DISTANCE LEARNING***
is indexed by the DE Hub Database of Distance Education.

**DISTANCE LEARNING MAGAZINE**
**SPONSORED BY THE U.S. DISTANCE LEARNING ASSOCIATION**
**FISCHLER SCHOOL OF EDUCATION, NOVA SOUTHEASTERN UNIVERSITY**
**AND INFORMATION AGE PUBLISHING**

## MANUSCRIPT PREPARATION GUIDELINES

*Distance Learning* is for leaders, practitioners, and decision makers in the fields of distance learning, e-learning, telecommunications, and related areas. It is a professional journal with applicable information for those involved in providing instruction of all kinds to learners of all ages using telecommunications technologies of all types. Articles are written by practitioners for practitioners with the intent of providing usable information and ideas. Articles are accepted from authors with interesting and important information about the effective practice of distance teaching and learning. No page costs are charged authors, nor are stipends paid. Two copies of the issue with the author's article will be provided. Reprints will also be available.

1. Your manuscript should be written in Microsoft Word. Save it as a .doc file and also as a .rtf file. Send both versions on a CD.

2. *Single* space the entire manuscript. Use 12 point Times New Roman (TNR) font.

3. Laser print your paper.

4. Margins: 1" on all sides.

5. Do not use any page numbers, or embedded commands. Documents that have embedded commands, including headers and footers, will be returned to the author.

6. Include a cover sheet with the paper's title and with the names, affiliations and addresses, telephone, and e-mail for all authors.

7. Submit the paper on a CD that is clearly marked. The name of the manuscript file should reference the author. In addition, submit two paper copies. A high resolution .jpg photograph of each author is required. Send the CD and paper copies to: Michael R. Simonson

Editor
Distance Learning
Instructional Technology and
Distance Education
Nova Southeastern University
Fischler School of Education and
Human Services
1750 NE 167th Street
North Miami Beach, FL 33162
simsmich@nova.edu
(954) 262-8563

### The Manuscript

To ensure uniformity of the printed proceedings, authors should follow these guidelines when preparing manuscripts for submission. DO NOT EMBED INFORMATION. YOUR PAPER WILL BE RETURNED IF IT CONTAINS EMBEDDED COMMANDS OR UNUSUAL FORMATTING INFORMATION.

*Word Processor Format*

Manuscripts should be written in Microsoft Word.

*Length*

The maximum length of the body of the paper should be about 3000 words.

*Layout*

Top and bottom margins: 1.0"
Left and right margins: 1.0"

*Text*

Regular text: 12 point TNR, left justified

Paper title: 14 point TNR, centered

Author listing: 12 point TNR, centered

Section headings: 12 point TNR, centered

Section sub-heading: 12 point TNR, left justified

Do not type section headings or titles in all-caps, only capitalize the first letter in each word. All type should be single-spaced. Allow one line of space before and after each heading. Indent, 0.5", the first sentence of each paragraph.

*Figures and Tables*

Figures and tables should fit width 6½" and be incorporated into the document.

*Page Numbering*

Do not include or refer to any page numbers in your manuscript.

*Graphics*

We encourage you to use visuals—pictures, graphics, and charts—to help explain your article. Graphics images (.jpg) should be included at the end of your paper.

# In Upcoming Issues

| | |
|---|---|
| **Who's Who in Distance Education: Authentication and Academic Integrity** | *Francine Adams* |
| **Implementation of a Mandatory Online Course Evaluation for Data-Driven Quality Initiatives** | *Leigha J. Jansen* |
| **Internal and External Indicators of Virtual Learning Success: A Guide to Success in K-12 Virtual Learning** | *Michelle Lee and Raquel Figueroa* |
| **Virtual Art Education: Is it Possible?** | *Mahizer Hamzah and Adnan Abd Aziz* |
| **Using Multimedia in Lab-based Online Classes** | *Lawrence Todd Meadors* |
| **Moodle: A District Solution to Online Learning** | *Sarah Truelson* |

# Extending Face-to-Face Learning Through Cloud Tools

**Cindy Burfield**

## Introduction

The National Education Technology Plan (NETP) emphasizes the unprecedented opportunities for connected learning powered by technology. The plan outlines the need for twenty-first century competencies such as critical thinking, complex problem solving, collaboration, and multimedia communication to be woven into all content areas (Department of Education Office of Educational Technology, 2010). The NETP acknowledges current teaching practices as occurring in isolation and describes teacher professional development opportunities as "short, fragmented, and episodic workshops that offer little opportunity to integrate learning into practice" (Department of Education Office of Educational Technology, p. 55). In contrast, NETP offers the notion that "effective teaching in the twenty-first century requires innovation, problem solving, creativity, continuous improvement, research, diagnostic use of data, and flexible and personalized approaches to meeting students' diverse needs and strengths" (Department of Education Office of Educational Technology, p. 55). The NETP calls for

> Educators [to be] connected to their students and to professional content, resources, and systems that empower them to create, manage, and assess engaging and relevant learning experiences for students both in and outside school. They [must be] connected to resources and expertise that improve their own instructional practices and that guide them in becoming facilitators and collaborators in their students' increasingly self-directed learning. (Department of Education Office of Educational Technology, 2010, p. 56)

The Partnership for 21st Century Skills (P21), a national organization that advocates infusion of twenty-first century skills into education, developed a framework for twenty-first century learning. That frame-

Cindy Burfield,
MEd, NBCT, Broward County Public Schools,
11500 Westview Drive,
Coral Springs, FL 33076.
Telephone: (754) 322-6300.
E-mail: Cindy.Burfield@browardschools.com

work describes student outcomes in terms of the skills, knowledge, expertise, and the literacies required to enter today's workforce. Student outcomes include: core subjects and twenty-first century themes; learning and innovation skills; information, media, and technology skills; and life and career skills (Larson & Miller, 2009).

Similarly, the International Society for Technology in Education (Gordon, 2011) recognized that in an increasingly digital world, students need skills in the following areas: creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.

Unfortunately, little is provided in the area of support and technology tools for teachers, especially with continued budget cuts. Installing the latest software on classroom computers can be prohibitive for schools due to limited funding. Teachers are being asked to do more with less and are held more accountable than ever. With a sea of improvement between the "what is" and "what should be," and with dwindling resources, there are solutions that schools and teachers can implement now to begin the transformation to twenty-first century teaching and learning. The solutions begin with leveraging the potential of cloud computing.

## What is Cloud Computing?

Cloud computing is an important transition and a paradigm shift in information technology services-delivery—one that promises large gains in efficiency and flexibility (Intel, 2010). In telecommunications, "a cloud is the unpredictable part of the network through which organizational and personal information passes from end-to-end and over which we do not have direct knowledge or control" (Katzan, 2010, p. 37). Cloud computing uses the Internet and remote servers to maintain data and applications. The essence of cloud computing is service. The highest level of cloud computing service is known as software as a service (UNESCO, 2010). With software as a service, both data and applications are stored in the cloud and applications are accessible through a thin client interface such as a web browser (Katzan, 2010).

Several key characteristics distinguish cloud computing from Web 2.0 applications (UNESCO, 2010). Cloud services are delivered via the Internet from remote data centers or server "farms." These farms often located near sources of cheap electricity with the latest in cooling systems and service optimization techniques which individual educational institutions are unlikely to be able to afford. Cloud computing offers efficiency through centralized storage, memory, processing, and bandwidth, which are shared between multiple customers and can be allocated dynamically depending on demand (Siegle, 2010). Another feature of cloud computing is its "infinite" scalability or rapid elasticity, allowing for the sudden peaks in demand without the need to purchase additional hardware.

## Advantages of Cloud Computing

There are five major advantages of cloud computing (Holschuh & Caverly, 2010). First, with cloud computing, multiple copies of software applications do not need to be installed on various computers throughout the school. The software applications are available through the Internet, and therefore all that is needed is a computer or mobile device with an Internet connection. Second, documents created in cloud applications are usually saved on the software provider's server and therefore can be accessed by other computers from any location. Third, in most cases, the creator of a document has the option to share access with other users with the potential

for several users to work simultaneously on the same document. This eliminates the need for multiple versions of the same document with the current version of a document saved as the latest version. In most cases, users have the option to retrieve previous versions (Siegle, 2010). Fourth, cloud computing is cost effective with many of the applications provided at no cost and others paid for on a subscription basis. Fifth, because applications and the data are stored on the web, they can be accessed with smaller and less expensive devices than ever before.

## Cloud Computing and Twenty-First Century Skills

Partnership for 21st Century Skills emphasizes the need for schools to fuse the traditional three R's with the four C's—critical thinking, communication, collaboration, and creativity, while also making room for problem solving and innovation (Gordon, 2011). These soft skills have been considered for some time, however they need to be taught differently if students are to be successful. Students need to be taught how to communicate electronically, including the nuances and etiquette of distance interactions. Opportunities for distance learning and collaboration as an extension to face-to-face learning can add an additional dimension to learning in support of twenty-first century skills as well as provide greater depth in learning. Software available in the cloud include a variety of productivity tools that foster creativity, collaboration, communication, presentation, and planning skills, engage students in the learning process, and provide a platform for experiences that transcend classroom walls.

## Twenty-First Century Learning With Cloud Tools

### Google Apps for Education

Google Apps for Education has districts nationwide moving to the cloud (Barack, 2010). Google Apps provides powerful communication, collaboration, and productivity tools that can be accessed from any browser. Google Apps is designed around open industry standards and Application Programming Interface that are compatible with a variety of educational technology platforms (Google.com) such as the commercial course management system, Blackboard, and the open source course management system, Moodle. The following are some examples of cloud-based software, and their applications to twenty-first century learning, many of which can be found in the Google Apps Marketplace for Education (www.google.com/appsmarketplace/edu).

### Creating a Digital Footprint

Digital natives are online. The best way to reach them is to go to where they are—on the net. Google Sites, part of the Google Apps suite, is a cloud application that allows teachers to create free websites and wikis that can motivate students and extend face-to-face learning. The Sites provide a virtual environment for students to visit and connect with content anywhere and anytime. In addition, the sites may provide scaffolds for struggling learners in the form of tutorials, utilizing free cloud-based software such as Screencast-O-Matic, in which students can view teacher-made video reinforcements and extensions of classroom activities. They can provide a platform of rich opportunities for deep learning that begin with digital tools and activities that support differentiated and constructivist models of learning. The following are some more examples of these tools.

### Planning Tools

When teachers experience, for themselves, the powerful learning that can occur using technology tools in collaboration with colleagues, they are more prepared to facilitate collaborative

environments in their classrooms and from distance. Mind Meister is a cloud-based collaborative mind mapping software for brainstorming and project management. It is a powerful tool that teachers can use for planning and mapping the curriculum, especially when working together to develop plans for teaching Standards through technology to engage students in the learning process. When teachers experience the process of developing plans to incorporate technology to facilitate twenty-first century skills, they will develop an appreciation of the learning process, as well as a familiarity with how to use the technology tools, so that they are comfortable utilizing the tools with students.

Once teachers are familiar with software tools, such as Mind Meister, the potential for extending learning and integrating content in support of authentic learning tasks is unlimited.

### Presentation Tools

The process involved in creating captivating presentations involves a slew of twenty-first century skills, especially when the presentations are created collaboratively. SlideRocket (lite version) is a free dynamic and easy to use, Cloud-based presentation software that provides powerful collaboration and tracking tools. Because SlideRocket is in the cloud, presentations can be accessed from any device regardless of platform. This lends itself to blended learning models in which students work collaboratively to create projects after the school day has ended. Slide Rocket offers a number of features such as the ability to embed video, track users, and create discussions within the presentation. Teachers and students can create collaborative presentations for a variety of authentic purposes. SlideRocket supports twenty-first century learning and teachers can utilize this cloud software to support project-based collaborative learning in a blended environment.

### Creativity Tools

Creativity is another important twenty-first century skill. The ability to integrate web creations for a variety of purposes encourages critical thinking and creativity and fosters important twenty-first century skills. Aviary is a free online suite of powerful multimedia tools that enhance teaching and learning. The suite includes a sophisticated image editor that can be used to create from scratch, or by modifying exiting images, a vector editor, an effects editor, a color editor, an image markup tool for screen captures, a versatile audio editor, and a music creator (aviary.com). Aviary has created a beta version of Aviary for schools and allows teachers to assign activities and organize and view student work. Because students have their own accounts, they may access the work from home from any platform with an Internet connection. Incorporated into problem-based, constructivist learning activities, this Photoshop-like, cloud software, offers great potential to foster twenty-first century skills and motivate and engage learners beyond the classroom.

## Summary

The multifaceted nature of cloud computing provides promise of even more seamless possibilities for education. Currently, the cloud offers cost effective solutions to the challenges educators face in providing opportunities for twenty-first century learning. Professional learning that integrates twenty-first century tools into teacher planning will allow educators to gain important insight into the importance of the learning process rather than the end products. Professional learning must also emphasize the value-added models for learning that resemble authentic, real world, experiences that facilitate learning

of content through technology, rather than view technology and twenty-first century skills as an additional entity.

## References


Barack, L. (2010). Schools opt for Google apps. *School Library Journal*, *56*(6), 12.

Department of Education Office of Educational Technology. (2010). *Transforming American education: Learning powered by technology.* [National educational technology plan]. Retrieved from http://www.ed.gov/sites/default/files/netp2010.pdf

Gordon, D. (2011). Return to sender. *T.H.E. Journal, 38*(3), 30-32, 34-35.

Intel. (2010). *Intel's 2015 vision of the ongoing shift to cloud computing.* Retrieved from http://www.intel.com/content/www/us/en/cloud-computing/intel-s-cloud-computing-vision.html

Larson, L., & Miller, T. (2011). 21st century skills: prepare students for the future. *Kappa Delta Pi Record*, *47*(3), 121-123.

Holschuh, D., & Caverly, D. (2010). Techtalk: Cloud computing and developmental education. *Journal of Developmental Education, 33*(3), 36-37.

Katzan, H. (2010). The education value of cloud computing. *Contemporary Issues in Education Research, 3*(7), 37-42.

Siegle, D. (2010). Cloud computing: A free technology option to promote collaborative learning. *Gifted Child Today*, *33*(4), 41-45.

UNESCO. (2010). *Cloud computing in education* [Policy brief]. Retrieved from http://unesdoc.unesco.org/images/0019/001904/190432e.pdf

# Evaluating the Internal Efficiency of Allama Iqbal Open University, Pakistan

**S. Wajid Ali Shah, Sajjad Hayat Akhtar, and Muhammad Naseer Ud Din**

## Introduction

The Islamic Republic of Pakistan is confronted with a rapidly increasing rate of population growth. This has created difficulty in providing the basic necessities of life to masses. It is useful to evaluate the Allama Iqbal Open University (AIOU) system of education for identifying its strength and weaknesses. There is a need for systematic evaluation of the internal efficiency of AIOU system because resources are always limited. Haddad (2000) defined internal efficiency as the total number of pupil-years spent by repeaters and dropouts. Self-reliance of educational institution is an indicator of its efficiency. Self-reliance is enhanced by raising the internal efficiency in the use of resources and by reducing educational wastage. According to Hellwig (1971, p. 190), "student wastage" provides an indication of the inefficiency of an education process and the individual's reaction to the process. In educational institutions, national resources such as money, physical plant and facilities, and the labour of teachers are being wasted due to dropouts. An efficient educational institution educates a given number of people with minimum cost. The educators would like to know about the efficient utilization of resources allocated to certain educational institution because the inefficient use of efforts or resources results in decreasing the output. In their quest to meet the social demand for education given limited resources, ministries of education around the world have sought to eliminate educational wastage.

The researchers in the context of wastage in education have considered the question of internal efficiency. The problem of wastage highlights a crucial dimension of inefficiency in the system. The internal efficiency is usually measured through considerations of dropouts and repetition of students. United Nations Educational, Scientific, and Cultural Organization (1980, p.18) has estimated that 25% of all primary school places in the developing world are lost due to educational wastage.

Dropping out of school is often caused by social or economic factors, which is further reinforced by a lack of ability of the student or lack of qualified teachers. In this context wastage in AIOU also requires special attention for the removal of educational inefficiencies. The AIOU system requires adapting the system to minimize the wastage and retain the maximum number of the students enrolled into a course until the cycle of that course has been satisfied.

## Literature Review

Total wastage reflects the problem of repetition and dropout on the flow of promo-

tions within an educational system. The United Nations Institute for Training and Research (Hellwig, Brimer, & Blot, 1972) conducted a survey through out the United Nations Educational, Scientific, and Cultural Organization member states, with a view to evaluate the combined and separate effects of repetition and dropout, as a factor of educational wastage, and their incidence on the internal efficiency in education systems.

Guruge (1981) relates internal efficiency to the inner working of the educational institution. Wijk (1983) considers it a fallacy to apply the same yardstick to formal classroom and distance teaching institutions. In the report of International Congress of Open and Distance Teaching Universities (1983), Sukhothai Thammathirat Open University's system was evaluated in terms of survival rate and in term of the holding power of the university. Stephen (1983, p. 30) is of the view that statistics regarding the results in Athabasca University are very confusing because a significant number of students who enroll in courses simply fail to make a start in their studies. According to him, those students who do in fact start (excluding from the calculation that do not) should be considered as course completers. Similarly, Smith (1979) prefers to measure the achievement of the University of New England by measuring the capacity of the university to retain students once they are enrolled. The researcher thinks that the graduation rates cannot measure the institutional or students achievement in the New England context (external course offerings).

No society can afford an inefficient system of education; therefore, enhancing the internal efficiency is a responsibility which AIOU can no less escape than formal educational institutions of Pakistan. There is no longer any doubt as regards the need for systematic evaluation of the AIOU system. The researcher also felt the need to evaluate the internal efficiency of the AIOU education system to identify its major bottlenecks with an action-oriented approach. In such studies dropout rates are checked as a criteria for evaluating the internal efficiency of AIOU. The purpose of this research is to evaluate the internal efficiency and develop a strategic model for AIOU to improve its internal efficiency.

## Objectives of the Study

The study had three objectives. First, to determine the extent of internal efficiency of AIOU in terms of dropout rates. Second, to find out the problems of the AIOU system of education related with the course content, tutorial and regional support services, and evaluation and assessment procedures as factors affecting its internal efficiency. Third, to develop a package of suggestions for improving the internal efficiency of AIOU.

## Hypotheses

The following general hypotheses were tested by the present study:

1. There is no significant difference among the respondent group's perceptions of the extent of the efficiency of AIOU course contents.
2. There is no significant difference among the respondent group's perceptions of the extent of the efficiency of AIOU tutorial and regional support services.
3. There is no significant difference among the respondent group's perceptions of the strengths and weaknesses of the evaluation and assessment procedures of AIOU.

## Analysis of the Data

The researcher surveyed examination records and calculated AIOU dropout rates. For this study, the internal efficiency was considered as adversely proportionate to dropout rates and the term "dropout"

means the leaving a course without going on to the succeeding cycle of examination/ evaluation.

For demographic profile, percentages, mean, standard deviation, and sampling error were calculated. One-way analysis of variance (ANOVA) was used to compare the perceptions of the respondent groups and to test the null hypotheses.

## The Extent of Internal Efficiency of AIOU

Table 1 presents level-wise and sex-wise dropout rates and internal efficiencies in consolidated form. It can be seen that the overall dropout rate was 24.60%, and so the internal efficiency of AIOU was 74.40%. It is evident that AIOU was more efficient internally for female students as compared to male students by 9.70%. Female students showed their highest internal efficiency of 89.40 at bachelor's level. Table 1 also shows that greatest internal efficiency of AIOU was in teacher training programs, while at master's level its internal efficiency was the lowest.

## Data Obtained Through Questionnaires

The researcher administered four self-assessment four questionnaires; the first to AIOU academicians, the second to AIOU regional officers; the third to AIOU tutors, and the fourth to AIOU dropout students. The data obtained through the questionnaires were analyzed and tabulated.

## Testing Null Hypothesis 1

Null Hypothesis 1 states that there is no significant difference among the respondent groups' perceptions on the extent of the efficiency of AIOU course contents. Table 2 reflects respondents' group perceptions regarding AIOU course contents.

ANOVA applied to the 15 responses belonging to three respondent groups about the extent of efficiency of the AIOU course content yielded a value of $F = 33.38$. As the table value, at 10% sampling error, is 2.81 is less than the calculated value, the null hypothesis that there is no significant difference among the respondent group's perceptions on the extent of efficiency of AIOU course contents is rejected.

## Testing Null Hypothesis 2

Null Hypothesis 2 states that there is no significant difference among the respondent groups' perceptions of the extent of the efficiency of AIOU tutorial and regional support services. Table 3 shows respondent groups' perceptions regarding the efficiency of AIOU tutorial and regional support services.

ANOVA applied to the 102 responses belonging to four respondent groups about

**Table** 1. **Internal Efficiency of AIOU's Educational Program**

| | Dropouts | | | Dropout Rates | | | Internal Efficiency | | |
|---|---|---|---|---|---|---|---|---|---|
| **Level** | **Male** | **Female** | **Total** | **Male** | **Female** | **Total** | **Male** | **Female** | **Total** |
| Master's | 8,793 | 2,828 | 11,621 | 39.42 | 40.60 | 39.70 | 60.58 | 59.40 | 60.30 |
| Teacher training | 45,426 | 53,981 | 99,407 | 24.42 | 18.84 | 21.04 | 75.58 | 81.16 | 78.96 |
| Bachelor's | 25,956 | 4,625 | 30,581 | 28.63 | 10.60 | 22.78 | 71.37 | 89.40 | 77.22 |
| HSSC | 21,918 | 14,064 | 35,982 | 39.92 | 26.97 | 33.61 | 60.08 | 73.03 | 66.39 |
| SSC | 10,939 | 7,731 | 18,670 | 40.22 | 27.92 | 30.02 | 59.78 | 72.08 | 69.98 |
| Total | 113,032 | 83,229 | 196,261 | 29.66 | 19.96 | 24.59 | 70.34 | 80.04 | 75.41 |

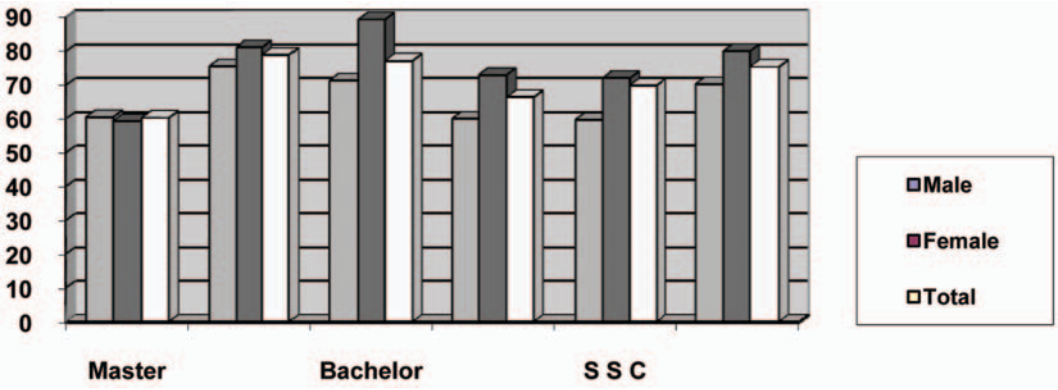



Figure 1. Diagram showing sex-wise and level-wise internal efficiency of Allama Iqbal Open University, Islamabad.

**Table 2. Respondents Groups' Perception of Course Content**

| No. | Statements | Academicians | Tutors | Dropouts |
|---|---|---|---|---|
| 1 | The AIOU courses are attractive and easy. | 3.97 | 1.84 | 1.79 |
| 2 | There is consistency in style and language of the course content. | 3.51 | 1.97 | — |
| 3 | The courses are properly planned and designed. | 3.97 | 1.68 | — |
| 4 | Learning experiences are appropriately sequenced. | 3.77 | 1.8 | 1.88 |
| 5 | Course contents are critically assessed and reviewed. | 3.87 | 2.06 | — |
| 6 | Courses are self -explanatory. | 3.93 | 1.88 | 1.87 |
| | Average weighted mean | 3.48 | 1.87 | 1.85 |
| | Standard deviation | .16 | .12 | .04 |

the extent of the efficiency of AIOU tutorial and regional support services yielded a value of $F = 5.83$. Null Hypotheses 2 is rejected, as the calculated value of F (5.83) is greater than the table value (2.13). This shows that there is significant difference among the respondent groups' perceptions on the extent of the efficiency of AIOU tutorial and regional support services.

## Testing Null Hypothesis 3

Null Hypothesis 3 states that there is no significant difference among the respondent groups' perceptions in the strengths and weaknesses of the evaluation and assessment procedures of AIOU. Table 4 reflects respondents groups' perceptions regarding the strengths and weaknesses of the evaluation and assessment procedures of AIOU.

Table 4 shows that the calculated value of $F$ is 0.50, which is less than the table value (2.70). Therefore, the null hypothesis is accepted. This shows that there is no significant difference among the respondent groups' perceptions in the strengths and weaknesses of the evaluation and assessment procedures of AIOU.

## General Research Findings

1. The overall internal efficiency of AIOU in the study period was 75.40%. The University was more efficient inter-

nally for female students as compared to male students by 9.70%.

2. The AIOU had maximum internal efficiency for teacher training programs, while at postgraduate level it had least internal efficiency.
3. Female students showed highest internal efficiency of 89.40 at bachelor's level.
4. The academicians perceived the problems related with the organizational structure and human resources of AIOU with an average weighted mean of 3.48 and standard deviation of 0.47.
5. Nonacademic problems included: illness/accident; marriage during studies, lack of time for studies, job responsibilities, clash with other domestic/leisure commitments, having no suitable place for studies, and lack of guidance at the beginning.
6. The academicians, tutors, and dropout students perceived the problems related with course contents of AIOU, with an average weighted mean of 2.4 and standard deviation 0.32.
7. The academicians, regional officers, tutors, and dropout students perceived the problems related with the tutorial and regional support services of AIOU, with an average weighted mean of 2.75 and standard deviation 0.56.
8. Problems related to regional support services included: lack of provision of guidance and advice, lack of provision of supplementary teaching facilities, lack of coordination among faculty and the regional staff, inadequately facilitating graduates in finding jobs; and lack of timely mailing of the admission forms.

**Table 3. Respondent Groups' Perceptions on Tutorial and Regional Support Services**

| No | Statements | Academicians | Regional Officers | Tutors | Dropouts |
|---|---|---|---|---|---|
| 1 | Most of the students are allocated to a study center with in easy traveling distance. | 3.64 | 2 | 1.97 | 2.82 |
| 2 | Tutors are present in study center when needed. | — | 2.04 | 2.27 | 2.45 |
| 3 | Tutors conduct tutorial meetings regularly. | — | 3.73 | 2.43 | 2.6 |
| 4 | New students are provided orientation with AIOU system. | 2.95 | 2.69 | 2.53 | 3.05 |
| 5 | Tutors provide advice and help to develop effective study skills. | — | 3.81 | 2.28 | 2.84 |
| 6 | Two-way communications is present between student and tutor. | — | 3.61 | 2.08 | 2.97 |
| 7 | Tutors know the techniques of distance education. | — | 2.92 | 2.74 | 2.92 |
| 8 | Tutors help students to maintain motivation and overcome learning problems. | — | 3.23 | 2.58 | 2.82 |
| 9 | Tutors provide feedback to students as their written assignments. | — | 2.85 | 3.2 | 2.77 |
| 10 | The building and material facilities in the study center are adequate. | 3.29 | 2.11 | 2.14 | 2.23 |
| 11 | The regional staffs meet the needs of AIOU students. | 2.87 | 3.77 | 2.14 | |
| 12 | Proper reception of students calling in person or on telephone is under taken. | — | 3.96 | - | 3.34 |

*(Table continues on next page.)*

**Table 3. (Continued)**

| No | Statements | Academicians | Regional Officers | Tutors | Dropouts |
|---|---|---|---|---|---|
| 13 | Information is disseminated through regional services properly. | — | 4.04 | 2.11 | — |
| 14 | Regional staff provides guidance and advice on distance teaching methods. | — | 2.42 | 2.08 | — |
| 15 | Facilities are provided for supplementary teaching when needed. | 1.51 | 2.11 | 2.14 | 2.8 |
| 16 | There is coordination between the faculty regional staff. | 2.75 | 3.54 | 1.34 | — |
| 17 | The regional center has adequate building and furniture facilities. | — | 2.15 | 2.03 | 2.96 |
| 18 | The regional center has proper information management system. | — | 2.15 | 2 | 2.99 |
| 19 | The regional center has adequate number of audio-cassettes and tape recorders. | — | 3.42 | 3.11 | 2.72 |
| 20 | The regional center has adequate number of video-cassettes and TV/VCR equipment. | — | 3.69 | 3.2 | 2.54 |
| 21 | The regional center has adequate library facility. | — | 3.08 | 2.84 | 2.5 |
| 22 | The regional center has adequate laboratory facility. | — | 1.65 | 2.83 | 2.33 |
| 23 | The regional center provides awareness about various AIOU program. | — | 3.08 | - | 3.14 |
| 24 | The regional center allocated study canters. | — | 4.38 | — | 3.34 |
| 25 | The regional center issues roll number slips. | — | 3.46 | — | 3.43 |
| 26 | The regional center issue result cards. | — | 1.69 | — | 3.32 |
| 27 | The regional center issue certificates/degrees. | — | 1.54 | — | 2.96 |
| 28 | The regional center facilitates graduates in getting employment. | — | 2.38 | — | 2.16 |
| 29 | The regional center dispatches admission forms to the students in time. | — | 2 | 1.86 | 3.25 |
| 30 | The regional center informs the students about their allocated study center in time. | — | 3.69 | 1.8 | 3.28 |
| 31 | The regional centers timely dispatch to the students the names and addresses of their tutors. | — | 3.69 | 2 | 3.35 |
| 32 | The regional centers timely dispatch to the students the information related with the examination center. | — | 2.54 | 1.86 | 3.29 |
| 33 | The regional centers timely dispatch to the students the date sheet of examination. | — | 2.54 | 1.77 | 3.33 |
| 34 | Tutors selection is made on the basis of qualification in the related subject area. | — | 4.04 | 1.88 | — |
| 35 | Tutors selection is made on the basis of his command on the subject. | — | 3.58 | 2.1 | — |
| 36 | Tutors selection is made on the basis of training/ experience in distance education. | — | 3.11 | 2.6 | — |
| 37 | Tutors selection is made on the basis of recommendation from the formal teaching departments/colleges/universities. | — | 3.88 | 2.51 | — |
| | Average weighted mean | 2.83 | 2.99 | 2.41 | 2.91 |
| | Standard deviation | .66 | .79 | .56 | .36 |

**Table 4. Respondents' Groups Perception on Evaluation and Assessment Procedures**

| No | Statements | Academicians | Regional Officers | Tutors | Dropouts |
|---|---|---|---|---|---|
| 1 | Assignment papers are invalid. | — | 2.77 | 3.24 | 2.67 |
| 2 | Examination papers are invalid. | — | 3.08 | 3.37 | 3.07 |
| 3 | Marking system of assignments lack reliability. | — | 2.73 | 3.11 | 3.12 |
| 4 | Marking system of examination papers lack reliability. | — | 2.61 | 3.37 | 2.96 |
| 5 | Evaluation of students in workshop is defective. | — | 2.96 | 3.16 | 3 |
| 6 | Marking system on the whole, lacks objectivity. | — | 4.27 | 3.11 | 3.31 |
| | Average weighted mean | — | 3.07 | 3.23 | 3.02 |
| | Standard deviation | — | .56 | .11 | .19 |

9. The academicians, regional officers, tutors, and dropout students perceived the problems related with the evaluation and assessment procedures of AIOU, with an average weighted mean of 3.05 and standard deviation 0.29. Problems related with the evaluation and assessment procedures included invalidity of examination/assignment papers, lack of reliability in marking assignment papers, defective evaluation of students in workshops, and lack of objectivity in marking system.
10. The academicians perceived the problems related with fiscal resources of AIOU, with an average weighted mean of 3.53 and standard deviation 0.54. These problems included high students fees, poor consultation in financial matters, lack of the balance between the academic, and administrative expenditures, and inadequacy of government's financial allocation.

## Conclusions

The following 10 conclusions are offered:

1. The dropout students indicated they were faced with the problems like: their job responsibilities, clash with other domestic/leisure commitments, having no suitable place for studies, lack of careful guidance at the beginning, inadequate knowledge of language of instruction, lack of a climate conducive to adult learning, and having no access to libraries.
2. Weaknesses of the AIOU tutorial support services included: long distance between the study center and student's residences, tutor's absence in the study center, inadequate help in overcoming learning problems, and lack of feedback provision on student's written assignments.
3. Regional support services of AIOU were weak in respect of: their inability to meet the needs of AIOU students to a large extent, the lack of provision of guidance and advice on distance teaching methods, facilitating graduates in finding jobs, and on-time mailing of the admission forms.
4. Inadequate training facility for AIOU tutors limited the internal efficiency.
5. There was a wide spectrum of issues relating to evaluation and assessment procedures of AIOU. The study identified the invalidity of examination/assignment papers, the lack of reliability in marking assignment papers, defective evaluation of students in workshops, and the lack of objectivity in the marking system.

6. The university was internally more efficient for female than male students.
7. The focuses on varied AIOU programs revealed that the highest internal efficiency of AIOU was in teacher training programs.
8. There was significant difference among the respondent groups' perceptions on the extent of the efficiency of AIOU course contents.
9. There was no significant difference among the respondent groups' perceptions on the extent of the efficiency of AIOU tutorial and regional support services.
10. There was no significant difference among the respondent groups' perceptions in the strengths and weaknesses of the evaluation and assessment procedures of AIOU.

## Recommendations

The researchers offer a few general recommendations, keeping in view the constraints and pressures under which AIOU operates due to inadequate physical, teaching, and economic conditions. The researchers are firm in the belief that if the existing inadequate resources are optimally utilized and inefficient management is corrected; the motivation for innovations would start within the AIOU faculties and departments themselves.

1. The student is the main cause of his or her dropout and the AIOU cannot afford to lower its standard of assessment and evaluation procedures to enhance its internal efficiency. So, AIOU should only assess and guide the students to increase its holding power.
2. The AIOU students may be regarded as learners in a special didactic situation and the teaching strategies should be adapted to the andragogical approach.
3. There is a need to assess the quality of AIOU course contents, student support services, and evaluation procedures so that these areas can be improved.
4. Continuous curriculum revision may be introduced at all levels in accordance with the national needs, market requirements, potentials of students, and distance education principles.
5. Tutors' training may be provided in the techniques of distance education. The present study reveals that tutors' training regarding marking of, and commenting on, assignments is urgently needed to provide effective feedback on students' written assignments.
6. Tutorial meetings and workshops may be strengthened with the use of educational technology.
7. Effective tutorial monitoring system may be introduced to ensure the presence of tutors in tutorial meetings and to judge their job efficiency.
8. AIOU evaluation techniques may be upgraded through training, seminars, and workshops. Moreover, evaluation of AIOU efficiency may be ensured and each activity that influences the students should be evaluated and improved accordingly.
9. Regional support services may be strengthened in connection with the provision of tutorial support services, information regarding admissions, mailing of study material, and award of certificates/degrees.

## References


Guruge, A. W. P (1981). *Basic concepts of educational planning* (Vol. 1), Islamabad, Pakistan: Allama Iqbal Open University.

Hellwig, Z. (1971). *Wastage prediction method*. Paris, France: UNESCO.

Helllwig, Z., Brimer, M. A., & Blot, D. (1972). *Further studies on the evaluation of internal efficiency of educational systems: A symposium*.

Paris, France: United Nations Educational, Scientific and Cultural Organization.

Smith, K. C. (1979). *Models in Australia and their international counterparts* (Paper No.1, Mimeo). Adelaide, Australia: ASPESA Forum.

United Nations Educational, Scientific and Cultural Organization. (1980). *Wastage in primary and secondary education: A statistical study of trends and patterns in repetitions and dropout*. Paris, France: Author.

Wijk, T. V. (1983). *Evaluation of higher distance education results*. Madrid, Spain: International Congress of Open and Distance Teaching Universities.

# When Distance Education is No Longer an Option But a Necessity

**Tamara N. Hughes**

## Introduction

Is there a global teacher shortage? In the United States the issue is not a lack of teachers but a lack of qualified teachers and the attrition of qualified teachers (Certo & Fox, 2002; Ingersoll & Smith, 2003). But what happens in those school districts in which it is simply a lack of qualified teachers and they have no choice but to accept any willing and able human being to fill their classrooms? On the island of St. Maarten, there are teachers but due to location and resources, schools have been forced to hire teachers who are not fully qualified. In some instances, especially at the high school and university level, schools are left unable to offer particular courses. So what can the island of St. Maarten do to ensure that students are taught by qualified teachers and that all students receive a quality education? Take the lead of sub-Saharan Africa, where distance education is not an option but a necessity. This article will take a snapshot view of how sub-Saharan Africa had no choice but to use distance education, and then describe technological innovations that can enable St. Maarten to follow their lead.

Tamara N. Hughes,
Instructional Technology Instructor, University of St. Martin, and Instructional Technology Specialist, Methodist Agogic Centre, St. Maarten, Dutch West Indies.
Telephone: 011-599-554-3466.
E-mail: blueartful@gmail.com

## Sub-Saharan Africa and Distance Education

### Problem

The need for distance education in sub-Saharan Africa emerged from an increase in population combined with the political and economic turmoil of the country that caused a severe teacher and classroom shortage (Leary & Berge, 2007). According to Leary and Berge (2007) the implementation of distance education programs was developed slowly and over a period of time in sub-Saharan Africa to improve the overall quality of education in all levels of education as well as to train teachers. Stricken by poverty, the lack of school

structures, and the distance to educational facilities imposed by rural areas forced distance education to become the primary means for learning.

### Innovation

Distance education programs in the sub-Saharan African region are delivered through a variety of mediums designed specifically to meet the level of education, from primary to tertiary (Leary & Berge, 2007). At the primary school level, interactive radio instruction is the primary means of delivery since most students live in rural areas where there may not be electricity (Leary &Berge, 2007). At the secondary school level, interactive radio instruction is also used, but some high schools built computer labs so students can use the Internet for learning. Sub-Saharan African colleges and other institutions may also employ the following: print, telephone, audio technologies, video technologies, satellite, and the Internet (Leary & Berge, 2007).

### Success

The success of the Sub-Saharan distance education programs is due to the collaborative efforts of learning institutions in sub-Saharan Africa and other countries such North America, Europe, and Asia (Leary & Berge, 2007). In the sub-Sahara African region, it was clear that to offer quality education everyone had to work together.

## St. Maarten and Distance Education

### Problem

St. Maarten struggles to recruit and retain qualified teachers. It has been a practice for some time for schools on the island of St. Maarten to recruit teachers from other Caribbean nations, such as Guyana and Jamaica, or await local students who typically study abroad in the United States or the Netherlands to return home to teach (C. Spring, personal communication, April 12, 2011). However, it has become an increasing practice for countries such as the United States and England to recruit teachers from those islands as well, offering better employment packages and wages, than St. Maarten can offer. Local students do not return home for this same reason.

In addition to the lack of human resources, there is a great demand for schools. The most recent secondary school was built in 1994; since then, St. Maarten has seen a population increase of 50% from an estimated population of 29,000 in 1997 to an estimated population of 55,000 in 2010 (J. Bell, personal communication, April 12, 2011). St. Maarten's population has increased over the years but the number of schools has not; secondary schools, especially, are overcrowded. Distance education can be used for the same purpose in St. Maarten as in many school districts in the state of Florida to alleviate the financial burden of hiring more teachers and building more schools (Mazzei, 2011). Just as in sub-Saharan Africa, distance education is necessary on the island of St. Maarten to train teachers and improve the quality of education.

The top priorities of St. Maarten are to assist teachers who do not have a formal teacher education to receive one and to alleviate the overcrowding in the secondary schools. In January 2011, I launched an innovative method that allowed University of St. Martin students in the teacher education program to participate in a blended learning program. This method can be used to slowly introduce distance education programs to the St. Maarten educational system as was done with the sub-Saharan African region distance education programs, which took several years to develop (Leary & Berge, 2007).

## Possible Innovation

In January of 2011, I utilized three Google Applications—Google Sites, Google Mail (Gmail), and Google Groups—to create an online learning environment for the University of St. Martin's EDU 318 Instructional Technology class. This class is part of the Bachelor of Arts teacher education program at the University of St. Martin. It is an excellent example of how teachers can be trained on the island of St. Maarten using distance learning technologies and strategies. The applications were free and simple to use and provided basic tools to develop a virtual learning environment.

## Google Sites

Google sites allow anyone to create websites for anything they choose including a course website. You have the option to choose from a variety of templates for your site or you may choose to design your own look. If you are worried about security and others gaining access to your site, Google Sites have a privacy option which allows you to invite only those persons that you want to have access to your site via email. Google Sites allows instructors to upload instructional materials in the form of print, audio, and video. The EDU 318 class had its own course site, which was available only to the students and the instructor. From the site students had access to instructional materials, their grades, class discussions and links to resources to support their learning.

## Google Mail (Gmail)

Gmail is an e-mail system provided by Google. It provides instructors with a common place to communicate with students both asynchronously and synchronously. At the start of the semester it was required for all students in the EDU 318 class to get a Google account to ensure that they were able to communicate with me as much as they needed to. Both the students and I used it to contact each other regularly. Students in the EDU 318 class reported that they felt it was the first time they were able to have contact with an instructor frequently and communicate freely.

## Google Groups

As Palloff and Pratt (2007) stated, building online communities is a necessity for the success of the distance learning course. Google Groups is a perfect tool to build online communities. Instructors and students can communicate in group discussion threads and forums. Google Groups comes with a feature that allows you to communicate privately to any individual's e-mail right in the discussion area. In addition, Google Groups has a privacy option so that only those the moderator invites can join. The EDU 318 class was able to participate in dynamic discussions, and students were eager to share additional knowledge that they learned outside of the class with other students via video and webpage links.

Google Apps are great tools for school districts that are low on funding to begin a gradual implementation of developing distance education programs. With Google Apps for Education, schools can use all three applications mentioned earlier and more, such as Google Calendar, Google Talk, Google Docs, and Google Video, just to name a few. Schools can get all of this with just the cost of purchasing and maintaining a domain name.

St. Maarten can use these applications to create blended learning environments. Through collaborative efforts and Google Apps, schools can work together to share their best resource, their most qualified teachers. For example if a secondary school is in need of an English teacher and another school has an English teacher, that teacher can work at both schools. Here's how: the English teacher can work alternate days and hours, spending real time in

the classrooms with the students from the different schools. On the days the teacher is not physically in the same room with students, lessons and activities can be delivered through a well developed Google Site along with Google Groups or any other online collaboration tool.

## Summary

In many parts of the world, there are neighborhoods that struggle to educate their community due to lack of resources to build new schools and to hire and train qualified teachers. Sub-Saharan Africa is one of these places, but through ingenuity, years of patience, and the collaboration of communities and countries, education has been made possible through a variety of distance education innovations. The island of St. Maarten is also one of those places lacking adequate school space and qualified teachers. St. Maarten has not implemented distance education programs to the extent as the sub-Saharan African region, but it can. With the use of Google Apps for education, St. Maarten can begin to transform education to make it flexible and accessible to all of its students and teachers, creating a cooperative learning environment among all schools.

## References


Certo, J. L., & Fox, J. E. (2002). Retaining quality teachers. *The High School Journal*, *86*(1), 55-75.

Ingersoll, R. M., & Smith, T. M. (2003). The wrong solution to the teacher shortage. *Educational Leadership*, *60*(8), 30-33.

Leary, J., & Berge, Z. (2007). Successful distance education programs in Sub-Saharan Africa. *Turkish Online Journal of Distance Education*, *8*(2). Retrieved from http://tojde.anadolu .edu.tr/tojde26/articles/article_12 .htm

Mazzei, P. (2011, April 7). Florida lawmakers, Jeb Bush Foundation push for private online education. *The Miami Herald*. Retrieved from http://www.miamiherald.com/2011/04/07/ 2156298/expand-virtual-schools-say-law-makers.html

Palloff, R. M., & Pratt, K. (2007). *Building online learning communities*. San Francisco, CA: Jossey-Bass.

# Wired for Success

## Alabama's ACCESS to Distance Learning

**Sherry Stancil**

### Introduction

For high school students in Alabama, virtual classrooms are as ubiquitous as the 16mm movie projectors were for their previous generations. In a time frame of only 6 years, the state became the third largest virtual school in the nation and the first one to equip all high schools with both videoconferencing and web-based learning labs (Watson, Murin, Vashaw, Gemin, & Rapp, 2010). The statewide initiative is called Alabama Connecting Classrooms, Educators, and Students Statewide (ACCESS). When considering how such an incredible feat was accomplished so quickly, one must address the diffusion of innovation theory. Rogers (1995) describes the diffusion of innovation as the "process in which an innovation is communicated through certain channels over time among members of the social system" (p. 5). Some of the specific elements contributing to the ACCESS's diffusion included the following: a student-centered mission, the selected instructional modes of delivery, highly qualified e-teachers, state oversight, and periodic program assessments by an outside evaluator.

Sherry Stancil,
Speech Communications Instructor,
Calhoun Community College, Decatur, AL.
Telephone: (256) 713-4824.
E-mail: sstancil7985@calhoun.edu

### Background

A Governor's Task Force on Distance Education, led by Governor Bob Riley, met in 2004-2005 to discuss strategies for launching a virtual school program designed to make education more equitable for every public high school student. In doing so, they focused on several deficiencies in the school system:

- Alabama's high school graduation rate ranked well below the national level.
- School administrators in small and rural districts faced challenges with recruiting and retaining highly qualified teachers as required by No Child Left Behind.
- Alabama ranked 14 out of 16 southern states in the areas related to Advanced Placement exams among juniors and seniors—administering only 99 exams per 1,000 students in 2003.
- Many schools in the state did not offer foreign languages and advanced mathematics and science courses which pre-

pare students for college-level coursework and enhance workforce development skills.
- Many schools did not have the funding needed for technological upgrades.

From the aforementioned deficiencies, the task force members formulated a list of objectives to guide their vision. Objectives for the pilot program were to provide access to advanced diploma courses, provide access to additional course offerings, provide access to advanced placement or dual credit courses, provide access to remediation and supplemental resources, leverage existing resources and distance learning offerings, and provide teachers with additional multimedia and technology tools to enhance instruction.

Task force members decided on a strategic plan that would include an incremental process consisting of a year-long planning period, a pilot phase, and a gradual expansion through two final phases. Governor Riley announced the ACCESS idea in 2005, and the initiative was introduced to students in 24 selected high schools the next year. The task force's original plan was to equip all public high schools with distance learning technology by the 2010 school year; however, all 371 high schools were furnished with videoconferencing and web-based capability ahead of schedule in 2009.

## Three Strands of Intervention

According to Meredith and Newton (2003), three strands must converge to ensure the success of an eLearning intervention: learner capability, technology, and teacher pedagogy. This is an important finding because some institutions might be more concerned with the technology aspects of distance education, rather factoring in the student and teaching aspects of the model. Similarly, an institution that heavily focuses on the teaching pedagogy of distance education without considering how technology and the needs of students will factor into the equation could also be detrimental to the program's success.

### Learners

Access to technology does not always guarantee successful learning outcomes. One of the most important factors for educators to consider is the students' previous experience with technology. Prieger and Hu (2008) surmise that people who live in rural areas and those in low-income families are not as comfortable with using technology as other groups who have had more exposure to technology. Thirty-two percent of Alabama's students live in rural and impoverished areas. In an effort to ease the comfort levels of such students and to also gain an assessment of their learning styles, advisors with the ACCESS program consult with all potential distance learning participants before they are allowed to register for courses.

Age is another factor to consider when conducting an analysis of e-learners. ACCESS's demographics consist of students in Grades 9-12. The program is now beginning to expand into middle schools, offering high school courses for advanced students. Some young or novice distance learners are not ready to assume new responsibilities "such as monitoring their own learning goals, setting priorities, and controlling the pace of learning" (Svinicki & McKeachie, 2011, p. 243). Although they might be academically capable and technologically adept, secondary students might struggle in distance learning classes due to certain maturity levels needed to manage the autonomous nature of being separated from their teachers.

ACCESS offers courses for traditional and nontraditional students. In 2010, "ACCESS provided 29,415 student enrollments in courses needed by students to meet graduation requirements and 11,746 additional enrollments in noncredit remediation modules for the Alabama High School Graduation Exam and Career For-

ward" (ACCESS, 2010, p. 5). Palloff and Pratt (2007, p. 8) identified characteristics typically associated with successful distance learners:

- Open-minded about sharing life, work, and educational experiences as part of the learning process
- Able to communicate through writing
- Self-motivated and self-disciplined
- Willing to "speak up" if problems arise
- Able to meet the minimum requirements for the program

Business teacher Sonya Kennedy serves as the ACCESS facilitator at Priceville High School, a small school in northern Alabama where students are experiencing the benefits of taking advanced courses. She said, "Two students took French I last year, and they are taking French II this year. This is something that would not have happened had it not been for ACCESS. That's what's so great about the program. Students are able to take courses that they wouldn't be able to otherwise." Beginning with the ninth grade class of 2009, all public high school students are required to complete at least one distance education course before graduation.

## Instructional Technology

Earlene Patton, ACCESS Registration Coordinator with the Alabama Department of Education indicates that more participants enroll in web-based classes than the videoconferencing classes. ACCESS's web-based participants use a course management system called Desire2Learn, or D2L, which offers a variety of tools to facilitate learning. Every public high school in the state of Alabama is equipped with web-based labs designed to allow students to work individually at computers during the school day. These classes are asynchronous environments that "allow participants to log onto the class or discussion at any time, think about what is being discussed, and post their own responses when they wish" (Palloff & Pratt, 2007, p. 68). Students can view their instructors' lectures from any place and any time by logging onto the Internet, where lectures in the forms of video and audio are either broadcast live or archived for later retrieval. Meanwhile, teachers can post assignments, record grades, and consult with students from a distance.

There are several advantages to utilizing ACCESS's web-based courses:

- Students can log on when it is convenient for them to do so.
- Students have access to greater course selections.
- Students are exposed to technology that prepares them for college coursework and employment.

Unfortunately, there are several disadvantages to web-based courses:

- Some students are not independent learners.
- The lack of face-to-face interaction delays feedback between teacher and student.
- Some students might lack the technical skills needed to navigate through the coursework and to troubleshoot minor technical problems.

Videoconferencing overcomes the limitations of web-based learning "by bringing teacher and learners face-to-face virtually in real time, [which] enriches the distant learning process" (Martin, 2005, p. 398). These synchronous environments allow participants and instructors to communicate with each other "in different places at the same time" using technology such as satellite, compressed video, and fiber-optics systems" (Simonson, Smaldino, Albright, & Zvacek, 2009, p. 10). There are several advantages to the video conferencing modality as a means of delivering distance learning courses:

- Videoconferencing creates a better sense of community than computer instructed course offers, since teachers and students are able to see and hear each other in real time.
- Students in underserved schools are connected to teachers and students in other areas, giving them access to courses not available in their home schools.
- Due to video and audio cues, teachers can immediately respond to questions raised by remote students.

The disadvantages of videoconferencing include:

- Remote students must coordinate their schedules with the host school's schedule for class meeting times.
- Remote students might experience feelings of isolation since there is a lack of "real" human interaction with other classmates.
- Technological difficulties can result in student/teacher frustration and confusion.

Simonson (2000) noted that "the key to success in a distance education classroom is not which technologies are used but how they are used what information is communicated through technology" (p. 29). Similarly, Clark (2001) contends that effective learning is not primarily contingent upon the media (face-to-face versus e-learning, in this case) but rather upon the instructional methods. Clark (2001) states, "The choice of media influences the important outcomes of student access, and the speed or cost of the delivery, but not the learning impact of the instruction that is delivered to the consumer" (p. 302).

## Teacher Pedagogy

Effective pedagogy is the key to overcoming issues related to making students feel connected to the learning experience regardless of if the online class is synchronous or asynchronous (Palloff & Pratt, 2007). Effective learning takes place when active students and teachers collaborate with each other in appropriate instructional environments. A factor that emerges as the primary difference between the distance education learning (fully online and blended) environments and traditional learning environments is student-teacher interaction. Students who feel more connected to their teachers and classmates are less likely to withdraw from class. ACCESS facilitator Sonya Kennedy explained,

> My job is to make sure students are on task daily. I check their grades once a week (usually every Friday) to make sure they are not getting behind. I communicate with their online teachers. We [facilitators] are also in the system so we can collaborate with online teachers to make sure their students are not getting behind.

Throughout the state, more than 650 teachers are teaching distance learning classes to more than 40,000 students who are enrolled in credit and noncredit remedial classes. Teachers are hired, trained, and supervised at one of three sites located at the University of Alabama, Troy University, and Madison City Schools.

While technology is convenient, a controversial topic revolves around the enormous growth of distance education and the challenges associated with its instructional methods. In strengthening the teaching pedagogy component of distance education, Meyers (2008) suggests that teachers use transformative pedagogy. It includes:

- creating a safe environment by valuing the opinions of students;
- encouraging students to think about their experience, beliefs, and biases which can be accomplished through discussion postings;

- using teaching strategies that promote student participation and engagement such as through the asynchronous discussion boards;
- posing real-world problems that address inequalities, which can help expand their awareness of how societal forces impact people; and
- encouraging action-oriented solutions by motivating them to participate in a democracy and become agents for social change.

ACCESS offers 70 courses, 20 of which were designed by the University of Alabama. Most of the coursework for students takes place during a set school period and not at home. This hybrid model gives students the best of both worlds, offering face-to-face interaction and e-learning opportunities tailored for their own individual needs.

## Leadership

Management style can determine whether an organization's strategy of change will succeed or fail (Grant, 2008). Power is centralized in a top-down management. One of the key strengths of top-down change is evident when there are tight deadlines and multiple departments involved. Although input from others may be helpful, time constraints and practical concerns make broad-based input impossible. One of the weaknesses of top-down change is that these decisions are often limited in scope and not in the best interest of the organization because suggestions and feedback from lower management are not considered. Reduced productivity, broken lines of communication, and low employee motivation can result during top-down change. On the other hand, bottom-up management allows team members to participate in every step of the management process. One of the advantages of the bottom-up approach is that the planning process involves many people, which makes it flow significantly faster. One of the weaknesses of bottom-up project management is the lack of clarity and control.

ACCESS's organizational structure is very similar to a machine bureaucracy, where "important decisions are made at the strategic apex; day-to-day operations are controlled by managers and standardized procedures" (Bolman & Deal, 2008, p. 80). The governor of Alabama and the Alabama Department of Education (ALSDE) oversee K-12 public schools and manage the budget of the mostly state-funded ACCESS program. The Technology Initiatives office, an entity of the ALSDE, manages and coordinates day to-day aspects of the program. Staff members at the three state's regional offices hire, train, and supervise ACCESS teachers. Additionally, designed ACCESS facilitators are located at each of the state's public schools to serve as a liaison between students and teachers.

## Program Evaluation

Assessment, accountability, and quality control measures are some of the key components in the operational tapestry of educational institutions. Multiple assessment tools quantify and qualify the effectiveness of curriculums, programs, and other services provided. Additionally, administrators collaborate with state, federal, and local governments in an effort to follow policies and laws that govern accountability. The International Society for Technology in Education (2010) evaluated the ACCESS program, and found that there are some areas of improvement.

- better technical preparation of students;
- engaged facilitators who supported students' needs;
- improved course materials;
- better two-way communication between students and teachers as well as between teachers and facilitators; and
- timely response to technology issues.

On a positive note, the International Society for Technology in Education report found that ACCESS had fulfilled its mission of providing equal access to students. Additionally, more than 75% of the ACCESS students reported their virtual school experience was equal or better than the traditional courses in the past. Graduation rates have increased, dropout rates have decreased, and the number of advanced placement takers has doubled as a result of the implementation of ACCESS and other state initiatives (Alabama Department of Education, 2010).

## Diffusion of Innovation

Alabama is home to one of the largest state virtual schools in the nation. Only Florida and North Carolina have larger virtual school enrollments (Watson, Murin, Vashaw, Gemin, & Rapp, 2009). How did Alabama's ACCESS leaders implement their program so quickly? Worthy of consideration is the diffusion of innovation theory which has four main elements: innovation, communication, time, and social system. As indicated by Rogers (1995), "Getting an idea adopted, even when it has many obvious advantages, is difficult. Many innovations require a lengthy period of many years from the time they become available to the time when they are widely adopted" (p. 1).

First of all, an innovation is anything that is "perceived" as being new to the potential adopter. Although educators in the state of Alabama had implemented technological innovations to improve academic achievement prior to ACCESS, such initiatives did not have the capability of delivering the state's goals. Classrooms throughout the state were wired with interactive videoconferencing and web-based learning innovations to expand course offerings to students, to provide alternative options to those seeking to retake courses needed to graduate, to alleviate schedule conflicts, and/or accelerate an academic program. Two characteristics of innovation are relevant to this case study including relative advantage and trialability. Despite the $10.3 million needed to fund the first phase ACCESS, the relative advantages of equal educational opportunities for every public high school student was greater than the hefty price tag, which enhanced the likelihood of diffusion. Another factor is trialability or the "degree to which an innovation might be experimented on a limited basis" (Rogers, 1995, p. 16). Implementation of ACCESS's program took place with only 24 schools during the pilot phase instead of equipping all 371 schools at the same time. This allowed ACCESS's task force to sample experimentally and to tweak technical glitches before full implementation.

Second, the information touting the promises of ACCESS was communicated via mass communications by starting with the governor holding media conferences that were broadcast on local television and radio stations and published in newspapers throughout the state.

The governor's messages and student testimonials resonated with stakeholders, teachers, students, and parents who then spread information to others via interpersonal communications.

Effective communication is circular in nature, meaning that feedback is required for an exchange of ideas, messages, and signals to take place. Noise is an enemy of communication and prevents the message from being perceived in the manner in which the sender had intended. Internal noise, possibly the most damaging to an organization's reputation, stems from the receivers' perceptions and attitudes toward the institution (i.e., "Is this program going to deliver on its program as ACCESS leaders proclaim?"). The credibility of the school system's message is not only measured by external evaluations and graduation rates, but also through testimonials communicated by students and other stakeholders.

Third, a combination of effective mass media and interpersonal communications hastened ACCESS's time from knowledge to implementation. However, continued program sustainability or confirmation will depend on how long the innovative measures are needed, how long funding will be available to support it, and if assessments from external evaluators continue to show improvements have been made in any areas of deficiencies. Symbolic approaches, such as making employees feel their personal input is important and meaningful, were advantageous for the governor's task force. Symbolic approaches include strategies that celebrate the smallest of accomplishments to increase the likelihood that positive behavior will be repeated in the future (Bolman & Deal, 2008).

Finally, the social system was influenced by a team of renowned experts in the field of distance education. Decisions are "made by relatively few individuals in a system who possess power, status, or technical expertise" (Rogers, 1995, p. 38). In the case study of ACCESS, several respected experts in the field of education participated in the governor's Task Force on Distance Education. Governor Riley was able to use his political influence to facilitate change outside the organization (i.e., getting the tangible resources needed for the initiative), the political realities that existed within the organization with satisfied ACCESS staffers, teachers, and students helped build his power base.

## Conclusion

Nationwide, enrollment in state virtual schools is approximately 450,000 in 2010 (Watson et al., 2010). Thirty-nine states have state-led initiatives. For Alabama, ACCESS has opened doors to the state's underserved and "served as a catalyst to reverse statistics citing Alabama among the lowest?performing states for high school and college graduates" (ACCESS, 2010, p. 13). Remaining student-centered is of the upmost importance for these digital natives. Our very future depends on it.

## References


ACCESS. (2010). *A plan for continued excellence: 2011-2016.* Montgomery, AL: Author.

Alabama State Department of Education. (2009). *Alabama education report card.* Montgomery, AL: Author.

Bolman, L. G., & Deal, T. E. (2008). *Reframing organizations: Artistry, choice, and leadership*. (4th ed.). San Francisco, CA: Jossey-Bass.

Clark, R. E. (Ed.). (2001). *Learning from media: Arguments, analysis, and evidence*. Greenwich, CT: Information Age.

Grant, R. M. (2008). *Contemporary strategy analysis* (6th ed.). Malden, MA: Blackwell.

International Society for Technology in Education (2010). *Alabama Connecting Classrooms, Educators, & Students Statewide (ACCESS): Year four evaluation Report.* Washington, DC: International Society for Technology in Education.

Martin, M. (2005). Seeing is believing: The role of video conferencing in distance learning. *British Journal of Educational Technology, 36*(3), 397-405.

Meredith, S., & Newton, B. (2003). Models of eLearning: Technology promise vs. learner needs. *The International Journal of Management Education*, *3*(3), 43-56.

Meyers, S. (2008). Using transformative pedagogy when teaching online. *College Teaching*, *56*(4), 219-224.

Palloff, R. A. & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom.* San Francisco, CA: Jossey-Bass.

Prieger, J. E., & Hu, W. (2008). The broadband digital divide and the nexus of race, competition, and quality. *Information Economics and Policy, 20*, 150-167.

Rogers, E. M. (1995). *Diffusion of innovations.* (4th ed.). New York, NY: The Free Press.

Simonson, M. (2000). Making decisions: The use of electronic technology in online classrooms *New Directions for Teaching and Learning, 84*(1), 29-34.

Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2008). *Instructional technology and media for*

*learning* (9th ed). Upper Saddle River, NJ: Pearson.

Svinicki, M., & McKeachie, W. J. (2011). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers.* Belmont, CA: Wadsworth.

Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2010). *Keeping pace with K-12 online learning: An annual review of policy and practice*. Evergreen, CO: Evergreen Education Group.

# Pioneering a Dual Enrollment Program at a Distance

**Judy Enyart**

## Background

Since 1968, Palm Beach Atlantic University (PBA) has been preparing students to go out and make a difference in the world around them. According to its website (2011), the mission of PBA is "to be a premier Christian university, whose graduates are intellectually prepared, possess high moral character, demonstrate outstanding citizenship and are servant leaders in their communities, the nation and the world." There are several characteristics of PBA that set this university apart from other venues of higher learning. These characteristics include learning philosophy, focus on faith, community service, supportive community, tropical location, and preparation for life. PBA, located in West Palm Beach, Florida, is a comprehensive Christian university with a core emphasis in the liberal arts. Its purpose is to offer a curriculum of studies and a program of student activities dedicated to the development of moral character, the enrichment of spiritual lives and the continuation of growth in Christian ideals.

Judy Enyart,
Dual Enrollment Adjunct Professor, Palm Beach Atlantic University, and K-12 Computer Teacher, Morningside Academy, 2180 SE Morningside Blvd., Port St. Lucie, FL 34952. Telephone: (772) 335-3231. E-mail: judyenyart@morningsideacademy.com

PBA has 155 faculty members serves more than 3,500 students. The Office of Online Learning provides the infrastructure, training, and technical support to implement and maintain effective use of technology in the delivery of high quality curriculum to its students to enhance their learning experience. At PBA, this is done primarily through partnerships with eCollege and Class Live Pro, in conjunction with other software packages. eCollege is a provider of learning management and hosting, and Class Live Pro provides a virtual classroom on the web that operates in real time. The Office of Online Learning provides administrative support and student services for three different types of distance education opportunities. A program in organizational leadership is the only completely online degree program at PBA and is available through the

McArthur School of Leadership. Most departments offer eCourses in which the entire instruction of selected courses is online, and many courses at PBA include an eCompanion component in which faculty offer some of the course materials or activities online in conjunction with face to face instruction.

The struggling economy and high unemployment rates have forced private schools and universities, including PBA, to take a long, hard look at the programs they are offering to parents and students at their school. As enrollment at private schools decreases, school officials must make changes or face closing the school for good. Some schools have lowered tuition and cut costs while others have increased scholarship offerings and fund-raising efforts (Pilon, 2009). Many schools are forced to offer more programs with fewer resources. Leaders at PBA believe that dual enrollment is part of the future of higher education, and that an increasing number of students will qualify in high school to take college-level courses. Students will enter college with anywhere from 3 to 45 hours of college credit. To reach out to high school students and potentially raise enrollment at PBA, school officials began to explore the possibility of expanding their course offerings to include high school students in other parts of Florida and possibly other states as well. As a result, the Office of Online Learning expanded its responsibilities to include services and support to distance high schools and their students.

## Dual Enrollment at a Distance

In the fall of 2010, PBA implemented a Dual Enrollment Program (DEP) in connection with eight different high schools, some of which are located hundreds of miles away from PBA's main campus. The majority of the participating high schools are located in Florida; however, one of the schools with the largest number of students enrolled in the program is located in South Carolina. These schools were involved in this pilot program and are all planning on continuing with this program next year as well. Five additional high schools are also planning to participate beginning in the 2011-2012 school year. The DEP students use college level textbooks, but the courses are taught by their high school instructors. These instructors must all have the credentials to teach at the collegiate level according to the Southern Association of Colleges and Schools requirements.

PBA developed this DEP in an effort to increase enrollment and provide high school students with exposure to programs and resources available at PBA. Participating students are exposed to many aspects of the collegiate learning environment. Each DEP student is given a PBA e-mail address and student identification number, and is able to access the Warren Library at PBA, either on site or online. In addition, all DE courses have an eCollege component, which gives students experience with online learning. Participating high school students are able to experience the PBA sense of community at a distance that college students experience when they step on to the PBA campus.

Once the university determined that this was the route it wanted to take, a team was put in place and a leader selected. The main objective of this team was to oversee the implementation of this new distance education program. This team was faced with many challenges. One of the challenges being that no one was hired specifically to oversee this project. All of the team members had additional responsibilities that took them away from working on the DEP. As they came to discover, the implementation of a program of this magnitude took hard work and many long hours. They tried their best with the amount of time they had to work on the program. Another challenge that they were faced with was the fact that it was now summer, and many of the school personnel were

away from the university for a variety of different reasons. The DEP team was also faced with the challenge of getting the entire PBA on-campus faculty excited about this new program. They were asking professors, some of whom had been teaching the same way for a number of years, to participate in a new program without really knowing if it was going to be beneficial to the college or not. Despite these challenges, the DEP begin offering its first courses at all eight schools in the fall of 2010.

## Participation

PBA felt very strongly that each course offered through the university must include an intentional integration of faith. The university was founded by Baptist pastors and lay persons with a very strong commitment to the central role of the teachings of Christ in all affairs of the university. The Christian character is evidenced in a faculty of committed Christians, and a curriculum that incorporates Christian teachings throughout all disciplines. Leaders at PBA were not willing to compromise on these core values. As a result, PBA made the decision to include only Christian high schools in its Dual Enrollment Program so that the integration of faith will continue even at a distance. Additionally, this program is only open to high school juniors and seniors who have at least a 3.0 grade point average. Since these dual enrollment courses require more work of the students than the typical high school course, participating students must be diligent, hard-working students who are willing and able to put forth that extra effort.

## Training

All DEP instructors, the administration at each school, and any support staff who would be working closely with PBA were trained to utilize the resources that PBA has available to its faculty and students. This training took place prior to the start of the 2010 school year. The team from PBA traveled to each DEP school and met with the necessary personnel at each individual school site. The DEP instructors and administrators met with representatives from the registrar's office, campus information services, office for online learning, Warren Library, office of institutional research and effectiveness, career development, and the assistant vice president for academic operations. This training lasted four hours, and gave the DEP personnel an overview of the tools and resources that are available at PBA.

## Consistency

The first way that PBA was able to ensure consistency in the different courses being offered at various schools was to require DEP instructors to meet certain criteria before teaching a DEP course. DEP instructors are considered adjunct professors according to the Southern Association of Colleges and Schools and must meet the same qualifications as adjunct professors who teach on-campus courses at PBA. For example, they must currently hold at least a master's degree in the field they are teaching or a master's degree in another field with at least 18 graduate credit hours in their field. In addition, they must complete the DEP Instructor Questionnaire as well as submit their curriculum vitae and/or resume. Official transcripts must be sent directly to the office of academic operations from the granting institutions before the potential instructor is cleared to teach a particular course.

Another way to ensure consistency among the courses is to require the DEP instructors to submit a course syllabus to the office of academic operations prior to the start of each course. Each DEP professor will have access to a master syllabus that was created by the lead instructor for their course. They are encouraged to add content or make changes as they see fit;

however, PBA insists that some of the elements on the master syllabus remain constant. The course name and number must not change for any of the DEP courses. Each DEP school must use the same name and number that PBA uses to refer to a particular course. The DEP school is able to include their course name and number in addition to the PBA information if they choose, but the PBA course name, number, and description must be displayed on the syllabus. Each master syllabus contains student learning outcomes that were also determined by the lead instructor for the course. These student learning outcomes must remain unchanged on the course syllabus as well. At the end of each course a common assessment will be administered that will determine if these student learning outcomes had been met. The common assessment may be a test, project, or written assignment depending on individual course content, but it will be based on the student learning outcomes that are outlined in the course syllabus each course. The common assessment for each course will be used to evaluate the effectiveness of the DEP. The final copy of their official syllabus with the required information and any additional information must be submitted to PBA and posted in eCollege for the DEP students to view as necessary.

### eCollege

The course management system that is utilized by the students and faculty at PBA is eCollege. eCollege is maintained and updated by the office for online learning at PBA. The lead instructor for each course will deposit content for the online and DEP courses. The amount of content that is deposited for each course will vary depending on the course; however, the master syllabus will always be deposited in eCollege for each DEP course. The common assessment will be administered via eCollege as well. Some courses require that the students access eCollege multiple times to complete the common assessment, while students in other courses can complete the common assessment during one class session. The common assessment is an extremely important element of the DEP, since it is used to evaluate the overall quality of the program so that changes can be made if necessary. DEP instructors are encouraged to add their own content to their course shell as well. DEP instructor use of eCollege varies greatly. Some instructors add notes to eCollege, administer tests and quizzes via eCollege, and have students submit papers through eCollege enabling them to utilize the Turnitin feature. Turnitin checks student papers for plagiarism to ensure that all work that a student submits is their own original thoughts. Other DEP instructors only utilize eCollege for the purpose of the common assessment at the end of their course.

## Faculty Perceptions

The announcement that PBA was going to offer dual enrollment courses at a distance was met with mixed feelings by the faculty at PBA. While they understood the need to increase enrollment and were looking forward to the potential college students that would be exposed to the university, many of the college professors were concerned about the quality of teaching that these DE students would receive. The professors had never met the DEP instructors and were not sure that they had the appropriate background to teach these college level courses the way that they should be taught. Since these dual enrollment courses were entry level or general education courses, the college professors were concerned that the students would not get the information that they would need to continue on to the next level of learning. They were concerned that this would reflect badly on PBA and tarnish its reputation. The on-campus professors were also concerned that the DEP instructors would

teach the test. Since the common assessment was available to all of the participating instructors toward the beginning of the course, some university professors were concerned that the DEP instructors would only teach the content that was included on the common assessment and, in some cases, give the students the answers. Many of these concerns have dissipated as the program continued on, but some of the department heads still want a little more control over who is teaching the various courses.

The DEP professors also had mixed feelings about this new program. For the most part, they were excited about teaching at the college level; however, some were concerned that the students were not ready to meet this new challenge. Although the students were only allowed to participate in the program if their grade point average was 3.0 or higher, some of those students were still not really ready for college level work. In fact, at the beginning of the 2011 school year, at least one of the DEP schools is increasing the requirements for its students to participate in the program. These students will be facing requirements in addition to those specified by PBA. On the other hand, the DEP instructors and their administrators enjoy the flexibility that this program affords its students by allowing the DEP schools to offer courses for either one semester or the entire year based on their own individual scheduling concerns. As this pilot program draws to a close, the perception of the overall program by both on-campus professors and DEP instructors is positive; however, there is room for improvement in the future.

## Student Perceptions

For the most part, DEP student perceptions are extremely positive. Students are excited about the sense of community that they feel as part of the PBA family. They are excited about the opportunity to take college courses and get a head start on their degree program, and their parents are excited that they do not have to spend extra money for these courses. These DEP courses are included in the cost of tuition. At the beginning of the program, many students did not really understand the amount of effort that would be required in a college level course. This perception is slowly changing. Some students are still struggling, but many are beginning to understand what is expected of them. The DEP courses are challenging for even the best high school students; however, those hard working students are thoroughly enjoying this learning experience.

## Plans for the Future

As the first year of this DEP draws to a close, all of the relevant data have not yet been collected, the common assessments have not all been completed, and the data that have been collected have not yet been completely analyzed. The DEP project team has spent time reflecting on their own perceptions of the success of the program. Some changes have been made for the future of the program based on these reflections. One of the changes that this team hopes to implement before the beginning of the next school year is for the DEP instructors to meet with the other PBA faculty in their individual departments. Hopefully, this will enable the PBA professors to feel more confident about the ability of the DEP professors to teach these courses, and therefore, have a more positive attitude about the program as a whole. The goal is to establish a sense of community among the faculty as well, and to open the lines of communication within the specific departments. Another change that will be made is that the DEP personnel will be more thoroughly trained to use the online resources, especially eCollege. The training prior to the start of the 2010 school year was just an overview of the resources that were available, and the DEP instructors were left struggling to learn how to

use these resources. This training took place at the beginning of the school year when the DEP instructors were inundated with an enormous amount of information, and they were unable to absorb everything that was discussed. There was just not enough time to get everything done. The team plans to change the training procedures for next school year. In addition, the DEP project team at PBA will be analyzing all of the data throughout the summer to determine if any additional changes need to be made.

## Conclusion

The initial perception of this first year of the DEP is that this program is a huge success. Most students and faculty members alike are excited about this new program, and high school students are inquiring about attending PBA after graduation. Since the data from the Common Assessments have not been thoroughly analyzed, it is too soon to determine if the DEP students achieved the same learning outcomes as their college counterparts. However, once the data have been analyzed, decisions will be made about what the future holds for the DEP at PBA.

## References


Pilon, M. (2009, January 27). Private schools feel the pinch amid recession. *The Wall Street Journal*. Retrieved from http://online.wsj.com/article/SB123301904801417967.html

Palm Beach Atlantic University. (2011). Statement of purpose. Retrieved from http://www.pba.edu/statement-purpose


In the fall of 2010, Palm Beach Atlantic University implemented a dual enrollment program in connection with eight different high schools, some of which are located hundreds of miles from the main campus.

# Desktop Publishing
## A Literature Review

**Bridget A. Bonczyk**

### Method

Potential studies were identified using electronic database searches, hand searches of key journals, and by searching the reference sections of identified studies. First, electronic databases using Google Scholar were used. Next, articles involving desktop publishing in the three major databases in the education field were identified. ERIC, Education Full Text Wilson, and ProQuest Educational Journal were used from 1997 to 2011. The search strategy included these key words and the Boolean operator "AND" for these combinations of words: "desktop publishing" AND "classrooms" AND "writing." Furthermore, additional studies were obtained through hand searches of these relevant journals: *Journal of Adolescent and Adult Literacy*; *Information Technology in Childhood Education Annual*; *Review of Educational Research*; *Educause Quarterly*; *Threshold Magazine*; *Journal of Applied Educational Technology*; *School Media Quarterly*; *English Journal*; *Technology, Pedagogy and Education*; *Education Technology Research and Development; The International Journal of Technology and Design Education*; and *Reading Research Quarterly* for the dates January 1997 to April 2011. Finally, the reference sections of articles were searched, which met selection and rubric criteria. Additional hand searches and bibliography searches produced 27 and 24 additional studies, respectively. A total of 115 articles were reviewed in full and several were excluded because the source did not meet the definition of a desktop book format or because they were published more than a decade ago.

Bridget A. Bonczyk,
3130 Millwood Terrace M207,
Boca Raton, FL 33431-3818.
Telephone: (561) 394-7148.
E-mail: bb756@nova.edu

### Analysis of Literature on Desktop Publishing

Young children live in a world where technology permeates their lives and daily routines. Today they are exposed to technology at a much younger age than they were years ago (Kervin & Mantei, 2009). Any tool that can place students in a world of productive learning produces receptive students, who in turn facilitate the love of learning and writing. Gentry

(2005) states "students' publishing their own books as authors with the help of a computer to share with fellow students, teachers, and the world is learning" (p. 25). The world of instructional technology has altered the fabric of education over the last twenty years (Cohen & Portney, 2006). Yet, in recent years the development and use of various kinds of digital technologies has ushered in an era in which advances in technology integrated with language arts have helped to improve the learning of concepts in reading and writing.

Researchers in the field of education have begun to look at the power of digital learning environments to improve student learning. Instruction can be delivered by a teacher or with the use of media. Dixon and Judd (as cited in Clark, 2001) found no disparity between instruction performed by a teacher versus a computer. Clark (1983) lays out his basic premise that instructional designers gain no learning benefits from employing a specific medium to deliver instruction. Clark (2001) shares strong evidence for the hypothesis that the use of computers or other media for instruction does not make any necessary psychological contribution to learning, motivation to learn, or the transfer of what is learned from instruction.

Kozma (1991) disagrees with Clark's perspective and states that Clark's view of media as delivery trucks creates an unnecessary schism between medium and method. He proposes an alternate theory of learning where by the learner strategically extracts information from the environment and integrates it with information already stored in his or her memory. Kozma (1991) argues that media is an integral part of the instructional design process and has an important role in learning. For example, media can provide for students certain model cognitive operations that are salient to a learning task often ones learners cannot or do not perform for themselves. Kozma (1994) notes that, in its simplest form, media and method are inseparable.

Anderson-Inman (1997) found that using computers to improve writing achievement was particularly effective if combined with appropriate teaching strategies and learning environments. The use of computer word processing and computer instruction in developing early-grade writing skills has yielded mixed results (Barrera, Rule, & Diemart, 2001). It is still not certain if the use of technology to aid learning correlates with improved student reading and writing skills.

Lien (2000) suggested that the amount of experience students have with activities using the computer was related to how successful they were with interacting with technological resources. The study examined the Internet activities employed by 123 students in Grades 2-12. Students' activities in reading and writing were analyzed relative to their success in locating the information they sought. It was reported that only students who had extensive experience with technology appeared to have success with their literacy activities when using the Internet than those students who had not had extensive experience with technology.

In earlier years, young students' writing achievement was examined through the use of specific computer-assisted instruction programs or of computer word processors found in early computers, such as Apple's IIGS (Barrera et al., 2001). Moreover, according to Barrera et al. (2001), computer-based writing programs did not produce sufficiently strong results to convince researchers of the superiority of computers in enhancing writing achievement. Becoming a good writer is an accomplishment. Students who write, learn.

Smith and Ellis (2003) report research studies exhibiting students using technology in the publication of students' works has been shown to enhance students' writ-

ing. They cite many researchers produced a research summary pertaining to the publication of children's writing which, discussed the two major roles students personify, audience member and author, in the process of publishing and sharing their published books. They found that students who author and share their published books improved their writing and reading skills (Smith & Ellis, 2003). This learning situation of role reversal between author and audience has been identified as a quality instructional practice. Smith and Ellis (2003) maintain that studies conclude that students using technology enhances the development of their writing. From a new perspective, a primary goal for using computers is for students to learn something and share what they have learned with others. Online writers and readers do not just read or write, they communicate with others continuously as a means of processing what they are learning (Zawilinski & Leu, 2008; Henry, 2006; Richardson, 2006). Student publishing is learning and an expression of one's learning.

The motivational value of writing for publication is that it impacts the level of commitment children have for striving for excellence in their compositions (Gentry, 2005). With digital cameras, color printers, and computers more accessible to teachers and students, local book publication in language arts classes is increasing. As computer technology improves and changes, such improvements may produce different effects (Barrera et al., 2001).

DeBell and Chapman (2006) reported about two thirds of children in nursery school and 80% of kindergartners use computers. According to DeBell and Chapman (2006), about 23% of children in nursery school use the Internet, 50% by Grade 3 and rises to 79% in Grades 9-12. The relevancy, cultural responsiveness, and linguistic match ups are being recognized and supported in the language arts curriculum for primary children (Daiute, 2003).

Daiute (2003) noted that advanced computer applications such as desktop publishing present instructors with a new way in which to teach what might no longer fit traditional notions of writing. Daiute (1985) discussed the "fun" that children and adults have when writing on the computer. She states the writing process came to life with the cut and paste functions of the word processor. With desktop publishing, writers are able to express their thoughts and ideas worthy of professional publishers.

Daiute, Ausch, and Chen's (1997) research from the City University of New York, advocates linking technology with literacy because of the impact they saw the World Wide Web had on developing the writing abilities of their students. In their study of more than 100 students, they found that computers enhanced their student's written language and their motivation to learn to write. Results also indicated that students who used computers for compositions were also involved in critical literacy as they continued to master the mechanics of writing (Daiute et al., 1997).

Kinzer and Leu (1997) research focused on the challenge of change when exploring literacy and multimedia technologies available to students. The Young Children's Literacy Project is relevant because of its involvement with younger children. The project integrated multimedia technology and focused on children in the primary grades. Kinzer and Leu (1997) wanted children to understand the power, use, and importance of literacy. Their findings showed that students who viewed video stories could sequence and retell the story that was just presented using the computer's recording system successfully. Two positive outcomes occur when primary children use the Internet to access stories they had written. First, the child's story shows a portion of the web home page available through the Young Children's Project. Second, students from around the

country and the world saw and read the ongoing literacy activity that was being used in other classrooms.

Baker (2000) identified results from an ethnographic study that examined two approaches to integrating literacy and technology. The inquiry and process writing approaches was implemented in a fourth grade teacher's literacy and technology class. The result where literacy instruction and technology was implemented was found to be successful for this classroom (Baker, 2000). Baker (2000) noted that the study's findings may provide helpful insights to other elementary teachers who seek to integrate literacy instruction and technology.

Daiute (2003) found primary students who used technology in literacy showed an increased role and commitment when developing their writing stories. She noted that the use of computers motivated students and their attitudes to learn. Findings related to outcomes that affect children's learning in technology also increased.

Harste (2003) argued that mastering the basics of reading and writing is more important than ever before because of the increased volume of information and the speed at which it reaches the reader. Harste proposed the need for an altered perspective on literate practices to empower consumers to read with a critical eye. The power of a text to position an audience is increased with creative professional production and an increased potential audience afforded by technology, challenges the reader to make informed decisions. Technology has impacted significantly on language and how it is used.

Jewett (2003) contends that the connections between literacy and social practices are exemplified within the digital era. Educators must acknowledge that technology has the power to change the nature of what is considered texts for classroom study, authorship of text and how it contributes to learning.

Labbo (2005) points out most contemporary curricula are designed to capitalize on computer technology potential, which allows teachers and children to access central facilities even for short periods of time. This is a valid starting point for teachers to operate within their zone of proximal comfort by using technology within tried and trusted teaching methods before adopting newer pedagogies. The zone of proximal development is the distance between what a person can do with and without help. In other words the zone of proximal development refers to the range of tasks that a learner cannot yet do alone, but can accomplish with the help of instructors or more capable peers (Vygotky, 1978). Labbo (2005) insists more research is needed about how teachers can adopt to a literacy paradigm that recognizes and embeds information and communication technology within classroom literacy experiences.

Dede (2005) and Oblinger (2003) maintain that, for teaching to be supported by technology children are accustomed to through open learning experiences, it must authentically reflect real-world problems and value their cultural practices. Dede (2005) argued a partition exists between the technology that is used within everyday life and the technology used in many classroom settings. The capabilities of information and communication technology are well reported, as is the need for their inclusion within the classroom setting. According to Dede (2005) the debate of how this should be achieved and whether the technology is the learning or it supports the learning continues to be argued.

Mawson (2007) sought to establish the technological knowledge, understandings, and capabilities of 5 year olds. His research and findings was completed in an inner city primary school located in Auckland, New Zealand. The findings relate to factors that affect children's learning in tech-

nology. Mawson focused on specific factors that affect children's learning in technology. Findings indicated that primary children need opportunities to explore technological activities. Moreover, Mawson noted that primary children need to be given opportunities to explore technological activities, which are vital for integration to consist of authentic technological learning if positive outcomes are to be expected for these young children.

Warren, Dondlinger, and Barab (2008) found much of the application of technology in writing instruction has been relegated to the use of the word processor for student writing. Although the word processor has done much to enhance writing performance as it relates to outcome achievement, it does little to enhance writing instruction, provide feedback, or encourage reflection. The results of a digital learning environment designed to improve elementary student writing by Warren et al. (2008) indicated that students were motivated by the narrative structures to engage in more free-choice writing practice in the treatment class. Their results addressed the need to establish rich narrative contexts that situate students within a rich context. The role of the digital environment in this instance was primarily due to the design of the instructional technology used within the classroom for the primary students.

Warren et al. (2008) further states computers have the potential to transform and deepen literacy experiences for primary children who are given suitable classroom task that promote the integration between literacy, technology use and learning. By providing more of a rich context for student writing while providing students additional external motivation fosters intrinsic motivation (Warren et al., 2008). To achieve this with the support of technology, teachers must understand not only the needs of the children but also the advantages of the technology, the skills, strategies and language acquisitions for being literate, and how these can combine to provide rewarding classroom experiences.

Research is still in a nascent phase with limited findings from studies that address changes in student achievement in content areas (Dondlinger, 2007). Students of any age can learn by instruction delivered via technology (Simonson, Smaldino, Albright, & Zvacek, 2009). Early research findings indicate there are a number of common factors that can encourage and empower scalability. Many researchers have worked extensively on ways to achieve scale for educational innovations; technology can assist in many ways in achieving scale (Dede & Rockman, 2007).

## Conclusion

Research indicates when students in primary grades use technology in literacy, four impacts happen: the role and commitment in writing development increases (Dauite et al., 1997); the use of the computer motivates students and their attitudes to learn (Lund & Sanderson, 1999); desktop publishing, a vital tool for primary children, enables them to develop a stronger ability in both reading and writing (Smith & Ellis, 2003), and findings that relate to outcomes which affect children's learning in technology increases (Mawson, 2007).

Opportunities for primary children to create, share, and publish digital picture e-books are increasing and according to research can now be easily accomplished as the role of technology in publishing children's writing is addressed (Condon & McGuffee, 2004; Smith & Ellis, 2003). As students share their published books, they incorporate new ideas and consider new information that has come their way.

Publishing students' written work gives the meaning and purpose for writing (Smith & Ellis, 2003). However, there is a need for more and better research when

implementing digital publishing into the language arts curriculum for young children (Barrea et al., 2001). One common thread which was apparent is that studies on desktop publishing agreed that writing skills are enhanced when technology is available and facilitates publication for relevant, authentic authorship experiences among primary children (Daiute, 2003; Daiute et al., 1997; Smith & Ellis, 2003). This experience that allows children to create and explore using technology may ultimately leave them with the idea that they can someday be an author, who can share their writings and thoughts with others (Gentry, 2005).

Zull (2002), an authority on learning's connection to the brain, proposed that an individual possesses two biologically engrained brain needs for efficacious learning. He identified the needs as control and pleasure (p. 51). Zull (2002) found the brain gives children an atmosphere of control when learning to create a book, and then gives them pleasure when sharing their learning and book through desktop publishing. Desktop publishing offers support to these two brain needs and grants an individual control of the text and pictures to create the individualized story of learning and the pleasure of a final personalized story publication (Gentry, 2005).

In summary, research synthesis provides preliminary evidence that digital books can be used to support comprehension goals with students in pre-K through grade three (Zucker, Moody, & McKenna, 2009). Desktops books are likely to be most effective when teachers play an active roll in their use including providing explicit ground rules for individual learners (Mercer, Fernandez, Dawes, Wegerif, & Sams, 2003; Wood, Littleton, & Chera, 2005). In order for technology to be authentic and pedagogically appropriate it needs to be utilized in ways, which supports literacy and learning experiences for children. Finally, teachers must promote an environment that empowers students as informed decision makers as they challenge and expand upon what they do when authoring text.

## References


Anderson-Inman, L. (1997). OWLs: Online writing labs. *Journal of Adolescent and Adult Literacy, 40*(8), 650-654.

Baker, B. (2000). Instructional approaches used to integrate literacy and technology. *Reading Online.* Retrieved from http://www .readingonline.org/articles/baker

Barrea, M., Rule, A., & Diemart, A. (2001). The effect of writing with computers versus handwriting on the writing achievement of first graders. *Information Technology in Childhood Education Annual*, 215-228.

Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53*(4), 445-459.

Clark, R. E. (2001). *Learning from media: Arguments, analysis, and evidence.* Greenwich, CT: Information Age.

Cohen, S., & Portney, K. E. (2006). *Virtual decisions: Digital simulations for teaching reasoning in the social sciences and humanities.* Mahwah, NJ: Erlbaum.

Condon, M. F., & McGuffee, M. (2004). RealeWriter (version 3.1) [Computer Software]. Arvada, CO: Reale Studios.

Daiute, C. (1985). *Writing and computers*. Reading, MA: Addison-Wesley.

Daiute, C. (2003). Writing and communication technologies. *Reading Online*. Retrieved from http://www.readingonline.org/past/ past_index.asp?HREF=/research/ daiute_excerpt/index.html

Daiute, C., Ausch R., & Chen, P. -Y. (1997) *Contradicting a program for "at risk" urban youth (*Final report to the Stanton Heiskell Center, Project Tell) Retrieved from http:// www.readingonline.org/past/past_index .asp?HREF=/research/daiute_excerpt/ index.html

DeBell M., & Chapman, C. (2006). *Computer and Internet use by students in 2003* (NCES 2006-065). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Dede, C. (2005). Planning for neomillennial learning styles. *Educause Quarterly, 28*(1), 7-12.

Dede, C., & Rockman, S. (2007). Lessons learned from studying how innovations can achieve scale. *Threshold Magazine,* 4-10. Retrieved from http://www.ciconline.org/thresholdspring07

Dondlinger, M. J. (2007, Spring). Educational video game design: A review of the literature. *Journal of Applied Educational Technology, 4*(1), 1-11. Retrieved from http://www.eduquery.com/jaet/index.htm

Gentry, J. E. (2005). *The impact of e-publishing assistive technology in an inclusive sixth grade social studies classroom on special needs, regular education, and gifted students' content learning, writing, spelling, and motivation: A descriptive comparison* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3196388)

Harste, J. (2003). What do we mean by literacy now? Voices from the Middle, *10*(3), 8-12.

Henry, L. A. (2006). Searching for an answer: The critical role of new literacies while reading on the Internet. *The Reading Teacher, 59*(7), 614-627.

Jewitt, C. (2003). Multimodality, literacy and computer-mediated learning. *Assessment in Education, 10*(1), 83-102.

Kafai, Y., & Bates, M. J. (1997). Internet web-searching instruction in the elementary classroom: Building a foundation for information literacy. *School Media Quarterly, 25*(2), 103-111.

Kervin, L., & Mantei, J. (2009). Using computers to support children as authors: An examination of three cases. *Technology, Pedagogy and Education*, *18*(1), 19-32.

Kinzer, C., & Leu, D. J. Jr. (1997). Focus on research-the challenge of change: Exploring literacy and learning in electronic environments. *Language Arts, 73*(2), 126-137.

Kozma, R. B. (1991). Learning with media. *Review of Educational Research, 61*(2), 179-211.

Kozma, R. B. (1994). Will media influence learning? Reframing the debate. *Education Technology Research and Development, 42*(1), 7-19.

Labbo, L. D. (2005). From morning message to digital morning message: Moving from the tried and true to the new. *The Reading Teacher, 58*(8), 782-785.

Lien, C. (2000). Approaches to Internet searching: An analysis of students in Grades 2 to 12. *Journal of Instruction Delivery Systems, 14*(3), 6-13.

Lund, D. M., & Sanderson, D. A. (1999, November). *From printed page to multimedia. Evolution of a second grade class newspaper.* Retrieved from www.readingonline.org/articles/lund

Mawson, B. (2007). Factors affecting learning in technology in the early years at school. *The International Journal of Technology and Design Education*, *17*, 253-269. doi:10.1007/s10798-006-9001-5

Mercer, N., Fernandez, M., Dawes, L., Wegerif, R., & Sams, C. (2003). Talk about texts; using ICT to develop children's oral and literate abilities. *Reading, Literacy and Language, 37*(2), 81-89.

Oblinger, D. (2003, July/August). Understanding new students. *Educause Review,* 37-47.

Richardson, W. (2006). *Blogs, wikis, podcasts, and other powerful web tools for classrooms.* Thousand Oaks, CA: Corwin.

Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (2009). *Teaching and learning at a distance: Foundations of distance education.* Boston, MA: Pearson.

Smith, C. B., & Ellis, D. M. (Eds). (2003). *Various methods of publishing children's writing* (Report No. ERS-030031). Bloomington, IN: Clearinghouse on Reading, English, and Communication. (ERIC Document Reproduction Service No. ED482402)

Warren, S. J., Dondlinger, M. J., & Barab, S. A. (2008). A MUVE towards PBL writing: Effects of a digital learning environment designed to improve elementary student writing. *Journal of Research on Technology in Education, 41*(1), 113-140.

Wood, C., Littleton, K., & Chera, P. (2005). Beginning readers' use of talking books: Styles of working. *Literacy, 39,* 135-141.

Zawilinski, L., & Leu, D. J. (2008, March). A *taxonomy of skills and strategies from verbal protocols of accomplished adolescent Internet users.* Paper presented American Educational Research Association Conference New York, NY.

Zucker, T. A., Moody, A. K., & McKenna, M. C. (2009). The effects of electronic book in prekindergarten-to-Grade-5 students' literacy and language outcomes: A research synthe-

sis. *Journal of Educational Computing Research, 40*(1), 47-87.
Zull, J. E. (2002). *The art of changing the brain*. Sterling, VA: Stylus.

# Using Moodle to Enhance Online Classrooms and Professional Development

**Jonathan Dinaro**

## What is Moodle?

Modular Object-Oriented Dynamic Learning Environment, or Moodle is open source, which means it is copyrighted but free as long as the user provides the source to others (Menges, 2009). Moodle has become very popular among educators as a virtual learning environment, learning management system, or an open source course management system. In order for Moodle to work, software needs to be installed on a web server on a computer or one from a web hosting company (Moodle, 2011a). Moodle was the brainchild of Martin Dougiamas, a former WebCT administrator. The socioconstructivist pedagogy design of Moodle has created an environment that allows collaborative interaction among students and additions to traditional classroom instruction (Brandl, 2005). This article discusses ways Moodle can be used to enhance online learning. Online curriculum in schools, the differences between Moodle and Blackboard, and how Moodle is used for professional development will be addressed.

From the Open University in the United Kingdom with 600,000 users, to a single classroom, Moodle can conduct courses fully online to face-to-face teaching and learning. As of April 9, 2011, there were 54,466 registered Moodle sites in 213 countries. With 41,524,927 users, 1,137,626 users are teachers with 4,410,988 courses. The top 10 registered countries are United States, Spain, Brazil, United Kingdom, Germany, Mexico, Portugal, Australia, Italy, and Colombia (Moodle, 2011b).

Jonathan Dinaro,
Doctoral Student, Nova Southeastern University, 3301 College Avenue, Fort Lauderdale-Davie, FL 33314-7796.
E-mail: dinaro@nova.edu

## Teachers Using Moodle Effectively

Moodle is used in Pinellas County (Florida) Schools as a place for online courses and collaborative discussions. Pinellas County Schools hosts four types of Moodle sites. The first site is a teacher site where

teachers can place files and links, have students work assigned, discuss classroom topics, place quizzes, and more. The teacher site is a closed environment that only class members can see. The second type of site Pinellas County Schools hosts is a school site. The school sites are where schools can have space for announcements, file sharing, and discussions that can only be accessed by school staff. The third type of site Pinellas County Schools hosts is a district office/department site that is similar to a school site, but accessed by a group of district staff members determined by the owner of the site. The last site is the district staff development site. This site is maintained by district staff developers to create online courses (Pinellas County Schools, 2009).

The teachers themselves maintain Pinellas County Schools' teacher sites in Moodle on their own planning time or at home in free time. Due to lack of time and outside obligations, many teachers do not have a Moodle website. The set up for a Moodle teacher site can scare away many teachers as well, but finding the time to plan lessons, grade papers, meet with parents, and many more things a teacher does influence the decisions of teachers to set up a Moodle site or not. Finding teachers to interview across the grade levels about Moodle was just as hard as finding time to set up a Moodle teacher site. High school teacher Patricia Thomas said,

> I use Moodle for all my professional training. I have trained for car-pd [content area reading—professional development], how to make a Moodle site, Elluminate training, smart slate training and classroom response training. The many movies help me when I go to train someone else. I also use Moodle for setting up courses such as physics, chemistry, and STEM (science, technology, engineering, and mathematics) for the virtual high school of Pinellas county. The Pinellas County uses Moodle to run its virtual courses so I actually teach through Moodle the students of Pinellas County. I use Moodle to communicate with affiliated colleges such as University of Florida. They have a module on our Moodle filled with a database of inquiry projects that have been done by our teachers. So I can look up a subject and find if someone has already investigated it and get some answers or if they have not investigated it then I can investigate it myself and post my findings. (Personal communication, April 8, 2011)

Denise Motes, a fourth grade reading and writing teacher, says,

> I've used Moodle in the past year mainly for my instruction. I did the three courses for Smart Board on Moodle and then created lessons to be used on the Smart Board for vocabulary and word work instruction everyday with my students. I've also used Moodle for Florida Continuous Improvement Model lesson plans, ideas for instruction and new ideas in the reading/writing subject areas. (Personal communication, April 10, 2011)

Motes uses her Moodle teacher site to enhance her lessons where she sees fit, as an enhancement to her reading and writing lessons, whereas Thomas uses hers daily as an online as part of the core-teaching curriculum.

Kerry Hogan, a fifth grade teacher, said,

> I have used Moodle for all classroom subjects, here are just a few examples of how I have used Moodle to enhance my classroom online. I ripped the audio files from the reading adoption's compact discs into Quicktime files so the students could log in to Moodle to listen to the reading stories. They did this in the classroom, but also had access from home if they wanted to listen again. The idea behind this was to improve fluency through reading the story while listening to the narration. I have exported reading tests from the reading adoption's electronic files into a format supported by Moodle. Students could take the weekly reading tests online and be provided with instant feedback. It also saved a great deal of time

since the tests were automatically graded. I could also do item analysis right away to determine if students were having problems with a particular type of question—for example, if a number of students missed a specific vocabulary word question, I knew I would need to review that word in future lessons. Wikis—we created class wikis for different science and social studies concepts. Students were able to find pictures and facts on the Internet and place them on a wiki. This allowed students to explore the concepts, pick out interesting facts, and practice research and citation skills. For communication, I used Moodle as a classroom newsletter, posting weekly assignments, and a note for parents about what we are studying in the subject areas. The parents did not have login capabilities but could login through their child's username and password. I also posted surveys for students about different things, including affective surveys. Moodle allowed for easy collation of the survey information. Lastly, I posted links to various resources for student review and practice, such as Coolmath.com and math activities for students to review at home." (Personal communication, April 10, 2011)

Hogan is one a handful of teachers at the writer's school who has embraced the practicality of Moodle and infused it with his curriculum. Hogan's role at the school besides a teacher of fifth grade is also teacher of Moodle to teachers who want the help.

## Moodle Versus Blackboard

Moodle is the most popular rival to the course-management system sold by Blackboard Incorporated. Blackboard is expanding into the K-12 education system; in 2006, Blackboard bought its competition, WebCT. Blackboard welcomes Moodle and other open-source competition because interest among the schools will help expand the use of course management systems, a market that Blackboard believes it will dominate. Blackboard launched an enhanced version for small schools and districts for a fee starting at $10,000 which includes online hosting and training of personnel, a lower cost than what larger institutions pay (Trotter, 2008). With school districts trying to save money, Moodle appears to have an advantage over Blackboard. Like the writer's school district, cutting back the budget does affect programs and with Blackboard's starting fee, it does not look too optimistic for Blackboard to fully integrate itself into the K-12 education system.

Moodle has released its newest version, Moodle 2.0, and Blackboard released its newest version, Blackboard 9.1, with many upgrades to both platforms. Starting with Blackboard, the company made improvements in course wikis, blogs, and journals that stimulate conversation and reflection. Blackboard's most notable feature is its Web 2.0 interface that helps educators navigate when adding materials to an online course and helps students navigate when accessing course content. Some additional cost items include Blackboard Connect, which provides alerts to students for due dates, deadlines and academic priorities within a course. Blackboard also has Blackboard Mobile Learn, which allows students to access online courses using handheld devices, such as iPhone or iPad (Walsh, 2010).

Moodle 2.0's improvements are related to usability. Easier navigation, improved profiles, newer interface for messaging, and a feature for teachers to check students' work for plagiarism are just a few new improvements for Moodle 2.0. Teachers can now search all public community hubs and download courses to use as templates for building their own courses. Lastly, teachers have the ability to see reports on a student's progress in a course (Walsh, 2010).

In 2008, the American Association of Community College's Instructional Technology Council published its 2007 Distance Education Survey Results. The findings

included that Blackboard is losing market share rapidly and Moodle doubled its market share in the past 12 months and now has the highest market share after Blackboard. The report notes that Moodle went from 4% market share to more than 10% in a year's time (Feldstein, 2008).

## Moodle and Professional Development

Using Moodle's online capability to enhance classrooms is not the only way people are taking advantage of the program. School districts are using Moodle to host their professional development courses for workers. In the K-12 educational field, it is no secret that money is short and finding ways to trim budgets is a daily task. Moodle has helped many school districts come up with an alternative way to deliver professional development. At the writer's school, the word Moodle is still a bit scary for some who have not embraced the idea that everything you need to do your job is located on Moodle. A few years back, the word Moodle was thrown around here and there and many teachers pushed it away, not embracing change. Now, teachers can take the training in their classrooms during their lunch breaks, breaks with no children (physical education, art, music, chorus, guidance, etc.,) before the workday, after the workday, or even at home in their pajamas. Teachers are now singing the praises of Moodle because of how it has made life easier, allowing training at their own pace.

## Conclusion

The Pinellas County School District is the 23rd largest in the United States, with over 12,000 teachers needing professional development (Frankich & Just, 2010). With money being slashed from school budgets by state leaders, which results in fewer people running face-to-face professional development courses, what is there to do to meet the needs of 12,000 teachers and not be a financial burden on the school district? The answer is Moodle. Not just for its way of delivering professional development to the school district but for its many other uses.

Moodle may not work for everybody and does have its weaknesses compared to Blackboard, but Blackboard, too, has its weaknesses. Moodle is a great tool to enhance the traditional classroom or use as an online classroom itself. All students can benefit from enhancement of classroom activities outside of class, like what Kerry Hogan did with his fifth grade students. Teachers like him are paving the ways for future generations of students receiving information online. Patricia Thomas is using Moodle full time with her high school students, putting valuable curriculum, movies, and resources online. She is also using Moodle to conduct professional development, just like Pinellas County Schools' professional development department. Reaching 12,000 teachers is time consuming and expensive. Moodle handles the delivery system, while the developers upload the content. There is a saying about technology, "just wait until next month and it will become cheaper," Moodle has already become cheaper by being free. It is likely that many companies have seen what Moodle has done to the market and have started developing open-source learning management systems of their own with newer and better features for people to use for free.

## References


Brandl, K. (2005, May). Are you ready to "Moodle"? *Language Learning & Technology, 9*(2), 16-23.

Feldstein, M. (2008). *Bad news for Blackboard, good news for Moodle*. Retrieved from http://www.mfeldstein.com/bad-news-for-blackboard-good-news-for-moodle/

Frankich, M. & Just, J. (2010, April 19). *Professional development: The blended model using Moodle*. Retrieved from http://

sloanconsortium.org/blended/bld2010_FacDev_Frankich

Menges, B. (2009, October). Using Moodle (open source software) with Grades 3-6. *School Library Monthly, 26*(2), 21-22.

Moodle. (2011a). *About*. Retrieved from http://moodle.org/about

Moodle. (2011b). *Moodle statistics*. Retrieved from http://moodle.org/stats/

Pinellas County Schools. (2009). *Moodle*. Retrieved from http://www.pinellas.k12.fl.us/itech/moodle.html

Trotter, A. (2008). *Blackboard vs. Moodle competition in course-management market grows*. Retrieved from http://www.edweek.org/dd/articles/2008/06/09/01moodle.h02.html

Walsh, K. (2010). *Moodle 2.0 versus Blackboard 9.1—A brief comparison*. Retrieved from http://www.emergingedtech.com/2010/11/moodle-2-versus-blackboard-brief-comparison/

# Assistive Technology

## Enhancing the Life Skills of Students With Learning Disabilities

**Aries Cobb**

### Introduction

The goal of this study was to explore and report how behavior therapists and applied behavior analysts used data derived from the Child Behavioral Checklist (CBCL) and the Parent-Infant Relationship Global Assessment Scale (PIR-GAS) to prescribe assistive technology to increase the overall psychological well-being of early childhood students, ranging in age from 3 to 5 years. The CBCL is a tool that parents, teachers, clinicians, and therapists who know the child rate a child's problem behaviors and competencies (Achenbach, 1991). The PIR-GAS is a scale of infant-parent relationship adaptation, raging from "well-adapted" to "dangerously impaired" (Aoki, Zeanah, Heller, & Bakshi, 2002, p. 493). Applied behavior analysis (ABA) is an active ingredient that assists preschool aged students to develop creativity and learn basic skills, such as speaking, listening, controlling emotions, et cetera. In this study, applied behavior analysis was conducted using assistive technology (AT) to enhance the learning and life skills of clients with learning disabilities. AT can help autistic children achieve their highest potential regardless of their inborn abilities (Hasselbring & Glaser, 2000; Smaldino, Lowther, & Russell, 2008; Tinker, 2001).

Aries Cobb,
Director, Educational Assistive Technology, LLC, and Assistant Professor, Division of Education, Baldwin-Wallace College, 275 Eastland Rd., Berea, Ohio 44104-2088.
Telephone: (440) 826-8062.
E-mail:arcobb@bw.edu

### Assistive Technology

In the field of instructional technology (IT), special education, and in ABA, the varying definitions of AT are as follows: (a) "Any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" (Assistive Technology Act, 2004, p. 1); (b) devices and software designed specifically for those with learning or physical disabilities (Smaldino, Lowther, & Russell, 2008); and (c) AT has powerful tools that support physically challenged students with equal opportunities to more fully participate in the teaching-learning process (Hager & Smith, 2003).

In this study, the researcher takes each definition into account and focuses on studying the impact of the computer, mediating hardware, and software used by disabled students in learning environment. The research suggests that students that use AT display positive effects for psychological health when compared to other children in the program who do not use AT (Cavanaugh, 2002; Hasselbring & William-Glaser, 2000; Khek, Lim, & Zhong, 2006; Smaldino et al., 2008, 2012). Moreover, this body of research refers to the IT devices as a system of positive reinforcement used to help students learn. In this study the use of AT plays an important role in behavior management and enhancement of life skills for the overall education of students with learning disabilities.

## Assistive Technology Used by Applied Behavior Analysts

In the areas of applied behavior analysis and special education, there are sets of technologies and computerized equipment that are used to assist children in the learning process. The list of technological devices and/or assistive technology used by behavior therapists as a treatment for children with special needs includes simple magnifiers, pointers, alternative input/output devices, touch screens, voice recognition systems, graphic organizing software, and special cognitive software (Khek et al., 2006).

In this study, the treatment group used AT to improve language and motor delays in children 3 to 5 years of age. Evaluating researchers have documented that, when AT is used for children with special needs, properly designed instruction contributes enormously to its effectiveness, especially in the case of autism (Cavanaugh, 2002; Smaldino et al., 2008). When used correctly for students with special needs, AT tends to create a learning environment that promotes enhanced operant procedures, positive self-growth, increased motor skills, and effective oral communication (Cavanaugh, 2002; Khek et al., 2006; Smaldino et al., 2008, 2012). In conjunction with the application of AT, educational therapists have found various technological devices to be effective in specific types of learning disability. Table 1 provides a list of practical uses of assistive technology devices for specific learning disabilities.

## Special Instructional Interventions: Regular Classroom

Children with disabilities need special instructional interventions that will eventually result in their improved understanding, learning function, and self-confidence with which they merit inclusion in the regular classroom. Multiple reports indicate that the number of students with disabilities enrolled in K-12 schools has steadily increased since the passage of P.L. 94-142:

**Table 1. Assistive Technology Devices for Specific Learning Disabilities**

| AT Device | Type of Motor Skill and/or Learning Disability |
|---|---|
| Click-N-Type | Students that do not have the use of their fingers or do not have fine motor skills |
| Word Talk | Students that are visually impaired and/or have a form of a reading disability |
| Let Me Type | Students with cognitive disabilities or learning disabilities (e.g., dyslexia) |
| Next Talk | Students who are deaf or hard of hearing (auditory impairments) or are sound sensitive |
| Click and Speak | Students with visual impairments, cognitive disabilities |
| Power Talk | Students with cognitive disabilities and visual impairments |

*Source:* Adapted from The Ohio State University, College of Education & Human Ecology, Ideal Group (n.d.).

Education of All Handicapped Children Act (Reed & Lahm, 2004). Children with mental disabilities have a great opportunity to learn when presented with high-structured learning situations (Smaldino et al., 2008). The EDU-AT-TECH program provides students with disabilities with appropriately structured instruction that helps them to develop positive learning constructs. In this study, the researcher states and discusses the benefits of the EDU-AT-TECH program and how the participants learn as a result of AT and structured instruction. Through the use of AT, many students with learning disabilities are found to decrease their isolation and demonstrate their increasing ability to become participants in regular classes (Cavanaugh, 2002).

## Literature Review

The uses of IT and AT in education are not new phenomena. IT not only brings exciting treatment based on real-world problems into the classroom but also provides scaffolding to enhance learning (Hitchcock, 2001; Tinker, 2001). IT has increased the psychological health of global communities that include teachers using IT as a treatment for behaviors on a student's individual education plan (Salomon, 1993). This technology gives students and teachers collaborative feedback, reflection, and revision. AT also expands learning opportunities for both teachers and students (Bransford, Brown, & Cocking, 1999).

### Computer-Assisted Instruction and Computer-Managed Instruction

In this study, the uses of computer-assisted instruction and computer-managed instruction are briefly outlined. The two treatments are used together with ABA to decrease the effects of language and speech delays in children with learning disabilities. In other words, the EDU-AT-TECH program uses AT in the form of computer-assisted instruction and computer-managed instruction as treatment for children with autism. Computer-assisted instruction refers to the use of technology to aid teaching and learning in the classroom (Cobb, 2009). Computer-managed instruction refers to the use of computer systems to manage information about learner performance and learning resources and to then prescribe and control individual lessons (Smaldino et al., 2012). Students who participate in tutorial drill, practice, and games tend to outperform students who do not use such interventions (Cobb, 2009; Morrison, 2001; Slavin, 2008). In addition, ABA teachers that use a combination of computer-assisted instruction and computer-managed instruction tend to use computer systems to manage information about learner performance and learning resources and to then prescribe and control individual lessons (Smaldino et al., 2008). By contrast, there has been a new shift toward a software design model which is characterized by a consistent presentation of voice prompts to promote interaction with audio in the form of voice and sound (Lewis & Doorlag, 1999).

### Computer Multimedia and Learning Disabilities

Computer multimedia is a computer hardware/software system for the composition and display of presentations that incorporate text audio, still, and motion images (Smaldino et al., 2008). In this study, the researcher determined whether computer mediated hardware and software used by disabled students in a learning environment assist in improving their overall psychological well-being. Instructional Technology was used as a tool to improve instruction for students with learning disabilities.

## Technology Productive Tools: Augmentative Technology

Technology-productive tools consist of computer software that enables people to work more effectively and efficiently (Blackhurst & Koorland, 1995). IT and quality teaching increase the psychological well-being of students in the EDU-AT-TECH program. For example, voice recognition software with transcription capabilities can assist students with special needs who are physically unable to type using a keyboard (Hasselbring & Glaser, 2000).

Augmentative technology uses voice prompts to teach students that demonstrate developmental language delays in how to communicate at home and in the school environment, as well as in learning life skills. The technological cognitive code base in the device reduces a student's dependence on others to perform such simple tasks as reading, writing, and listening. In addition, there are various types of software available that can provide immediate feedback to the student, and also offer an individualized learning environment. Furthermore, the data analysis driven method employed by ABA identifies behavior that is displayed and improved by the student as a vital component of overall success by tracking reinforcement and improved behavior in terms of performance objectives (Margolis & Michaels, 1994).

## Education and Students With Learning Disabilities

AT's high standards provide benefits for students with learning disabilities. It improves student self-confidence and academic performance. This study includes documentation of observable behavior displayed by clients that the behavior therapist is able to describe and categorize in order to form a report. Such reports show that AT can increase students' enthusiasm to learn. Students with mild learning disabilities often demonstrate higher-level performance and attention to detail when working on multimedia projects than they normally exhibit (Hasselbring & Glaser, 2000). As a result, their interest in academic endeavors is enhanced. In 2005, a nationwide population of approximately 70,000,000 pre-K-12 students who had been identified as having special needs was the driving initiative for the Individuals with Disabilities Education Act , which focused on students with disabilities that needed to be taught and brought to the same high standards as students without disabilities (U.S. Department of Education, 2006).

Innovative advantages in technology have assisted teachers to better meet the special needs of students with learning or physical disabilities, as well as students who have language delays. The values of using technology for diverse type of learners have been established and individualized education programs are now being created for students with special needs by integrating assistive technology into classroom instructional practices. Today's applied behavior analysis can be used as a resource for specialized software and digital tools to create, maintain, and report student individualized education programs as well as to provide overall management, behavioral analysis, behavior therapy, and support of students with special needs. This program was created to meet the needs of the children with learning disabilities that are entitled to receive behavior therapy to meet their learning needs.

## Learning Centers

New technologies also serve to increase the current and future compatibility of classrooms in adapting to accommodate special needs learners. Learning centers can be equipped with assistive technology or digital devices and software designed specifically for children and adolescents with learning or special disabilities. The technology enables students to control the rate of speech delivery. A computer screen

is used so they can better read the results of a database. The treatment allows students to perform a search by using a voice synthesizer, to have the printed page remade to meet their needs or to enable them to take notes in class through an electronic storage device that can later print out the document in Braille (Smaldino et al., 2008). The behavior therapists in the study made accommodations for the learners by offering user-centered selection of text and graphics for design options for the AT.

### Hearing Impaired Learners and Visually Impaired Learners

Behavior therapists at EDU-AT-TECH use technique alternatives with special needs learners by providing handouts using notes for hearing impaired learners and using audio recording for visually impaired learners. Thus, the treatment can improve the learning of all students. Students diagnosed with visual impairments require different kinds of learning materials such as appropriate audio devices; adjusted instruction for exceptional learners; and prescription of technology, media, and materials. Applied behavior analysis uses assistive strategies for students with disabilities. AT is beneficial to the clients because assistive technology enhances learning.

## EDU-AT-TECH CLIENTS

In Table 2 and Table 3, the outcomes of EDU-AT-TECH clients are presented by age, and by age and gender. EDU-AT-TECH was initiated in July 2007. Ninety-six EDU-AT-TECH clients consented to participate in Invest in Children's external evaluation of the overall initiative. A total of 63.5% of the clients were male and 36.5% of the clients were female.

The mean age of the 61 male EDU-AT-TECH clients that participated in the program was 28 months, and the median age of the 35 female EDU-AT-TECH clients was also 28 months.

Table 4 represents data collected about the total number of parents that wished to be involved in Invest in Children's external evaluation process. There were 96 EDU-AT-TECH clients enrolled in the program. Parents had the option of giving consent to be contacted during the evaluation process: 21.9% of the parents and/or caregivers indicated that they did not want to be contacted in regards to the evaluation of their child. By contrast, 77.1% of the parents and/or caregivers wanted to have contact with the provider regarding the evaluation of their child.

Table 5 is the data representation of the total number of clients that had a closed case in the EDU-AT-TECH program. Details of the data representation are discussed following the table.

Of the total number of EDU-AT-TECH clients in the EDU-AT-TECH program, 79.2% cases were closed, and the analysis of the data suggests that 27.1% of the cases were closed with treatment program completed satisfactorily; 38.5% of the cases were closed for noncompletion because a family member withdrew the client from the EDU-AT-TECH service; 2.1% of the clients' cases were closed for noncompletion because the child transitioned to another program outside of the agency; 5.2% of cli-

**Table 2. EDU-AT-TECH Clients by Gender**

| | Gender | Frequency | Percent |
|---|---|---|---|
| Valid | Male | 61 | 63.5 |
| | Female | 35 | 36.5 |
| | Total | 96 | 100.0 |

**Table 3. EDU-AT-TECH Clients by Age and Gender**

| | | | |
|---|---|---|---|
| Male | *N* | Valid | 61 |
| | | Missing | 0 |
| | *M* | | 28.0768 |
| | *SD* | | 7.63888 |
| Female | *N* | Valid | 35 |
| | | Missing | 0 |
| | *M* | | 27.6729 |
| | *SD* | | 8.89107 |

**Table 4. Parent/Guardian Consent for Study Participation in Invest in Children**

| *N* | Frequency | Percent | Valid Percent |
|---|---|---|---|
| Valid | 1 | 1.0 | 1.0 |
| 0 | 21 | 21.9 | 21.9 |
| 1 | 74 | 77.1 | 77.1 |
| Total | 96 | 100.0 | 100.0 |

**Table 5. Number and Reason for Continuing or Discontinuing the EDU-AT-TECH Program**

| Reason In or Not in Program | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| Valid | 1 | 26 | 27.1 | 34.2 |
| | 2 | 37 | 38.5 | 48.7 |
| | 3 | 2 | 2.1 | 2.6 |
| | 4 | 5 | 5.2 | 6.6 |
| | 5 | 6 | 6.3 | 7.9 |
| | Total | 76 | 79.2 | 100.0 |
| Missing | System | 20 | 20.8 | |
| Total | | 96 | 100.0 | |

*Note:* 1 = *Treatment completed satisfactorily*; 2 = *Noncompletion: Family withdrew child from service*; 3 = *Noncompletion: Child transitioned to other program*; 4 = *Noncompletion: Child aged out* (> 48 months); 5 = *Noncompletion: Family moved residence*.

ent cases were closed because of noncompletion because the child aged out of the program at 48 months; and finally, 6.3% of the cases were closed for noncompletion because the family moved residence.

Table 6 is an analysis of how clients were referred to the EDU-AT-TECH program. The types of referral were self/parent, medical provider, social service organization/other agency, home service coordinator, and HMG service coordinator.

The data in Table 6 show that there are nine identified reference referral resources for the EDU-AT-TECH clients for Learning

**Table 6. Reference Resources**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | | 1 | 1.0 | 1.0 | 1.0 |
| | | 10 | 10.4 | 10.4 | |
| | 1 | 2 | 2.1 | 2.1 | 13.5 |
| | 2 | | | | |
| | 3 | 3 | 3.1 | 3.1 | 16.7 |
| | 4 | 11 | 11.5 | 11.5 | 28.1 |
| | 5 | 69 | 71.9 | 71.9 | 100.0 |
| | Total | 96 | 100.0 | 100.0 | |

*Note:* 1= Self-parent (SP); 2 = medical provider (MP); 3 = social science organization (SSOOA or other agency); 4 = home service coordinator (own agency); 5 = HMG service coordinator (other agency or HMG-SCOA).

Disability Services: 10.4% of referrals are derived from parents, 2.1% of all referrals are from medical providers, 3.1% of the referrals are from a social service organization that are outside of the EDU-AT-TECH agency, 11.5% of the clients are referred by the Home Service Coordinator (Targeted ABA Program or Own Agency), and 71.9% of all referrals are from Home Service Coordinator (other agency).

Table 7 provides a presentation of the paired sample statistics and/or *t* test. The statistics are used to compare the assessment scores and group performance on a pretest and posttest of EDU-AT-TECH clients.

Table 7 contains the paired *t*-test used to compare the EDU-AT-TECH client assessment scores and group performance on a pretest and posttest. For instance, the assessment that is administered to the client is known as the CBCL. The CBCL is a standardized psychometric measure which records the behavioral problems and competencies of the children aged 1 1/2 to 5 years, as reported by their parents or others such as a guardian.

The CBCL has three main scales. The checklist is composed of 113 items that are all scored on a 3-item scale: 0 = *not true,* 1 = *somewhat true,* and 2 = *very true.* A parent or parents or guardian completes the CBCL. The instrument provides three scores: (a) a total score (CBCLt), (b) scores on internalizing behaviors (CBCLi; fearful, shy, anxious, and inhibited), and (c) externalizing behaviors (CBCLe; aggressive, antisocial, and undercontrolled).

A checklist is the form of the instrument. The method of delivery is a self-report. The CBCL has relevance to injury. In other words, the instrument is used to assess behaviors that may be associated with injury in children.

PIR-GAS is an assessment scale for children under the age of 6 that focuses on the overall quality of the child-parent relationship. In the assessment, the parent-child relationships are described by a range of ability to adapt, from "well adapted" to "severely impaired": The PIR-GAS scores range from 90, indicating a well-adapted relationship, to 10, indicating a severely impaired relationship. Stressors affect relationships described by scores in the middle range of 50 but still maintain some adaptive qualities (Billings & Moos, 1985).

Additionally, the PIR-GAS has been shown to share concurrent validity with the Achenbach CBCL for children ages 1.5

**Table 7. Paired Sample Statistics**

| | Pairs | Mean | *N* | *SD* | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | CBCLi.1 | 58.61 | 61 | 11.046 | 1.414 |
| | CBCLi.2 | 51.48 | 61 | 10.563 | 1.353 |
| Pair 2 | CBCLe.1 | 68.87 | 61 | 12.428 | 1.591 |
| | CBCLe.2 | 57.64 | 61 | 10.950 | 1.402 |
| Pair 3 | CBCLt.1 | 65.62 | 61 | 10.903 | 1.396 |
| | CBCLt.2 | 55.21 | 61 | 10.154 | 1.300 |
| Pair 4 | PIRc1.1 | 68.88 | 68 | 13.856 | 1.680 |
| | PIRc1.2 | 75.69 | 68 | 12.228 | 1.483 |

**Table 8. Paired Sample Correlation**

| | Pairs | *N* | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | CBCLi.1 & CBCLi.2 | 61 | .373 | .003 |
| Pair 2 | CBCLe.1 & CBCLe.2 | 61 | .398 | .001 |
| Pair 3 | CBCLt.1 & CBCLt.2 | 61 | .321 | .012 |
| Pair 4 | PIRc1.1 & PIRc1.2 | 68 | .615 | .000 |

through 5 by providing answers to the following two questions: (a) Do children with autism spectrum disorders show improved functioning following treatment? (b) Does the use of AT and behavior therapy lead to differing levels of improvement in the symptoms exhibited by the children? The study also provides information that may prove useful to agencies in enhancing their current strategies for working with students with learning disabilities (Cripps & Zyromski, 2009).

In Table 8, the paired sample correlation of the performances of EDU-AT-TECH clients' statistical correlations are identified and discussed.

Table 8 shows the EDU-AT-TECH clients' mean and of a set of scores for each assessment, which is as follows: CBCLi 1 is 58.61, CBCLi 2 is 51.48, CBCLe1 is 68.87, CBCLe2 is 57.64, CBCLt1 is 65.62, CBCLt2 is 55.21, PIRc1.1 is 68.88, and PIRc1.2 is 75.69.

There is a strong correlation between increase in client overall psychological well-being when behavior therapists and/or teachers administer both the pretest and posttest and use the data to provide interventions for the client.

Table 9 provides a presentation of the statistical analysis of pretest and posttest CBCL scores. Significant differences are identified and discussed.

Table 9 shows that there is a significant difference in means between pretest and posttest CBCL scores, indicating improvement on all three scales: (a) CBCLi 1 and CBCLi2, (b) CBCLe1 and CBCLe2, and (c) CBCLt1 and CBCLt2. For example, with the PIR-GAS, there is a statistically significant increase in posttest scores, indicating improvement.

Table 10 represents an analysis of group statistics of pretests and posttests. The group statistics are discussed in Table 10.

**Table 9. Paired Samples Test**

| Pairs | Paired Differences | | | | | *t* | *df* | Sig. (2 tailed) |
|---|---|---|---|---|---|---|---|---|
| | Mean | *SD* | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| Pair 1 CBCLi.1-CBCLi.2 | 7.131 | 12.109 | 1.550 | 4.030 | 10.232 | 4.600 | 60 | .000 |
| Pair 2 CBCLe.1-CBCLe.2 | 11.230 | 12.881 | 1.649 | 7.931 | 14.528 | 6.809 | 60 | .000 |
| Pair 3 CBCLt.1-CBCLt.2 | 10.410 | 12.287 | 1.573 | 7.263 | 13.557 | 6.617 | 60 | .000 |
| Pair 4 PIRc1.1-PIRc1.2 | −6.809 | 11.543 | 1.400 | −9.603 | −4.015 | −4.864 | 67 | .000 |

**Table 10. Group Statistics**

| | Date.2 >= DATE.MDY(01,01, 2010) (FILTER) | *N* | Mean | *SD* | Std. Error Mean |
|---|---|---|---|---|---|
| CBCLi_diff | 2010 before | 29 | −2.8621 | 12.67654 | 2.35397 |
| | 2011 after | 32 | −11.0000 | 10.30189 | 1.82113 |
| CBCLe_diff | 2010 before | 29 | −7.7931 | 13.63394 | 2.53176 |
| | 2011 after | 32 | −14.3438 | 11.49645 | 2.03230 |
| CBCLt_diff | 2010 before | 29 | −6.5517 | 12.69867 | 2.35808 |
| | 2011 after | 32 | −13.9063 | 10.95551 | 1.93668 |
| PIRc1_diff | 2010 before | 29 | 2.9310 | 12.10056 | 2.24702 |
| | 2011 after | 39 | 9.6923 | 10.34447 | 1.65644 |

Table 10 shows that there is an increase in post scores for the CBCLi, CBCLe, CBCLt, and the PIRc1.

## Conclusions

The EDU-AT-TECH program was developed to address the needs of children from birth to 5 years of age that show signs of autism spectrum disorder issues. The Educational Assistive Technology program was developed to increase parent participation in the evaluation process, rate significant behavior problems identified by the therapist to increase children's success rate in school. The EDU-AT-TECH program has the following significant and/or positive outcomes: (a) There is a statistically significant increase in PIR-GAS posttest scores, indicating improvement. (b) There is a significant difference in means between pretest and posttest CBCL scores, indicating improvement on all three scales. (c) There is a strong relationship between increase in client overall psychological wellbeing when behavior therapists administer both the pretest and posttest and use the data to provide interventions for the client.

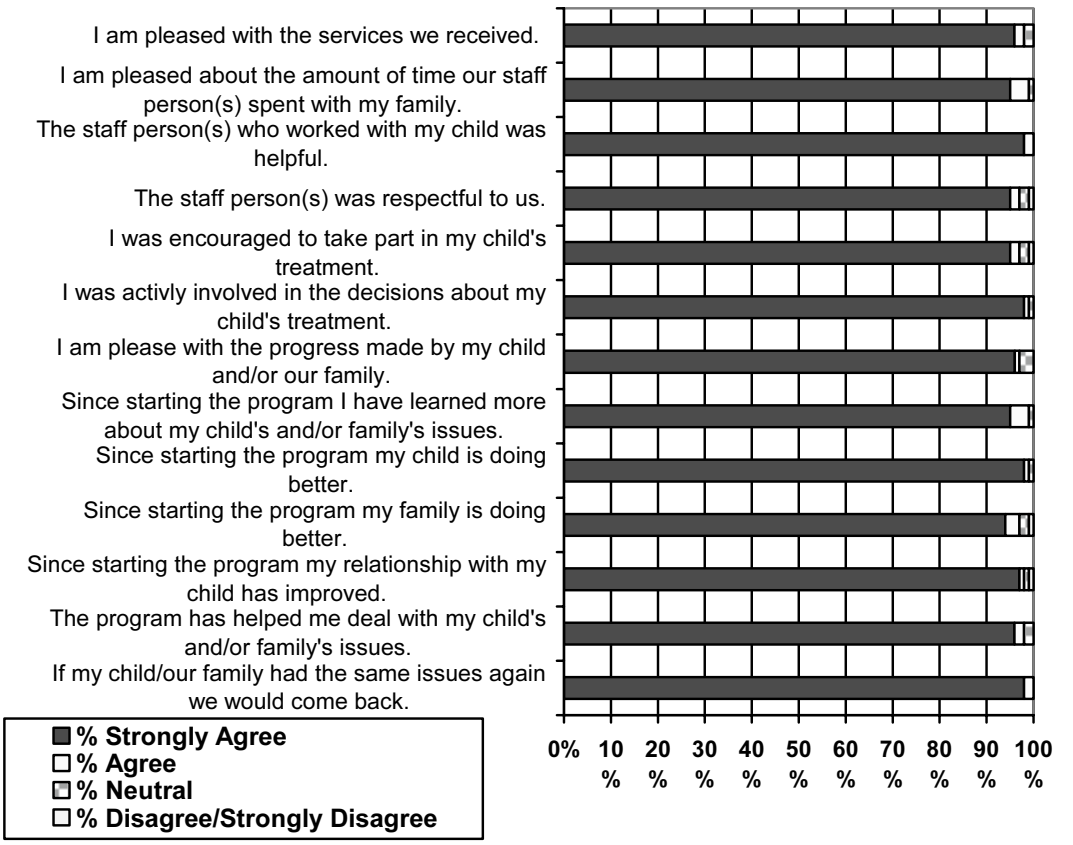



Figure 1. Satisfaction survey results.

By contrast, there are three main areas where EDU-AT-TECH may want to devise a plan for improvement: (a) In the future, researchers may want to see if there is a correlation between parental consent and clients who withdraw from the program. These data could be useful in maintaining enrollment in the program; (b) researchers would like to decrease the number of students that withdraw transition, age out, and move out of the program; and (c) researchers will need to track parent participation in the evaluation process. With more parent and guardian involvement in the program, the more likely children will complete the program and gain a list of skills to live healthier lives.

## References

Assistive Technology Act, 2004. (29 U.S.C. Sec 2202(2).

Achenbach, T. M. (1991). *Manual for the child behavior checklist/4-18 and 1991 profile*. Burlington, VT: University of Vermont, Department of Psychiatry.

Aoki, Y., Zeanah, C. H., Heller, S. S., & Bakshi, S. (2002). Parent-infant relationship global assessment scale: A study of its predictive validity. *Psychiatry & Clinical Neurosciences. 56*(5), 493-497.

Billings, A. G., & Moos, R. H. (1985). Life stressor and social resources affect post treatment outcomes among depressed patients. *Journal of Abnormal Psychology, 94*(2), 140-153.

Blackhurst, A. E., & Koorland, M. A. (1995). Computer-assisted constant time delay prompting to teach abbreviation spelling to

adolescents with mild learning disabilities. *Journal of Special Education Technology, 12*(30), 1-11.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.

Cavanaugh, T. (2002*). The need for assistive technology in education technology.* Retrieved from http://www.aace.org/pubs/etr/issue2 /cavanaugh.cfm

Cobb, A. (2009). *Improving African American student achievement in reading with computer-assisted instruction and CL* (Unpublished doctoral dissertation). Nova Southeastern University, Fort Lauderdale, FL.

Cripps, K., & Zyromski, B. (2009). Southern adolescents' psychological well-being and perceived parental involvement: Implications for parental involvement in middle schools. *Research in Middle Level Education Online, 33*(4), 1-13.

Hager, R. M., & Smith, D. (2003). *The public school's special education system as a funding source: The cutting edge*. Retrieved from http:// www.nls.org/pdf/special-ed-booklet-03.pdf

Hasselbring, T. S., & Glaser, C. H. W. (2000). *Use of computer technology to help students with special needs*. Retrieved www.familiestogetherinc.org/... /*COMPUTERTECHNEEDS.pdf*

Hitchcock, C. (2001). Balanced instructional support and challenge in universally designed learning environment. *Journal of Special Educational Technology, 16*(4), 23-30.

Khek, C., Lim, J., & Zhong, Y. (2006). Facilitation students with special needs in mainstream schools: An exploratory study of assistive learning technologies (ALT). *International Journal of Web-based Learning and Teaching Technologies, 1*(3), 56-74.

Lewis, R., & Doorlag, D. (1999). *Teaching special students in general education classrooms* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Margolis, V., & Michaels, C. (1994*).* Technology: The personal computer as a resource tool. In C. A. Michaels (Ed.), *Transition strategies for persons with learning disabilities* (pp. 239-269), San Diego, CA: Singular.

Morrison, P. A. (2001). *The emerging digital divide: A demographic perspective on our nation's future.* Santa Monica, CA: RAND.

The Ohio State University, College of Education & Human Ecology, Ideal Group (n.d.). Free assistive technology software. Retrieved from http://wac.osu.edu/ conferences/ emrc08/free_at.html

Reed, P., & Lahm, E. (2004). *Assessing student needs for assistive technology: A resource manual for school district teams.* Retrieved from http:// www.wati.org/ content/ supports/free/pdf/ ASNAT4thEditionDec08.pdf

Salomon, G. (1993). No distribution without individuals' cognition: A dynamic international view. In G. Salomon (Ed.), *Distributed cognitions psychological and educational considerations* (pp. 111-138). New York, NY: Cambridge University Press.

Slavin, R. E. (2008). What works? Issues in synthesizing education program evaluations. *Educational Researcher, 37*(1), 5-14.

Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2008). Instructional technology and media for learning (9th ed.). Upper Saddle River, NJ: Prentice Hall.

Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2012). *Instructional technology and media for learning* (10th ed.). Upper Saddle River, NJ: Prentice Hall.

Tinker, R. (2001). Future technologies for special learners. *Journal of Special Education Technology, 16*(4). Retrieved from http:// jset.unlv.edu/16.4/tinker/first.html

U.S. Department of Education (2006). Special education and rehabilitative services. Retrieved from http://www2.ed.gov/about/ overview/budget/budget07/summary/ edlite-section2b.html

# A Personal Learning Environment

## Polk County School District Connects With Students Through the Student Portal

**Vandy Pacetti-Tune**

School districts in Florida have been tasked with preparing learners to meet the demands of a global society. "The vision of the Polk County Public School system is that all students, teachers, and district staff have access to current and emerging technologies that will ensure innovation, academic and personal success in the 21st century" (Polk County School District, 2010a). This vision statement sounds as if we are preparing for a future experience. But isn't the twenty-first century *now*?

Vandy Pacetti-Tune,
Media Specialist, Denison Middle School,
400 A Avenue SE, Winter Haven, FL 33880.
Telephone: (863) 291-5353.
E-mail: vp83@nova.edu

According to Shaw (2009), "the new millennium was ushered in by a dramatic technological revolution. We now live in an increasingly diverse, globalized, and complex, media-saturated society." Students now have the need to "communicate, function and create change personally, socially, economically, and politically on local, national, and global levels" (Shaw, 2009, p. 11). If students are to be successful, they must be fluent in the use of Internet technologies and Web 2.0 capabilities. To become fluent, students must learn to use the tools we have now and develop the skills necessary to adapt to change when technology improves. So, how do we provide access?

Educational institutions must supply services that will allow students to function, create, and communicate so that they are prepared to function on a global level in the future. In attempting to meet this vision, a number of technological dilemmas are presented.

### Dilemma 1: Not All Users Have the Same Abilities or Needs

Generally, school districts must contend with three distinct user groups when providing media and cyber literacy. Some students and staff members are not media

literate or cyber literate. School is the first and only place they use a computer. Smart phones and the terminology of smart technologies have little or no meaning to them. The word "e-reader" presents itself as a typo. This lack of tech-savvy nature creates a challenge in providing services to these users and they must be taught the language and function of media and cyber literacies to become effective users.

The largest group of students and staff members understands how to use some Internet technologies for entertainment purposes, but is not truly literate. The use of the computer or other technologies takes on the role of a hobby and when confronted with genuine tasks or real-world applications to perform, this group is not successful. The challenge for these users is first to accept that they have something to learn and then learn media and cyber literacy.

The last group of students and staff members is advanced users of Web 2.0 capabilities. These users have expectations for the educational services they receive and how those services are to be delivered to them. Services provided to these users must have seamless functionality and a "coolness" factor that draws them to fully incorporate the services into their already considerable cyber activity (Hermans & Verjans, 2009). The challenge is to provide training and informational programs that will motivate all three groups to become knowledgeable users.

## Dilemma 2: Not All Users Have Access to the Same Devices

Polk County School District is a large district containing 160 school sites with over 92,000 students enrolled. As in any large district, outfitting schools with technology occurs when they are built or renovated. Updates and replacements to that technology are then made as part of a strategic plan. In short, what is available for one school during an update year may not be available for the next school during its update. In addition, grant opportunities have provided the latest technologies at some school sites. The result is a need for services to comply with usability across many devices and available hardware.

## Dilemma 3: Where Do Users Access and Store User-Generated Content?

According to the Polk County School District Computer User Policy, students may not store personal information on school computers. Students may not plug in personal storage devices, nor access "cloud storage" or e-mail accounts beyond the firewall. So, when a student completes a task that creates content, storing, retrieving, and submitting it then becomes the challenge.

## Dilemma 4: How Do Users Learn to Manage and Create Order in a Knowledge Society?

With the inundation of Web 2.0 tools, educational platforms, and a variety of devices and hardware available to students organization of knowledge and user produced content becomes an insurmountable challenge. We are asking our students to use two or three different devices during a school day, to create content on multiple tools for future use, and to submit that content on multiple learning platforms. Where is the order in the chaos created by multiple options?

Hermans and Verjans (2009, p. 1) ask, "How are students, teachers, and district staff to be supported across an increasingly wide range of Internet technologies [and Web 2.0 capabilities] while continuing to [receive delivery] through a reliable and secure institutional platform"? The answer to this question for Polk School District is the personal learning environment known in this district as the Student Portal.

The Student Portal provides students with access to a variety of services that were once accessed in multiple locations, under a variety of usernames and passwords, and authorities. The concept was to provide students with access independent of time, location, and platform to all of the services available to them in one place. The Student Portal provides tabs to student services, access to the grade server, Pinnacle Internet Viewer, to Blackboard, to Google Applications, and to Destiny, the library server.

From a single point of entry, students now have the ability to function. Students may check grades, lunch and library accounts, and discipline and student health records. The students are able to access Blackboard for online course work and also Destiny, the library server to complete research or library tasks such as book reserves or renewals. In addition, access is provided to Google Applications where students have email accounts and the opportunity to use all of Google's services, such as Google Docs, Sites, Chat, and Calendar. With this single point of entry, the students of Polk County Schools now have the ability to function, create, and communicate, and to develop twenty-first century skills.

"In the educational environment, the virtual learning environment connects the user to resources, regulations, help, and individual, specific content" (Anderson, 2007). "Raising the awareness of the growing potential of personal (learning) environments for the lifelong learner (and for the professional or academic staff member) is a major issue when an institution wants to move towards a more student-centered digital environment" (Hermans & Verjans, 2009, p. 4). The Student Portal is a step toward putting education in the hands of the learner.

## References


Anderson, P. (2007). What is web 2.0? Ideas, technologies, and implications for education. *JISC Technology and Standards Watch.* Retrieved from http://www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf

Hermans, H., & Verjans, S. (2009, June). *Developing a sustainable, student centred VLE: The OUNL case.* In 23rd ICDE World Conference on Open Learning and Distance Education including the 2009 EADTU Annual Conference (M-2009), Maastricht, The Netherlands. Retrieved from http://dspace.ou.nl/handle/1820/1894

Polk County School District. (2010a). District information. *Polk County Public Schools.* Retrieved from http://www.polk-fl.net/districtinfo/default.htm

Polk County School District. (2010b). District technology plan 2010-2012. *Polk County Public Schools.* Retrieved from http://www.polk-fl.net/districtinfo/departments/ist/documents/10-12DistrictTechPlan.pdf

Shaw, A. (2009). Education in the 21st century. *Ethos, 17*(1), 11-17.


Dilemma 1: Not all users have the same abilities or needs
Dilemma 2: Not all users have access to the same devices
Dilemma 3: Where do users access and store user-generated content?
Dilemma 4: How do users learn to manage and create order in a knowledge society?

# Making the Transition From WebCT to Blackboard Learn v9.1

**Deborah J. Seepersaud**

## Background

The learning environment has changed with the World Wide Web. Learners that were once confined to the traditional classroom and time limitations can now access online courses that facilitate collaborative learning and flexibility. Technology is used for delivering education. However the selection of the technology and software to be used is based on the needs and objectives of the online programs and its students. Facilitating and establishing an online learning community, and creating a course that will promote active learning experiences necessitate specific components that will accomplish these objectives. Many institutions are using various learning management systems to create the different active learning experiences needed in an online course. WebCT was acquired by Blackboard in 2005 and clients using this learning management system must seek alternative technological solutions as Blackboard will be retiring WebCT in January 2013 (Feldstein, 2010). This paper addresses the differences between WebCT 4.1 and Blackboard Learn 9.1 and how an instructor can make that transition from WebCT to Blackboard focusing on building an online learning community and designing an engaging, interactive online course.

Deborah J. Seepersaud,
Manager of Technology Training Services, Office of Innovation and Information Technologies, Nova Southeastern University, 3301 College Avenue, Fort Lauderdale, FL 33314.
Telephone: (954) 262-4961.
E-mail: seepersa@nova.edu

## WebCT courseware

WebCT was originally developed at the University of British Columbia by a faculty member in computer science, Murray Goldberg. WebCT is significant in that it was the world's first widely successful course management system for higher education. Web course tools (WebCT) is an online medium that facilitates the learning process in an environment that is accessible and on demand. This environment is available 24 hours daily. It may be used as the full medium by which a course is taught or it may be used to supplement a

class taught mostly face-to-face (Nova Southeastern University, 2011).

Each WebCT course has a directory (folder) called My Files. This is an area that allows faculty to upload and store all the files for the online course and is inaccessible to the students. Once the files are uploaded, the instructor creates links to the files within the course, which is then accessible for the students. Faculty can create multiple links to the same file and if a change is made, it will affect all instances of the file within the course. Content such as PowerPoint, html documents, or URLs are linked to icons within the course, which enables the students to access the materials. WebCT also enable faculty to make their courses unique by creating customized banners, backgrounds, and images.

## Blackboard Learn 9.1

Blackboard was founded in 1997 and develops, licenses, and supports enterprise software applications for the global education market. As its site indicates,

> Blackboard works with our clients to develop and implement technology that improves every aspect of education. We enable clients to engage more students in exciting new ways, reaching them on their terms and devices—and connecting more effectively, keeping students informed, involved, and collaborating together. Through this innovative technology, services and expertise we work with our clients to build a better education experience. (Blackboard, 2011a)

A blackboard course has an interface of a course menu and content frames. Faculty are able to upload course materials into their courses such as PowerPoint presentations, Word documents, and PDF documents. Blackboard accommodates text, graphics, audio and video. Working in the course, users are able to navigate within the course using the course menu and/or click on the trail link to return to the previous page. The course menu houses the links to the various content areas, tools, and pages within the course.

## Design and Delivery of Online Courses

Courses designed for an online environment require an instructor to plan ahead as well as ensure that the content is based on the desired learning outcomes and objectives. It is essential that the instructor takes the time to plan and organize the learning experience when engaged in teaching at a distance (Simonson, Smaldino, Albright, & Zvacek, 2009). The online curriculum should focus on higher-level learning (critical thinking, assessment and evaluation, application to the real world, and synthesis across the curriculum) and provide opportunities for the exchange and critique of ideas among students and with the educator (Lewis, MacEntee, & Youngs-Maher, 2002).

As the faculty are planning and designing the content, it is also necessary to identify the appropriate medium that will address the various learning styles. Therefore, faculty must identify the technology that will be used to present the material and ensure that it will be equally accessible to all the learners. Faculty also need to ensure that the learners are aware of any technical resources that are available when needed.

Having created the content for the online course, it is now time to place the content in the Blackboard environment. A Blackboard course would have already been created and the faculty able to access it. It is at this time that faculty must begin designing and creating an interactive and engaging online course. This can be done by using specific tools within Blackboard. Faculty can present their content using different options depending on the desired learning outcome. If a faculty desires to have all of the weekly activities within one

area including content, discussions and assignments, then a folder can be created. This allows faculty to give a very detailed description of the content in the folder and it can be set to be available in a timed manner if desired as well or be available throughout the semester. Faculty can also create subfolders within the folder but must be conscious of arranging content in an easy-to-follow path so that there is not excessive clicking to access the desired folder. If the faculty desire to have the material be displayed in a table of content format, then the learning module would be the tool to use. A learning module can either be sequential or nonsequential. Word documents, PowerPoint Presentations, videos, audio, graphics, and links to external websites can all be added within the content areas. Additionally, links to assignments, assessments, forums and other resources can all be added in folders as well as the learning module.

Designing and creating content for a learner-centered approach requires faculty to think creatively. When learners lack the confidence that they will be able to master the course content, their motivation drops and they are less likely to persist in their efforts to grasp new material (Simonson et al., 2009). Information should also be given in appropriate chunks so as not to overwhelm the student and keep it simple.

In addressing the different learning styles of the students, and wanting to motivate them enough to take ownership of their learning, an instructor may decide to incorporate videos, links to external websites and audio within the content. This can be done by accessing the content area and, from the build content icon, make the desired selection, which can be an audio, image, video or a URL.

## Building an Online Learning Community

An online learning community is a place designed to help users achieve learning goals of some sort through collaborative partnerships, including varying degrees of social networking and Internet-based and computer-mediated communication (Doe, 2010). Faculty can create online learning communities using the various tools within Blackboard such as the discussion boards, wikis, blogs, content management, e-mails, audio and video.

Making the transition from WebCT to Blackboard, faculty are exposed to new tools that are available to build an online learning community. Wanting to establish a social presence, it is necessary to combine strategies and use the tools within the learning management system. Boettcher and Conrad (2010) identify three tips on how to build an online community: promote peer interaction and community with learner-to-learner dialogue, promote peer interaction and community, and promote meaningful dialogue and questioning. Using the synchronous and asynchronous collaboration tools within Blackboard would promote and build an online learning community and encourage interactivity.

### Asynchronous Communication

The discussion board, an asynchronous collaboration tool, is heavily used for both instruction as well as interaction within the learning management system. Keramidas, Ludlow, Collins, and Baird (2007) state that discussions are often integral to the learning process in online courses and offer the following strategies to increase quantity of posts and quality of responses:

- make expectations clear for participation;
- set timelines for discussion;
- establish a separate discussion for off-topic comments (the blog tool within Blackboard can be used with this strategy);
- use questions to link to updated content;

- use group activities within discussion; and
- be creative in discussion formats.

Faculty applying these strategies using the discussion board and the blog tools would be facilitating a social and learning environment. Within the Blackboard course, faculty can access the discussion board from the course menu, then select the create forum icon. Using the text box editor, a description of the topic or question to be answered will be entered. There are many additional settings available within the forum settings that assist the faculty to accomplish the desired objectives.

The blog is another tool within Blackboard that can be used for asynchronous communication and building an online learning community. This tool promotes peer interaction and community. The blog, when used for group projects, is beneficial for students as they are able to collaborate meaningfully with their peers as they work on their projects. It allows for a more informal and conversational exchange of ideas amongst the students.

Faculty are introduced to a new feature that was not in existence in WebCT. The wiki tool not only allows for collaboration among the students but can also be used for instructional purposes. Using the wiki, students are able to share content and exchange ideas with their peers. Creating a wiki can be done by accessing the Blackboard course, and then from the course menu, creating a tool link by selecting the wiki option. Having successfully done that there will now be a wiki link on the course menu. Select the wiki page, and create the wiki. Additionally, there are options that allow for editing and sharing comments. Faculty can give feedback during the creation of the wiki and then grade the wikis upon completion.

Students at a distance are separated from the faculty, and this requires that the students take more responsibility for their learning. The instructor is more in a role of a facilitator in this learner-centered environment and as the students progress though the course, constant feedback and communication is required. This lends itself to the faculty establishing an online presence and building that learning online community. Faculty can use the following tools within Blackboard for one-on-one communication and feedback to the students: e-mail and course messages and the My Grades tool. E-mail allows faculty to communicate through an external e-mail account to the students. Course messages are used within the Blackboard course and students must access the course to retrieve and respond to any messages received. There are no alerts for any new messages received and it is important that the faculty encourages students to check their course messages on a regular basis. The My Grades tool is another method in which an instructor can give immediate feedback to the students, who in turn can monitor their progress throughout the course. As faculty respond to assignments and discussion postings, these comments can be viewed in the My Grades area and is only seen by the individual student. These tools were also available in WebCT with the same functionalities.

## Synchronous Communication

Synchronous communication is communication between the faculty and students in a real-time virtual environment. During these chats, participants can look at PowerPoint presentations, websites, or even streaming video while they are chatting (Texley & Adelstein, 2006).

Synchronous modes, because they must be delivered in real time, offer the immediacy of a live class session, but not the convenience of on-demand learning (Keramidas et al., 2007). Faculty are able to remedy this situation by archiving the live sessions and making them available to the students. These recorded sessions can also

serve as a study tool even for those who did attend the live sessions.

The use of the synchronous tool can also be used as a method of delivering instruction and content, thus appealing to the visual learner. Faculty can distribute the PowerPoint presentations ahead of the live session, or a full text outline of the topic to be discussed, which will reduce the need for note-taking and fostering greater attention to what is being displayed on the screen (Keramidas et al., 2007).

The synchronous tool within Blackboard is the text chat, which can be conducted in two formats: one as a virtual text chat and the other as a virtual classroom. One example of using the virtual text chat is that it allows an instructor to conduct office hours at the time designated by the instructor. The students will then be able to access this online text chat room and be able to ask questions, interact, and receive immediate feedback. The virtual classroom, which is also text based, is used when the instructor needs to share more information, such as links to websites; students can submit individual questions in the inbox that can be answered by the instructor. The instructor can navigate within the course and give detailed instructions or answers as needed.

## Summary

As faculty understand the various tools and their uses within Blackboard, they relate with the way those tools were used in WebCT. Now, they must now implement and use the relevant tools in their new Blackboard course. Here is a brief summary of the uses of the tools discussed and their uses for the delivery of content and building an online learning community.

### Creating Content

Folders are used for organizing and structuring content in a content area or learning module. Subfolders can be created. Folders can be nested. Folders should be organized in a way that students are able to access them with the least number of clicks.

### Learning Module

This tool allows instructors to organize information in a table of content format. Course materials can be displayed in a forced sequential order or in a non-sequential order.

### The Discussion Board

This tool is used for collaboration and communication among students and for building an online learning community. It consists of forums that may be linked throughout the course but is mainly located in the discussion board tool. Students in groups can communicate privately among themselves.

### Wikis

A wikis is a collaborative tool that allows students to contribute and modify one or more pages of course-related materials, providing a means of sharing and collaboration. Pages can be created and edited quickly, while tracking changes and additions, allowing for effective collaboration between multiple writers. The instructor can create one or more wikis for all course members to contribute to, and wikis for specific groups to use to collaborate. Wikis can also be used to record information and serve as a repository for course information and knowledge (Blackboard help, 2011).

### Blogs

A blog is an area where students enrolled in the course are able to express their ideas in a more informal setting, and gives insights to students' activities. It allows the students to share knowledge and materials collected (Blackboard, 2011a). The blog usually consist of two elements: entries, which can be text, images,

links, multimedia, and attachments; and comments, which are remarks or responses to the blog entries.

### E-mail

This tool enables faculty to communicate one-on-one with the student. E-mail is sent externally to an e-mail account provided by the student. It allows for feedback and more personal contact with the student.

### Course Messages

This tool is very similar to the e-mail tool except that it is an e-mail sent within the Blackboard environment and is stored within the course as well. Students must log in to the Blackboard course to retrieve and answer any of the course messages.

### My Grades

This tool allows students to monitor their progress throughout the course. As instructor gives comments, it is usually shown in the My Grades area.

### Chat

This tool allows students to participate in real-time sessions and can be archived. The archives serve as a study tool as well as it can be viewed by those who were unable to attend. Faculty can use for office hours and be able to interact meaningfully with students. Two types of chats are available: virtual classroom (allows access to the Web, engage in question and answer sessions, use whiteboard) and chat.

Transitioning from WebCT to Blackboard will require some time and effort from faculty. However, since they have used WebCT and are familiar with the concept and the tools used for online teaching, it will be easy to relate and make that connection with Blackboard. Faculty will also be appreciative of the new tools such as the blogs and wikis, which will be an asset and allow them to truly build an online learning community.

## References


Blackboard, Inc. (2011a) Blackboard help for instructors. Retrieved from http://library.blackboard.com/ref/3ea64795-6ecc-4abd-b595-0a9a8dfdec94/index.htm

Blackboard, Inc. (2011b). Blackboard overview. Retrieved from http://www.blackboard.com/Platforms/Learn/Overview.aspx

Boettcher, J. V., & Conrad, R. M. (2010). *The online teaching survival guide: Simple and practical pedagogical tips.* San Francisco, CA: Jossey-Bass.

Doe, C. (2010, March). A look at … online learning communities/learning management systems. *Internet @ schools: An Educator's Guide to technology and the Web*. Retrieved from http://www.mmischools.com/Articles/Editorial/Features/A-LOOK-AT-...-Online-Learning-Communities-Learning-Management-Systems--61483.aspx

Feldstein, M. (2010, December 21). The evolving LMS market, part 1[Web log post]. Retrieved from http://mfeldstein.com/the-evolving-lms-market-part-i/

Keramidas, C. G., Ludlow, B. L, Collins, B. C., & Baird, C. M. (2007). Saving your sanity when teaching in an online environment: Lessons learned. *Rural Special Education Journal*, *26*(1), 28-39.

Lewis, B., MacEntee, V., & Youngs-Maher, P. (2002, June). Software compare and contrast: Blackboard, WebCT and Lotus Notes. In *Proceedings of IS2002 Informing Science + IT Education Conference, Cork, Ireland* (pp. 919-931). Retrieved from informingscience.org/proceedings/.../papers/lewis167softw.pdf

Nova Southeastern University. (2011). About WebCT. Retrieved from http://www.nova.edu/webct/about.html

Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (2009). *Teaching and learning at a distance: Foundations of distance education* (4th ed.). Boston, MA: Pearson.

Texley, J., & Adelstein, D. (2006). A platform to stand on. *The Science Teacher, 73*(7), 30-32.

# Online STEM Course at the Pinellas Virtual School

**John N. Just and Pat Thomas**

## The Pinellas Virtual School

Pinellas County Schools is a school district in southwest Florida in the Tampa Bay area that includes the major cities of St. Petersburg and Clearwater. The district has over 104,000 K-12 students (Florida Department of Education, 2011). In 2008 the Florida State Legislature passed a law requiring all school districts to institute a district Virtual Instruction Program that would provide K-8 education at a distance to students who were enrolled in public school the prior year and wanted to transition to a full-time virtual education program. Pinellas district staff received presentations from approved providers and piloted one of the approved commercial options for distance education with a small group of K-8 students. Based on the pilot, internal capacity, and the widespread use of distance education tools in traditional classrooms through Pinellas (such as *Moodle* and *Elluminate Live*), superintendent Julie M. Janssen decided to have district staff create their own virtual school. Pinellas currently has one of the largest active instances of Moodle in the world, with over 70,000 active profiles (Moodle, 2011). Pinellas has used a combination of Elluminate Live and Moodle for over 3 years to provide online professional development for teachers and as online tools for classroom technology integration.

After obtaining permission and guidance form the Florida Department of Education, the school district began work on a model that could be used not only for full-time virtual instruction but also courses like middle school health on a part-time basis for students who already have a full schedule due to being involved with special programs. This flexibility was a key factor in deciding to start a new virtual school so Pinellas students could enroll in courses not currently available from providers like the Florida Virtual School, and the district could retain the funding for such classes. At the beginning of the 2010-11 school year, Pinellas expanded the Pinellas Virtual School to include ninth- and 10th-grade full-time and assist with state class-size overflow as needed. In its second year, the Pinellas Virtual School served 339 students in Grades 6 through 10, with a combination of full-time and part-time enrollments.

## Distance Education Tools Utilized in Pinellas

Pinellas County Schools has used Moodle as a course management system for over four years as a platform online professional development of teachers training. Moodle is a free and open source web-based course management system that is similar to WebCT, Blackboard, or Angel (Maikish, 2006; Martin-Blas & Serrano-Fernandez, 2009). For the last three years teachers have also been using Moodle with their students to post resources and partic-

ipate in activities such as wikis, blogs, discussion forums, and more. Designed for distance education, Moodle has been used for teaching at a distance and has become popular for classroom use due to its ease of use for teachers (Cole & Foster, 2007). School district leaders felt confident from this experience of using Moodle for building professional development and use in the K-12 classrooms in building a virtual school using Moodle as an asynchronous platform for instruction.

School district personnel also had experience with the synchronous distance education tool, Elluminate Live. Elluminate Live is a web-based learning environment that provides instructors and students with chat, voice, whiteboard, and screen-sharing tools for real-time interaction (Karabulut & Correia, 2008). Elluminate Live had been used in Pinellas County Schools for professional development and in very limited interactions with students, including world language instruction for students at different schools. When Lakewood High School in St. Petersburg had trouble finding a German IV teacher after an abrupt resignation, the district recommended using *Elluminate Live* to connect with a teacher at Largo High School nearly 20 miles away. Building on these small successes with this synchronous tool for distance education also provided the experience needed to employ Elluminate Live in the Pinellas Virtual School program.

The school district's new Student Information System at the time of the opening of the Pinellas Virtual School, Focus SIS, integrates with Moodle, allowing teachers and students to login through the portal feature. This integration allows for seamless transfer of roles and grades with no intervention from the teacher between *Moodle* and the course history/transcripts. The district programming staff also created integration with this portal interface and Elluminate Live to provide single sign-on capability for staff and students to encourage easier utilization. All of these tools are available to the virtual school teachers and students—and to all traditional classrooms throughout the district.

## Enhancing Education Through Technology STEM Grant

In the spring of 2009 Pinellas was awarded a competitive Enhancing Education Through Technology grant through the Florida Department of Education to promote science, technology, engineering, and mathematics (STEM) in secondary schools. The Pinellas proposal included training science, math, and technology teachers at socioeconomically challenged schools about the distance education tools available in Pinellas, virtual school best practices, and STEM content. At the conclusion of the training, Pinellas purposed to have the teachers building a STEM virtual course that could be used to teach virtually and as a supplement to traditional classroom instruction available to all classes. The course that was selected was computer applications in science and engineering. students would receive a half-credit toward graduation after completing and a quality point toward their grade point average. The course would be offered through the Pinellas Virtual School to students that the targeted schools in need of improvement.

As part of the proposal, the target schools also received extra technology in the form of computers and mobile devices to assist students in need with access to the course before and after school. Socioeconomically disadvantaged students who often fall on the wrong side of the digital divide may not have access to online tools at home and thus are cut out from as many virtual school opportunities as compared to other groups (Watson, 2007). Table 1 lists the target schools along with student the number of students enrolled in the program, recent school grades, free and reduced lunch rates, and graduation rates

**Table 1. Home Schools of Students Enrolled in Pinellas Virtual STEM Course**

| School Name | *N* | 2009-10 School Grade | Free and Reduced Lunch Percentage | 2009-10 NGA Graduation Rate |
|---|---|---|---|---|
| Bay Point MS | 36 | B | 63.99 | N/A |
| Chi Chi Rodriguez Acd | 4 | N/A | 55.68 | N/A |
| Dunedin HS | 17 | B | 40.69 | 84 |
| Dunedin Highland MS | 1 | C | 60.83 | N/A |
| Lealman Intermediate | 2 | C | 83.51 | N/A |
| Pinellas Park MS | 39 | C | 73.94 | N/A |
| Tarpon Spring MS | 1 | B | 30.97 | 92 |
| Thurgood Marshal Fund MS | 27 | B | 35.02 | N/A |
| Total | 127 | | | |

for the high schools involved (Florida Department of Education, 2011.

The computer applications in science and engineering course was previously only offered at the national recognized Center for Advanced Technologies program at Lakewood High School in Pinellas. This grant significantly increased the opportunity for this type of instruction and content to students who would otherwise not have the opportunity to take this course. It also provides successful completing students with a half-credit toward graduation (many of them before they even arrive at high school) and extra points on their weighted grade point average. The grant proposal specified that this rigorous course would be built with engaging technologies, incorporating the latest research in STEM and online education in order to provide the best completion rate for these students who may not have had the opportunity for online instruction in the past. The students would work through the semester's material using a combination of school and take-home computers to complete the entire curriculum posted in Moodle. Students would be regularly assessed and meet in synchronous lessons and help sessions via Elluminate Live. The Enhancing Education Through Technology grant would cover the costs for the first year of training, creation, and implementation but the course could be taught afterward along with all of the materials created being shared with other STEM teachers across the district. The teachers who participated in the grant program were to also share with their schools the information they learned through the process in the hopes that others would become engaging in wanting to integrate STEM concepts and lessons into their classrooms.

## Creation of the Computer Applications in Science and Engineering

The targeted schools were assembled to discuss the planning and implementation of the online STEM class. Students need an education with a solid foundation in STEM areas so that they are prepared to both work and live in the twenty-first century. Since the 1960s, the demand for skills has changed significantly—the demand for routine manual task skills have decreased, while the demand for nonroutine interactive task skills have increased significantly. Workforce projections for 2014 by the U.S. Department of Labor show that 15 of the 20 fastest growing occupations require significant science or mathematics training to

successfully compete for a job. According to the U.S. Bureau of Labor Statistics, professional information technology jobs will increase 24% between 2006 and 2016 (Kuenzi, 2008). However, as jobs requiring a solid background in science, technology, engineering, and mathematics are growing, fewer students are choosing to major in these areas. If students continue to pursue degrees and careers in fields other than STEM-related areas, the United States will find it difficult to compete in the global economy. Further, the United States will not be able to meet its future workforce needs. The United States needs 400,000 new graduates in STEM fields by 2015. After discussing this research about STEM and knowing the demographics of the schools that were targeted, the planning of the class begun.

The discussion with the targeted schools was directed on first of how the online class would be developed. Each of the targeted schools sent four to six representatives to help plan and write the class. The ASSURE (analyze learners, state standards and objectives, select strategies, utilize technology, require learner participation, evaluate) model, according to is helpful for designing courses utilizing different kinds of media (Smaldino, Lowther, & Russell 2008). Since this was a STEM course, the decision was made to use the ASSURE model for outlining the overall course. The teachers had to focus on educational technology and student engagement when designing the course. The ASSURE model uses a step-by-step process to create lessons that effectively integrate the use of technology and media to improve student learning. The goal of the course was to effectively integrate technology and media to engage and improve student learning.

The first part of the ASSURE model was to identify and analyze the learner characteristics. The students targeted were low socioeconomic students that had high absence rates from school, and many of these students were at a low reading level. The need to have a course that had high student engagement at the very beginning was important. The teachers knew if there was a lot of reading and not much interaction, that the audience would be lost right away. Hauden (2008) stated, "People work because they have to. That is why it is called work. But people engage because they want to" (p. 29). When students are disengaged, it is just work and the goal of the class was to have the students want to be there and work.

The next step was the state standards and learning objectives. The Florida Next Generation state standards for math and science were used. The teachers discussed and chose the standards that were the most frequently used—not only on state testing, but for our end-of-course exams. The teachers also made sure that literacy standards to our course were added because of the high number of students who were lacking in that area.

Once the teachers analyzed our learners and knew what standards were going to be used, we had to build that bridge so our students would achieve success. The decision was to use eight modules with eight different concepts. The number eight was picked because of the way Pinellas County District has set its courses. The course would be completed in 18 weeks so that each student would have two weeks to work on each module with a week in front of the class so the teacher could connect to his or her students and a week after the class for reflection. The first module was titled "You make me sick" and was about bacteria. The student learns how bacteria are transferred, how to collect evidence, how to use exponents to calculate, and how to graph the exponential growth of a cell. The second module was titled "Game designing and Programming." Its objectives were to teach the students how to make simple games on the computer. The student would look at different game programs and how they were created and,

along with that information, design their own game. The third module was titled "Modern Design," in which students learn the four phases of architectural design, learn how math and CAD affect design, and uses Google Sketch-up to design their own ergonomic chair. The fourth module was titled "Design Focus," in which the student studies the design process of building a bridge, researches the different types of bridges, and uses a program to build a virtual bridge. The fifth module was titled "CSI," based on a popular television program. The students act as investigators who are presented a crime scene. The students gather data and use the data to solve the crime. The sixth module researched was renewable energy and titled "Charge it up." At the end of this module the student learns the value of energy supply systems based on renewable and nonrenewable sources, discusses problems related with fossil fuel energy use, and suggests new alternatives. The seventh module was titled "Why oil and water do not mix." The students research the best way to clean after an oil spill, learn about the processes organizations use to clean affected ecosystems, learn about the lasting effects of these types of disasters, and prepare a presentation that communicates their findings. The eighth module was titled "Space—Mission Possible or Impossible." In this module the student explores the characteristics of Mars, reviews past expeditions to Mars, researches theories for colonizing Mars, investigates reasons for or against continued space exploration, and then prepares a presentation that communicates findings that supports their reasons for and against continued space exploration.

In each of these modules the content was arranged using the 5E (engage, explore, explain, elaborate, and evaluate) model. The 5E model is important for teachers to use to properly implement the inquiry process (Bybee et al., 1989). The teachers made sure the first part of their module was engaging and something that would catch the student's interest. This gives the student the need to know and helps define a question or problem that relates to the real world. This came in a form of a game, a discussion, or a simulation. The students then had an activity to explore the concept they were studying. The student gathers, organizes, interprets and analyzes data about the exploring activity. The concept was then explained by the teacher in a variety of ways such as Youtube, Elluminate Live, or an article that was written on the concept. The teacher offers feedback to the students so they may reach conclusions or generalizations and communicate this in many forms (podcast, PowerPoint, or webcast) back to the teacher. The teachers had the students go the extra step and elaborate on the concept. This was done by the students making presentations, an actual product, or an online simulation. The students had to apply what they learned to solve problems, perform tasks, or resolve conflicts. At the end of each module there was an evaluation. The evaluation might be a final presentation, a quiz, or a product that was designed. At the end of all the modules the students were presented with a final challenge that was called "Mythbuster." The students take a possibly mythical concept and try to prove or disprove it. For example, regarding the folklore about cow-tipping, the students might have to research to see if this could be really done. They might use math, articles, and video to prove or disprove this myth.

The next part of the ASSURE model was to utilize technology, media, and materials. The teachers decided what kinds of media and materials were needed to help the students obtain their objectives in this course. The course media were picked following the "5 P's" process: preview the technology; prepare the technology, media or materials; prepare the environment; prepare the learners; and provide the learning experience (Smaldino et al., 2008). The

teachers designing this course were very careful to make sure that all the technology used by the student was readily assessable. Anything that needed to be downloaded and used by the student was demonstrated by the teacher in video and writing. The students were given a checklist at the beginning of each module that assured they knew of all items that needed to be submitted and what programs were needed to accomplish the tasks in the module.

The R in the ASSURE model was to require learner participation. As Smaldino et al. (2008) note, "to be effective, instruction should require learner's active mental engagement" (p. 28). There were activities in place in the modules under the explore and elaborate pieces of the 5 E's model that required each student submit work that was evaluated by not just the teacher, but the other students in the class. The students were provided constant feedback before final projects were submitted.

The last part of this course was the evaluation. This part of each module not only evaluated the student's progress but also gave the teachers valuable feedback, which was shared with other teachers so this course could be modified in the future. The evaluation of the course will be developed based on standards from other online courses.

## Implementation of the course

The course was offered to all the middle and high schools in the county in the spring semester of 2011, but with more emphasis on the targeted schools that had actually created the course. The course started out with 300 students, with about half dropping out in the first two weeks during the "grace period." The main reason students gave for dropping out was they were not sure what they had signed up for. Many students had been told by their guidance counselor to take the course and the counselor did not tell them it was an online course taken at your home on your own time. Problems like these will be easily corrected in the future with more training for the guidance counselors.

The course is a half credit with a grade point average quality point, so students taking the course would get a bigger percentage on their grade point average for taking this course. Students in seventh and eighth grades would receive a high school credit for passing this course. It is crucial that the students targeted in the middle school as potential dropouts come into high school ahead of the game.

The United States is not producing enough students, teachers, and practitioners in the fields of science and mathematics. A large majority of the students in our county fail to reach proficiency in science and math. The course in computer application in science and engineering is Pinellas County's method to remedy this serious situation.

## References


Bybee, R. W., , Buchwald, C. E., Crissman, S., Heil, D. R., Kuerbis, P. J., Matsumoto, C., & McInerney, J. D.(1989). *Science and technology education for the elementary years: Frameworks for curriculum and instruction.* Washington, DC: National Center for Improving Instruction.

Cole, J., & Foster, S. (2007). *Using Moodle: Teaching with the popular open source course management system*. Sebastopol, CA: O'Reilly Press.

Deng, Y., & Hemphill, L. (2006). Demonstrating online K-12 teaching strategies in a Moodle course management environment. *Technology and Teacher Education Annual, 1*, 316-317.

Florida Department of Education. (2011). *Education information and accountability services, data publications, and reports*. Retrieved from http://www .fldoe.org/eias/eiaspubs

Hauden, J. (2008). *The art of engagement: bridging the gap between people and possibilities.* New York, NY: McGraw-Hill.

Karabulut, A., & Correia, A. (2008, March). *Skype, Elluminate, Adobe Connect, Ivisit: A comparison of web-based video conferencing systems for learning and teaching.* Paper presented at

the Society for Information Technology and Teacher Education International Conference.

Kuenzi, J. (2008). *Science, technology, math education: Background, federal policy and legislation* (RL33434). Retrieved from http://www.fas.org/sgp/crs/misc/RL33434

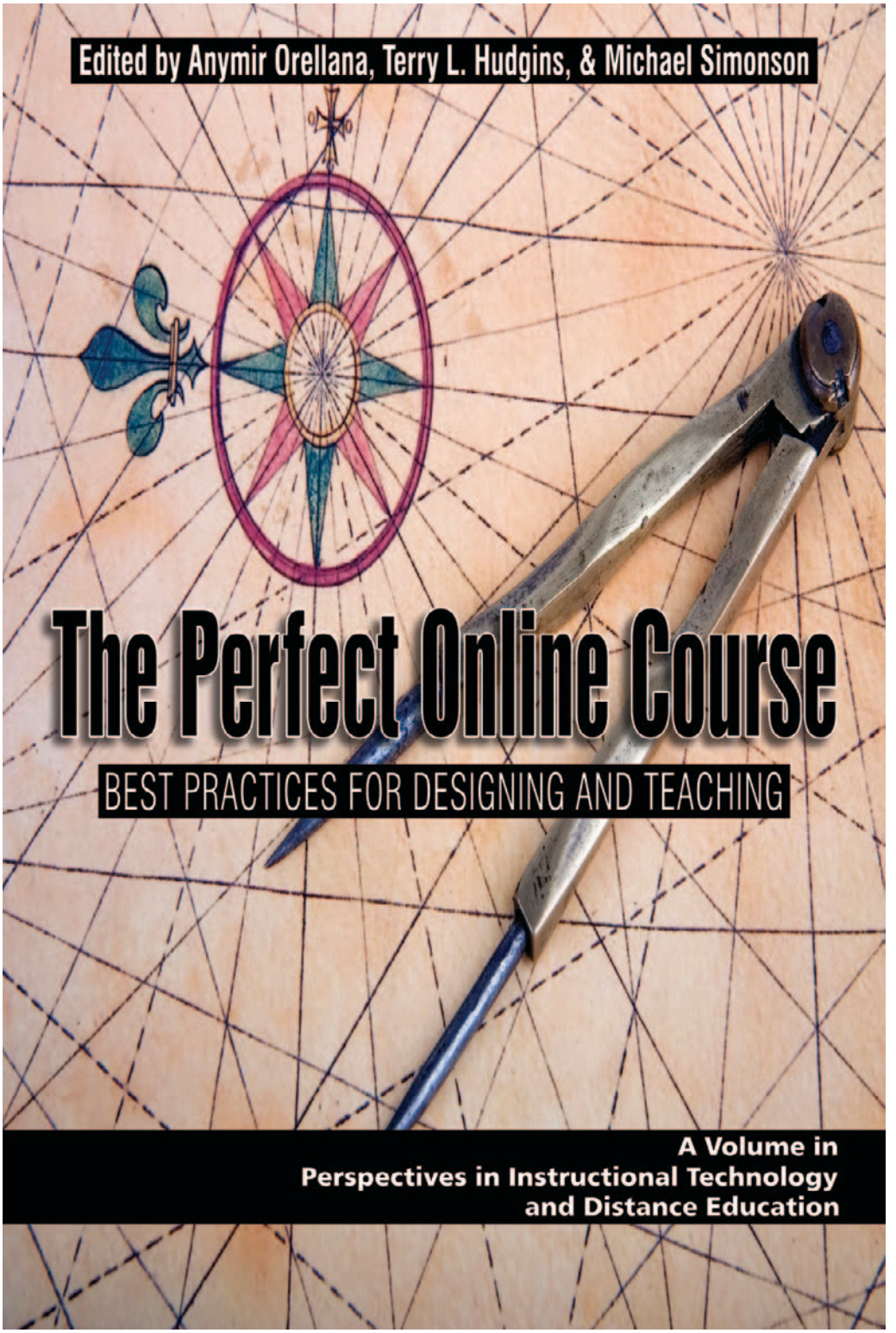
Maikish, A. (2006). Moodle: A free, easy, and constructivist online learning tool. *Multimedia and Internet@Schools, 13*(3), 26-29.

Martin-Blas, C. T., & Serrano-Fernandez, A. (2009). The role of new technologies in the learning process: Moodle as a teaching tool in physics. *Computers and Education, 52*, 35-44. doi:10.1016/j.compedu.2008.06.005

Moodle. (2011, February 14). *Installations of 30,000 plus—Moodle*. Retrieved from http://docs.moodle.org/en/Installations_30000_plus

Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2008). *Instructional technology and media for learning.* Upper Saddle River, NJ: Pearson Education.

Watson, J. (2007). *A national primer on K-12 online learning*. Washington, DC: North America Council for Online Learning.




Get Your Copy Today—Information Age Publishing

# Distance Education in Histotechnology

## An Innovative Instructional Model for Laboratory Education

**Karen Brinker Geils**

### Introduction

Histotechnologists (HTLs) are baccalaureate-prepared laboratory professionals who are responsible for the preparation of human tissue samples for microscopic evaluation by a pathologist. HTLs most often are employed in a clinical laboratory setting where they must possess a high-level and specific skill set to prepare histologic specimens. Troubleshooting technical issues that occur during tissue preparation is critical. The interpretation of histologic specimens by a pathologist determines the course of treatment patients (Wolcott, Schwartz, & Goodman, 2008). As such, it is imperative that HTLs are adequately educated in the theory as well as the practice of histotechnology.

The American Society for Clinical Pathology (ASCP, 2011b) reports a vacancy rate of 9.81% for histotechnologists in the United States. Although at first glance this number may not be alarming, one must consider the landscape of the histotechnology profession. There are currently fewer than 3,000 certified HTLs in the United States and given their integral role in the management of patient care, HTLs have a tremendous responsibility to ensure that pathologists have well-prepared specimens in order for them to render accurate diagnoses. Consider also that there are 5,795 registered hospitals in the United States (American Hospital Association, 2011). Given these numbers, there are hospital laboratories that have no certified histotechnologists, and the need is actually much greater than that depicted by the ASCP survey (V. Della Speranza, personal communication, March, 23, 2011). Furthermore, 40% of laboratory personnel, nationally, are expected to retire within 10 years (Sullivan, 2008), creating an increased shortage.

Karen Brinker Geils,
165 Ashley Avenue, MSC 908,
PO Box 250908, Charleston, SC 29425.
Telephone: (843) 792-4013.
E-mail: brinkerk@musc.edu

In addition to the personnel shortage, there are not enough educational programs to meet the demands of training HTLs (Kibak, 2008). On-the-job training has been suggested as an option (O'Neal, 2008). However, because HTLs play such a vital role in the diagnosis of disease, and their job roles are expanding to include more complex testing, on-the-job training may create discrepancies in HTL training and may not be the best approach to fill these positions (Hinds, 2000). HTL training requires more complex didactic education than on-the-job training can provide. This leaves the profession in a situation with a severe shortage of histotechnologists and limited educational opportunities for training new technologists.

The ASCP calls for an increase in the number of HTL education programs (ASCP, 2009), and more flexible educational options have been cited as one way to address the shortage (ASCP, 2007). Of the four HTL education programs in the country, the Medical University of South Carolina (MUSC) Hospital Authority is the only one that offers an option in distance education (DE). The purpose of this article is to provide an overview of the application of DE technology to histotechnology education.

## History of the Program

The Histotechnology Program at MUSC is a hospital-based program that began in 2004 to provide traditional (on-site) training to students who have little to no laboratory background. In 2010, the DE option was added and, while the program is small in scope—just two DE students—the intent is that the program will grow. The traditional education program continues to operate parallel to the DE program.

## Program Focus

Currently, the focus of the DE option is to provide didactic instruction to on-the-job trained technologists and other laboratory personnel who are interested in sitting for the ASCP HTL Board of Registry Certification exam. Although certification is not a universal requirement for employment in a histology laboratory, there is an increase in the number of employers who are requiring the certification (V. Della Speranza, personal communication, November 12, 2010). Another incentive for noncertified histology practitioners to become certified is pay increase. On average, certification results in a 14.7% increase in salary (ASCP, 2011a).

## Program Structure

Program administration includes the program director, who also serves as an instructional technologist, and the education coordinator, who provides content expertise. The education program is operated under the auspices of two service areas within the laboratory, laboratory education services and anatomic pathology.

The program director (lab education services) works closely with the education coordinator (anatomic pathology) to develop and evaluate instructional content for the traditional and the DE students. The education coordinator and the clinical faculty in the MUSC clinical laboratory are responsible for the clinical education of the traditional students. The program director works with the DE clinical faculty to ensure that the clinical education for the DE students is equivalent to that of the traditional students.

Because DE students are currently employed in histology laboratories, the employees' working laboratory provides all the clinical education as required by the National Accrediting Agency for Clinical Laboratory Sciences (2011). Clinical affiliation agreements between the sponsoring laboratory and the MUSC HTL Program outline the responsibilities of each party. The organizational hierarchy can be seen in Figure 1.

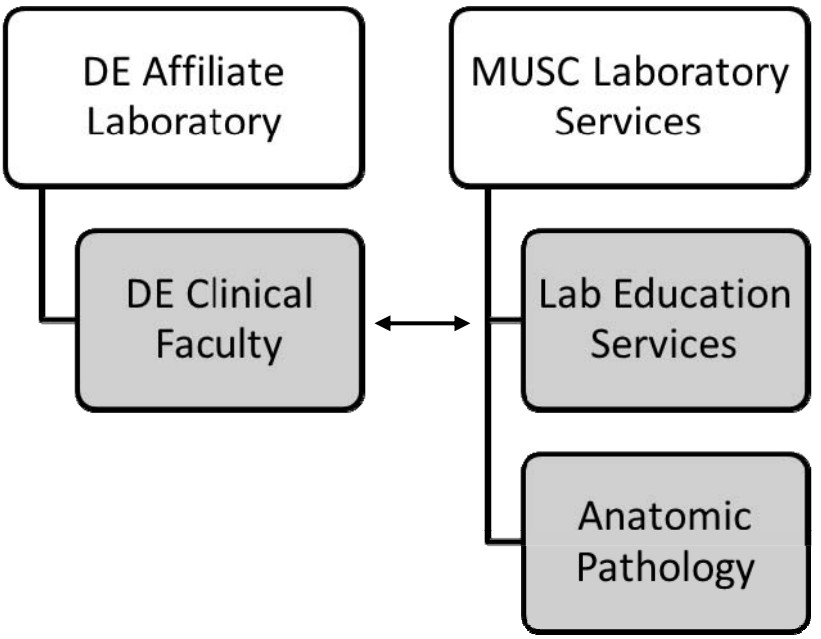



Figure 1. Organizational hierarchy of the parallel HTL traditional and distance education programs.

## Curriculum

The DE option is integrated into the traditional program, and the curricula are identical in terms of the course offerings. All students are required to demonstrate mastery (didactic and clinical) of the knowledge and skills mandated by National Accrediting Agency for Clinical Laboratory Sciences (2011). Although the objective of the two options is the same, preparation for successful completion of the certification exam, the instructional strategies differ. The specific differences will be explored in the discussion of instructional strategies and their corresponding learning theories. In order to understand the differences between traditional HTL students and DE HTL students, distinctions between the two student groups need to be addressed.

The HTL traditional students enter the program with little to no experience in the histology laboratory. Traditional students are taught theory in histologic techniques and are required to demonstrate competency in histology technical skills. By contrast, the HTL DE program is designed for practitioners who currently work in a histology lab but do not have the HTL certification. Their entry-level knowledge is greater than that of the traditional students, and they do not necessarily require the clinically intense instruction. The distance education students currently possess the necessary laboratory and technical skills, but they lack the didactic and theoretical teachings of histotechnology.

## Instructional Technology and Instructional Strategies

Communication and instruction for the DE students is primarily conducted using asynchronous methods. However, there are some subjects, specifically, laboratory mathematics, that are better suited for synchronous instruction. In cases such as these, Adobe Acrobat Connect Pro pro-

vides audio, video, and screen sharing capabilities.

All course material, course syllabi, video presentations, laboratory assignments, discussion boards, and tests are accessed by both groups of students via WebCT. Initial instruction, that is histotechnology curricular content, is provided through assigned readings and videos. One-on-one instruction and communication occurs via e-mail or telephone with the program director, education coordinator, or face-to-face with clinical faculty.

## Technology Requirements for DE Students

Technology resources are minimal. Each student is required to have adequate Internet access on a computer (PC or Mac) that has audio and video capabilities. Videos are produced as MP4 files and will play on standard video players.

## Instructional Strategies for DE and Traditional Students

With the implementation of the DE program, new instructional strategies were implemented to enhance the independent learning styles of the more experienced HTL DE students. DE students have the flexibility to work with their clinical faculty to determine how to best use the instructional activities. Each instructional strategy is based on commonly used learning theories, behaviorism, cognitivism, and constructivism. A description of the instructional strategies follows.

Camtasia Studio is used to record video presentations; videos contain text, images, and motion images. This strategy works well for the traditional students because they have no HTL background, and this strategy, based on cognitive learning theory, is most useful in conveying information to novice learners (Driscoll, 2005). However, it is also useful for DE students who may be unfamiliar with particular concepts in HTL. If a DE student feels comfortable with the information, he or she can choose not to view the video(s), or the student may wish to view the video if he or she needs more information in the subject area. This flexibility allows a DE student to customize his or her education.

Laboratory assignments are completed by the students in the clinical laboratory. Assignments incorporate psychomotor and cognitive skills related to laboratory techniques. This is a hands-on strategy that incorporates elements of behaviorism, cognitivism, and constructivism. Through practice, students are expected to achieve competency in laboratory techniques (behaviorism). Students also rely on information learned through the lectures and readings to perform these tasks (cognitivism). Constructivist learning is more evident towards the end of the curriculum when students can use gained knowledge to troubleshoot laboratory techniques or instrumentation malfunctions. A DE student may choose not to perform a specific assignment if he or she performs that technique as a component of the sponsoring laboratory's workload. In this case, the clinical faculty would attest to that student's mastery of the skill.

Written and practical exams rely on cognitive and constructivist knowledge to demonstrate mastery of the subject material. Written exams incorporate cognitive and constructivist learning because, while students must demonstrate mastery, scenario exam questions are developed that require students to troubleshoot and/or interpret techniques. Practical exams allow students to demonstrate the application of the theory they have learned.

## Instructional Strategies for DE Students

Discussion boards are a mainstay in online distance education as they promote a sense of community and shared knowl-

edge among the students (Puntambekar, 2006). Discussion boards were implemented in the HTL DE program to help lessen the transactional distance between the program director and the DE students. Transactional distance refers to the level of communication within an online distance education course; limited communication results in high transactional distance. Transactional distance is lessened when communication is maximized (Gunawardena & McIssac, 2004). The program director is available onsite for the traditional students and impromptu discussions and questions occur; a sense of community develops. The discussion boards afford the DE students a similar way to connect. Although it is not identical, it does serve as an equivalent way of communication. Traditional students also have access to the discussion boards through WebCT, and they are encouraged to participate along with the DE students. Traditional students may learn from the more experienced DE students through shared understanding and collaboration, a hallmark of constructivist learning (Steinbronn & Meredith, 2008). This connection among all students also facilitates community.

Two types of discussions are used—guided and exploratory. Guided discussions are instructor generated and ask for specific information related to a topic. Students are required to provide well-developed responses to questions by utilizing available resources; responses must include more than personal opinion. Exploratory discussions require that students demonstrate problem-solving abilities (Majeski & Stover, 2007). When learners actively participate in discussion topics and respond to one another in a thoughtful manner, they begin to develop a common understanding. By discussing and understanding others' experiences in the laboratory, students can collectively develop a common understanding of the nature of the HTL profession (Puntambekar, 2006).

## Future Directions

The challenge in developing the DE program was to assess how the resources that were available to MUSC would contribute to this initiative. Initial consideration was given to providing distance education to entry-level students, students with no histology background. As a small, hospital-based program it seemed more feasible to offer the program as described. However, as the program matures and as the faculty's comfort levels with the technology increase, the program administrators will re-evaluate the possibility of making the program more accessible by distance education for students of varying backgrounds.

## References


American Hospital Association. (2011). Fast facts on US hospitals. Retrieved from http://www.aha.org/aha/resource-center/Statistics-and-Studies/fast-facts.html

American Society for Clinical Pathology. (2007). *ASCP teams up with state pathology society to address the workforce shortage.* Retrieved from http://www.ascp.org/HomePageContent/ePolicyNews/December22007.asp

American Society for Clinical Pathology. (2009). *ASCP advocacy efforts focus on developing the workforce*. Retrieved from http://www.ascp.org/MainMenu/AboutASCP/Newsroom/ASCP-Advocacy-Efforts-Focus-on-Developing-the-Workforce.aspx

American Society for Clinical Pathology. (2011a). *Survey finds certified medical laboratory professionals earn more than non-certified personnel.* Retrieved from http://www.ascp.org/MainMenu/AboutASCP/Newsroom/NewsReleases/Survey-Finds-Certified-Medical-Laboratory-Professionals-Earn-More.aspx

American Society for Clinical Pathology. (2011b). American Society for Clinical Pathology's 2011 vacancy survey of U.S. clinical laboratories. *Laboratory Medicine, 42, 199-206.* doi: 10.1309/LMZU4JVGH6EO1OXI

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

Gunawardena, C., & McIsaac, M. (2004). Distance education. In D. Jonassen, (Ed.), *Handbook of research educational communications and technology* (pp. 355-395). Mahwah, NJ: Erlbaum.

Hinds, I. (2000). Histotechnology: A new curriculum for current and changing educational needs. *Laboratory Medicine, 31*(8), 448-452.

Kibak, P. (2008). The worsening shortage of lab staff: What's being done to turn it around? *Clinical Laboratory News, 34*(5), 1-4.

Majeski, R., & Stover, M. (2007). Theoretically based pedagogical strategies leading to deep learning in asynchronous online gerontology courses. *Educational Gerontology, 33*(3), 171-185.

National Accrediting Agency for Clinical Laboratory Sciences. (2011). NAACLS unique standards and documentation required for accredited HTL programs. Retrieved from http://www.naacls.org/docs/Section3_HTL.pdf

O'Neal, K. (2008, October). Bring back on-the-job training programs [Letter to the editor]. *Critical Values*, *1*(4), 6.

Puntambekar, S (2006). Analyzing collaborative interactions: Divergence, shared understanding and construction of knowledge. *Computers & Education, 47*, 332-351.

Steinbronn, P., & Meredith, E. (2008) Perceived utility of methods and instructional strategies used in online and face-to-face teaching environments. *Innovations in Higher Education, 32*(5), 265-278.

Sullivan, E. (Ed.). (2008). Shortage. *Critical Values, 1*(4), 9.

Wolcott, M., Schwartz, A., & Goodman, C. (2008). *Laboratory medicine: A national status report.* Atlanta, GA: Centers for Disease Control and Prevention.

OF THE FOUR HISTOTECHNOLOGY EDUCATIONAL PROGRAMS IN THE COUNTRY, THE MEDICAL UNIVERSITY OF SOUTH CAROLINA HOSPITAL AUTHORITY IS THE ONLY ONE THAT OFFERS AN OPTION IN DISTANCE EDUCATION.

# Knowledge Management and E-Learning

## The Synergy Needed

**Jay Liebowitz**

### Introduction

As distance learning professionals and educators, the nexus of what we deliver and present is "knowledge." The ability to best manage this knowledge in an online delivery format could help in providing the most value to a course. As such, knowledge management and e-learning should be intertwined to produce an enriching course experience.

Over recent years, we are seeing a greater interest in the use of distance learning in education. For example, the U.S. Department of Labor within the past year announced a $2 billion Open Educational Resource program for community colleges to serve students online and will be required to make those materials—videos, text, assessments, curricula, diagnostic tools, et cetera—available to anyone in the world, free, under a Creative Commons license. Proposals for the first $500 million have already been received by the Labor Department (Vollmer, 2011).

Jay Liebowitz,
Orkand Endowed Chair in Management and Technology, Graduate School of Management and Technology, University of Maryland University College, 3501 University Boulevard East, Adelphi, Maryland 20783.
E-mail: jliebowitz@umuc.edu

At the same time that e-learning is growing, we are also seeing knowledge management becoming more important to organizations. According to the Society for Human Resource Management, those organizations that are integrating knowledge management into their business strategies are the leaders in their industry sectors ("Leaders Know," 2009). Knowledge management deals with capturing, sharing, applying, and generating knowledge internally and externally.

The time has come for these two disciplines, knowledge management and e-learning/distance learning, to combine to create a synergistic effect. Already, there is the fairly new *Knowledge Management & E-Learning* (www.kmel-journal.org/ojs) international journal published out of Hong Kong. Also, Michael Frank and I edited a book this year titled *Knowledge Management and E-Learning* (Taylor & Francis, 2011). And in September 2011, Reychav Iris and Anand Vikas published a paper titled "E-Learning Technologies: A Key to Dynamic

Capabilities" (*Computers in Human Behavior Journal*, Vol. 27, No. 5) where they found a solid connection between e-learning, knowledge management, and organizational outcomes.

So, what model can we use to best leverage knowledge management and e-learning? Adapting from learning theory, we can create a Venn diagram with three components: knowledge-enabled, learner-centered, and community-access. The knowledge-enabled component would relate to knowledge retention and transfer issues. The learner-centered component relates to e-learning considerations. The community-accessed component combines both knowledge management and e-learning through social networking, online communities, and competitive intelligence. The intersection of the components may be called "strategic intelligence"; that is, how to improve the strategic decision making process of the organization.

Already, we are seeing organizations take advantage of the synergy between knowledge management and e-learning. For example, Sun Microsystems has a collaborative learning environment that includes wiki-driven capabilities within their learning management system. Shell's Exploration and Production Division uses e-learning which integrates a web-based expertise directory, knowledge sharing forums, and centers of excellence. Cisco uses advanced e-learning systems that allow the sharing of tacit knowledge between internally dispersed technicians. John Crane, a global engineering firm, uses the Know-How e-learning platform to rapidly transfer specialized engineering knowledge across their global company. And, the Horizon Report (Johnson, Smith, Willis, Levine, & Haywood, 2011), which tracks learning and knowledge, feels that these two areas are crossing geographical borders through online collaborative workspaces and social networking. This could be a way of bridging knowledge management and e-learning.

Of course, as in any discipline, there are naysayers. Some say that knowledge management and e-learning should be divorced as one field grew out of the information technology area and the other field out of the human resources and training domains. Some say that knowledge management is more strategic in nature, while e-learning is more tactical. However, others feel that these two fields should be engaged together. For example, both fields can contribute to knowledge generation and memory building. Both fields have the potential to improve an organization's or an individual's internal and external effectiveness. And both fields can help promote a sense of community and belonging.

It is time for the distance learning and knowledge management communities to better coalesce than in the past. In much the same way, the artificial intelligence community did not integrate early enough with the database management community, which had already addressed many of the same thorny issues being faced by the later artificial intelligence camp. Knowledge management and e-learning go hand-in-hand. Without researchers and practitioners embracing both fields in an integrated, synergistic way, I fear that we will suboptimize in terms of moving both fields forward.

## References


Johnson, L., Smith, R., Willis, H., Levine, A., & Haywood, K., (2011). *The 2011 Horizon Report.* Austin, TX: The New Media Consortium.

Leaders know how to make the most of knowledge mgmt. (2009, September 9). *Credit Union Times*. Retrieved from http://www.cutimes.com/2009/09/09/leaders-know-how-to-make-the-most-of--knowledge-mgmt

Vollmer, T. (2011, January 20). New federal education fund makes available $2 billion to create OER resources in community colleges [Web log entry]. Retrieved from http://creativecommons.org/weblog/entry/26100

# Communication, Collaboration, and Project Management Tools for Producing and Managing Group Projects at a Distance

**Natalie B. Milman**

Natalie B. Milman,
Associate Professor of Educational Technology, The George Washington University, 2134 G ST, NW, Washington, DC 20052.
Telephone: (202) 994-1884.
E-mail: nmilman@gwu.edu

Producing and managing group projects at a distance is a prevalent practice, not only in business, but also in education, particularly in online programs, training, and workshops. As online courses, programs, and training proliferate, it is important for online students to be aware of tools that can help them manage working in groups at a distance, no matter how many miles might separate team members from their peers, or how many hours their resident time zones might differ. Although many online instructors are already building in activities to capitalize on various collaboration tools available within the platform or course/management system they might use to deliver instruction, there are many other tools that students might consider using not only to create and track their individual and group efforts, but also to communicate more

effectively. This article shares several communication, collaboration, and project management tools that online students might wish to use to help them produce and manage their team projects at a distance. Clearly, there are many other tools that exist in each of these categories; one can conduct an online search to find more. And, as apps continue to grow for both the Android and iPhone/iPad markets, the number of tools available will only grow.

## Communication Tools

Effective and timely communication is key to the success of any group project. Asynchronous communication such as e-mail often works very effectively in online environments. However, occasionally, synchronous communication is needed. Many course/learning management systems have chat tools that may be activated by the course instructors, but other synchronous tools exist. The following tools provide team members the opportunity to have synchronous communications, and in some cases, to record them to review again later. Moreover, some such as Anymeeting and Vyew, also allow members to discuss and critique a draft presentation or product they have created.

- Anymeeting: http://www.anymeeting.com/
- GoToMeeting: http://www.gotomeeting.com/fec/
- Mikogo: http://www.mikogo.com/
- Skype: http://www.skype.com/
- Vyew: http://vyew.com/
- Yugma: https://www.yugma.com/

## Collaboration Tools

Teams that work at a distance often need to brainstorm ideas, produce outlines, and drafts of their work, including final products. Some tools, such as Google docs and wikis, allow different members to contribute to the same document or tool simultaneously, while also saving the changes made by individual members. Not only do these tools keep track of individual efforts and drafts, but they also serve as a "home base" for housing important group documents eliminating the need to transfer files back and forth via e-mail or some other tool. Below are several collaboration and sharing tools that teams might wish to use:

- ConceptShare: http://www.conceptshare.com/ —markup images, photos, videos
- Delicious: http://www.delicious.com/ —share bookmarks
- Flickr: http://www.flickr.com/ —share photos
- Google docs: http://www.docs.google.com/ —share and cocreate documents
- PbWorks: http://pbworks.com/ —wiki
- SlideShare: http://www.slideshare.net/ —share slides in PowerPoint and other formats
- Wikispaces: http://www.wikispaces.com/ —wiki
- Wridea: http://wridea.com/ —brainstorming and "idea management"
- Zoho (collaboration applications): http://www.zoho.com/ —offers a "suite" of collaboration tools

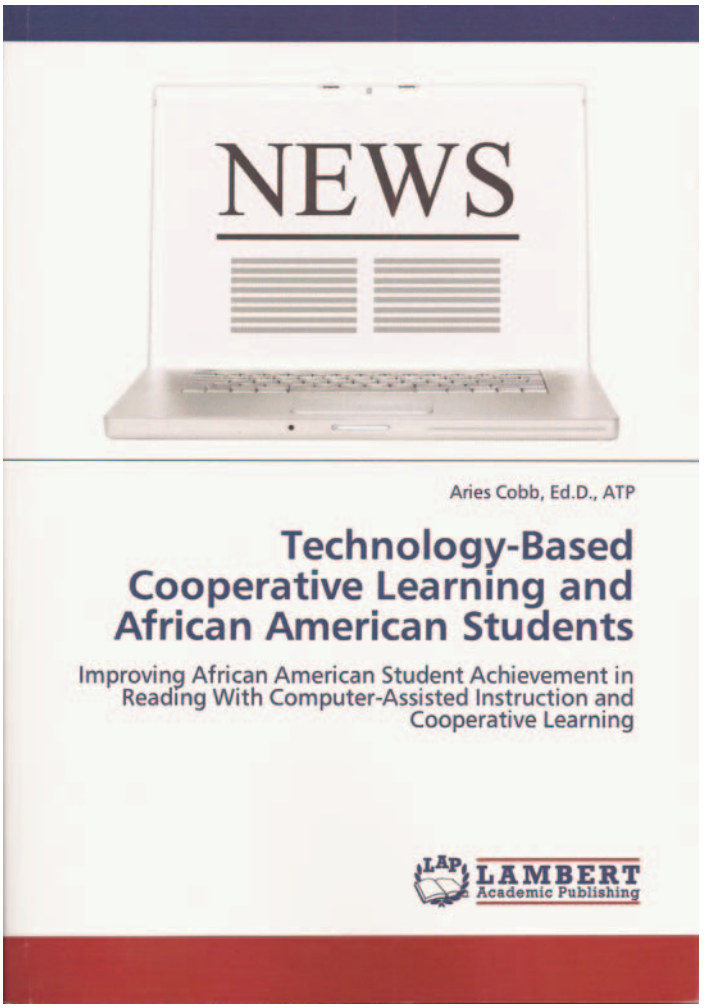
## Project Management Tools

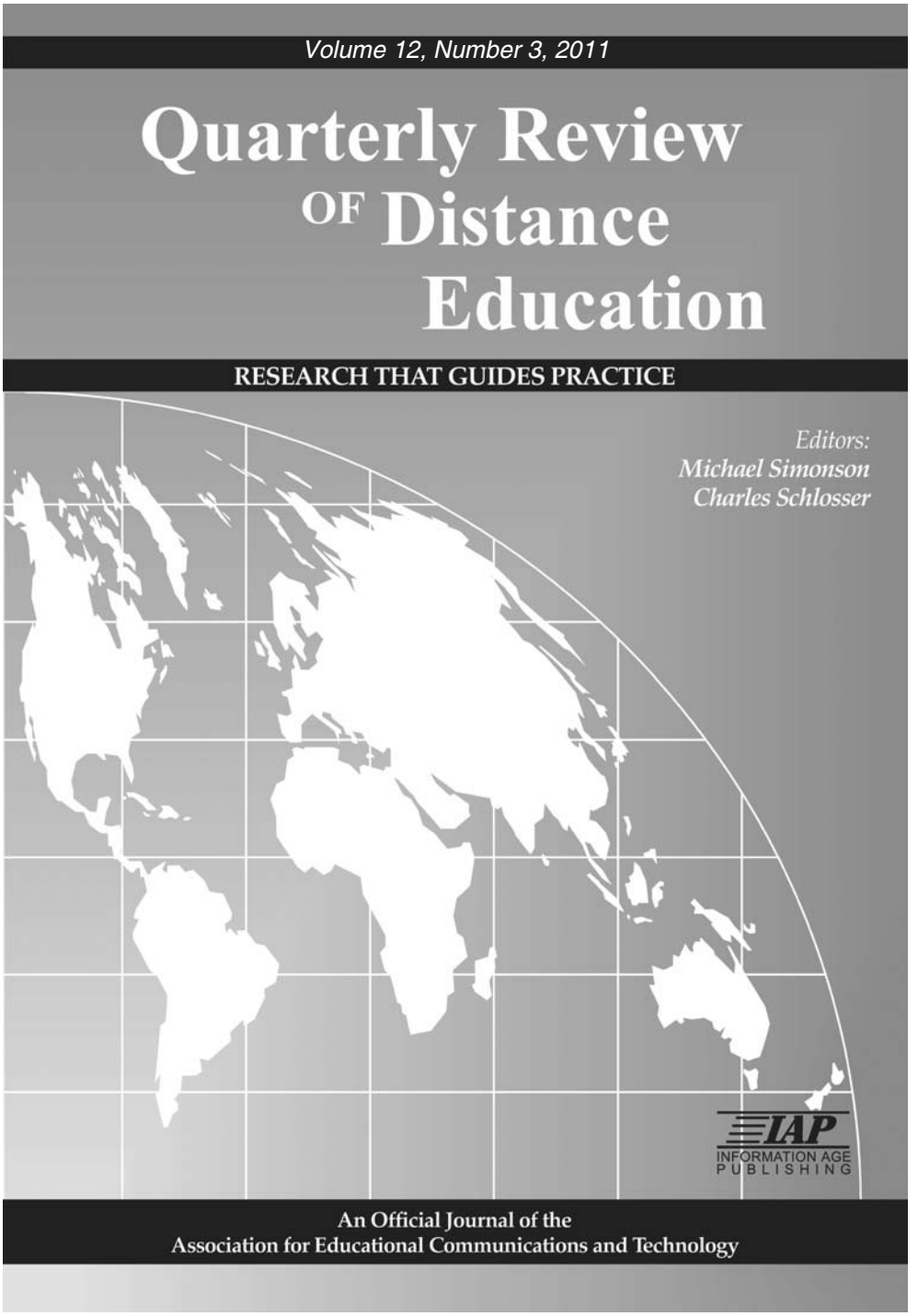
Project management is an important feature of many group projects. Project management tools help individuals track how much time and effort they allocate to particular tasks. In the business world, employers often require their employees to use project management tools so they can appropriately bill their clients. Very often, employees work on several projects for different clients; therefore, allocation of their time for each client is very important to record.

Instructors leading online programs, courses, training, or workshops might wish to require students to keep track of their individual and team efforts, not only

to monitor the distribution of labor within a group (which could also be part of an individual's grade for working in a team), but also for groups to gain an understanding of the time and effort involved in completing a group project. This first-hand knowledge and experience documenting effort and time needed for particular tasks is valuable information for online students to know since they might find themselves in the future applying this knowledge to prepare real bids for potential clients or lead a team to work collaboratively. Below is a list of tools that online students might wish to use, as well:

- 42 tasks: http://42tasks.com/
- Backpack: http://backpackit.com/?source=applist
- Basecamp: http://basecamphq.com/
- Pegby: https://www.pegby.com/home/view
- RemindPost: http://www.remindpost.com/
- Soshiku: http://soshiku.com/
- Thoughtboxes: http://thoughtbox.es/
- Toodledo: http://www.toodledo.com/
- Zoho online project management and planning software: http://www.zoho.com/projects/





# A Miniguide to the Use of Audio Files in the Distance Learning Class

**Errol Craig Sull and Andy Cavanaugh**

In online instruction, effective feedback to and interaction with students are two significant issues that influence student learning. However, some research has indicated that not only the frequency and content of one's feedback and instruction can be instrumental in aiding students' learning but also the medium used to deliver the feedback and instruction. While many online classes in the 1990s were fairly text-heavy in approach, online classes now offer the opportunity to

Errol Craig Sull,
Online Instructor,
P.O. Box 956, Buffalo, NY 14207.
Telephone: (716) 871-1900.
E-mail: erroldistancelearning@gmail.com

Andy Cavanaugh,
Director of Academic Writing, University of Maryland University College, and Doctoral Student, Instructional Technology, Towson University.
E-mail: acavanaugh@umuc.edu

provide not only text but also audio instructions and feedback to students. The use of audio in an online classroom can enhance the overall effectiveness and quality of the course.

For giving feedback to students on assignments, audio feedback has been used by instructors even in face-to-face classes. In face-to-face classes some instructors have recorded feedback to student writing assignments on cassette tapes and handed the tapes to students in class. In addition, before the emergence of online classes, there was always the opportunity to talk to the student after class or during office hours to give feedback to a particular paper or task. However, the rise of digital audio technology has created a new format through which to deliver audio feedback. Specifically, the .mp3 file has been used by a number of instructors to offer formative and summative assessment feedback to students in online courses. The .mp3 file may have become the cassette tape of the twenty-first century.

.Mp3 is a file format that is characterized by a compression of an audio file. The compression of the file reduces its size so that it is easily transferable on the Internet but experiences a minimal loss in sound quality. Instructors teaching online can use the .mp3 file format for providing instructions to students, for offering feedback to students on assignments, for posting welcome announcements to students, and for a variety of other functions.

## Potential Advantages of Audio for Instruction and Feedback

### Specificity

For providing feedback to a student on an assignment, an instructor may desire to provide formative feedback to the student and ask the student to revise the assignment. The student may have submitted an assignment for a class, but the student's work may reflect a misunderstanding of the assignment or, for other reasons, a need for a revision of the assignment. In such cases, it may be difficult for the instructor to type out an explanation of the problems and shortcomings that the student's assignment features. However, the ability for the instructor to talk through the problem in an audio file offers tremendous potential for enhancing the explanation and feedback, especially in an online environment.

### Ergonomics

Instructors may not type out copious instructions or feedback to students because the act of typing out such detailed feedback on each paper for 20+ students may be physically daunting. Speaking to students and posting audio files for them can help with the ergonomic stresses of online teaching.

### Tone

Because some written feedback can be cryptic, its tone can be interpreted by students as caustic. However, an audio file featuring the professor's voice explaining a concept to a student can smooth out the tone of feedback and allow the instructor to describe the problem to the student in a more appealing manner than written text may afford.

### Time

Providing solid instruction and feedback to 20+ students takes time. If the feedback is typed out, the time demands on the instructor are extremely acute. However, one can speak faster than one can type. For this reason, audio posts can be more time effective than written posts for some tasks in the online classroom.

### Thoroughness

For many of the reasons cited above, audio feedback and instruction can be

more thorough, simply because the ability to produce more information in less time may render the instruction more thorough when delivered in audio form than in text form.

## Suggestions for Implementing Audio Files

When considering the use of .mp3 files, some advice on their use may be well heeded. The following are some tips on the use of .mp3 files in the online classroom:

### Know How You Will Use the .mp3 File

Just as with any resource in a course, the application of the .mp3 file should have a specific use within your courses. There can be a tendency with any new technology to plaster it all over the place, yet this can distract from your effectiveness as a teacher and complicate the students' learning environment. Thus, at most have two or three purposes for the .mp3's presence in your online classroom: This way it will aid your course and not become a toy!

### Consider Purchasing a Digital Voice Recorder Rather Than Making .mp3 Files With Software on Your Computer

A digital voice recorder looks like an oversized long and narrow cigarette lighter. The three primary manufacturers are Sony, Olympus, and Panasonic; each has a presence in various electronic retail outlets and on the web. The prices vary from $40 to nearly $300, but what is most important is that your digital voice recorder has .mp3 capability and the ability to transfer the .mp3 files to a computer. The latest models perform an automatic conversion to .mp3.

The advantage of using a digital voice recorder is that you can record audio wherever you are. For example, you can print out several student papers, take the papers to a nearby coffee shop, take notes on the papers, and record your feedback to the papers using your notes as a guide. You can then upload the audio files to your computer and to your online class after returning to your computer. Andy has sat in his car in the parking lot while his son was practicing with his soccer team and recorded audio feedback to several students for his online class. This is one illustration of the flexibility a digital voice recorder allows.

Furthermore, recording audio files at your computer may be logistically unfeasible. If you share an office with other teachers, speaking into a microphone and creating .mp3 files for your students at your desktop while others are in the room may not be a realistic option. Overall, the privacy and flexibility that a digital voice recorder affords make it well worth the investment it involves if you are going to post audio files to your classroom.

### Inform Students Why and How You Plan to Use .mp3 Files

Many students have not previously received .mp3 files from an instructor. They may not be familiar with what .mp3 files are or why they are being used. Giving students a "heads-up" on their use not only takes the "whoa-what-is-this!" reaction away but also allows time for students to ask questions about them.

### Begin Each New Course With a Test .mp3 Posting

Before the first week of class, post an .mp3 file to a conference in your class and ask students to listen to it and respond to the conference indicating if they had any problems with it. This arrangement prevents surprises later in the semester in the event that a student is not being able to hear an .mp3 file. In addition, the posting of the initial .mp3 file to the class can stir

up some excitement at the beginning of semester.

As for the message in this test .mp3, make it personable, but only focus on one item: the students' letting you know they can hear it. The file need not contain robust material about the class at this point. Students have too many other items going in the first week of a class. It is probably not practical for you to post more than a test message for the first .mp3 file.

## Do Not Be Overly Concerned About Making a Professional Production

When we speak to students in a face-to-face class, we do not use perfect grammar, we pause, we think in the middle of a sentence, and we change our thoughts as we speak. The same dynamics can occur in making an .mp3 file. As an instructor, use the .mp3 file as a way of talking with the students, not as a way of producing a professional quality broadcast to them.

If you are speaking into the recorder and find yourself changing your train of thought, continue the recording, keep speaking, and allow yourself to change your train of thought. If you find yourself frequently stopping your recordings and starting over, you are probably being too perfectionist with regard to your recording quality.

## Never Let .mp3 Files Supplant Your Active Presence in the Course

Instructors can get carried away by the use of .mp3 files to the point that they slowly fade from writing and posting to students: Never let this happen! Students need see you are regularly participating in class in text form as well as audio form. This practice shows enthusiasm and involvement for the course and keeps that umbilical cord pumping strongly that connects the course to the students, thus resulting in an active and involved class. .Mp3 files are a very cool teaching aid, but that's all they should ever be, an aid; the day you allow them to take your place in the course is the day your course dies.

## Use Your Judgment in How You Use .mp3 Files with Student Assignments

Some instructors use only audio in providing feedback to a draft of a student assignment. Other instructors use a mixture of audio and written text. When you first begin using .mp3 files, you may want to experiment with the use of all audio or with the use of a mixture of written and audio as you approach this technology.

Some data point out that incorporating .mp3 feedback on students' assignments results in students having a better understanding of how to improve their assignments and provides them with a stronger rapport with the instructor. Read the research, talk to others you may know who have incorporated .mp3 files into their online classes, and use your teaching experience to decide your best approach to incorporating .mp3 files in giving students assignment feedback. (By the way: Errol begins each week with a "Weekly .mp3 Greeting" to the class—it gives an overview of what to expect in the week and serves as an additional motivator; this has been extremely well received by his students!)

## The Length of Your .mp3 Files Can Vary

When using .mp3 files to give student feedback on major assignments, the length of your .mp3 file might range from 10 to 20 minutes, depending on the assignment length and complexity, the amount of detail you wish to include, and your overall commentary. It is probably a good recommendation not to go longer than 20 minutes. However, as you are first getting familiar with the use of .mp3 files, you may

find them complementing your written assignment feedback; in this case the .mp3 file might be considerably shorter, perhaps 5 minutes, or even 45 seconds. Nonetheless, the length of the file depends on what feedback you are providing in audio form and what feedback you are providing in written form. Many instructors prefer grammatical feedback to be given in written form but more global-level feedback to be given in audio form. On the other hand, Andy actually finds grammatical feedback in audio form to be possibly more effective than grammatical feedback in written form. Reading a run-on sentence to a student and asking him if he can tell why the sentence is problematic is often more effective than typing "ROS" after the sentence. Use your judgment as to the points in the class for which you might use audio.

If you use .mp3 files to provide weekly overviews, to update the class on important reminders, to highlight a point in a discussion, etc. you will probably want an .mp3 file no longer than 3-5 minutes.

## Ask Students for Feedback on the Use of .mp3 Files

It Is important to know how students react to your .mp3 files: in addition to offering you confirmation of their value in class students might also give you important advice on the quality and/or contents of the .mp3 file, additional info or uses they'd like to see with the files, and how clear you were in explaining a concept, info, or suggestion.

## Make a Few Test .mp3 Files Before Posting Them for Students

Unless you are used to making voice recordings, you will probably be surprised at how your voice sounds when playing back your first recording—it may be faster or slower than expected, with words not pronounced quickly, a bit of a monotone, ambient (background) noises, and "mouth noises" (deep breaths, sighs, coughing, etc.) coming from you. A few test .mp3 files will quickly allow you to adjust so students can receive the best possible quality of you, as your voice will leave an impression on them—and you want that impression to be personable yet professional, organized, and in charge of the class.

Audio files in the distance learning classroom bring several advantages for both professor and student. Their use can be powerful and can be a tremendous asset in forging more student ownership of class material, stronger student-professor rapport, ease and more detail of assignment input for the professor, and greater student involvement in and excitement for the class. It's a technology that fits smoothly into the online classroom—and one that enhances the overall effectiveness of the professor who adopts it.

***Remember***: The silent movie was great for what it was—but when it became a "talkie" how much more excited and involved became the audience!

# Ask Errol!

**Errol Craig Sull**

Since I began writing this column—2 years now!—I have enjoyed the variety of questions relating to distance learning, and this issue's selections showcase this mixture. It also reminds us: as much as has been written about distance learning there is still much more to learn, to understand, to absorb, for when compared to face-2-face classrooms online learning is still a baby. And with its growth comes new challenges, obstacles, and difficulties, so keep asking away!

Errol Craig Sull,
Online Instructor,
P.O. Box 956, Buffalo, NY 14207.
Telephone: (716) 871-1900.
E-mail: erroldistancelearning@gmail.com

For this issue …

***Engaging students, engaging students, engaging students—that seems to be the majority of e-mails and training sessions I receive and am invited to attend at the two online schools where I teach! Perhaps this is good stuff for someone new to online teaching, but I've been doing this for 5 years—I'd think the schools would realize that vet instructors with good evaluations (I fall into this category) don't need to be reminded.***

Ah, this topic is a favorite of mine. It reminds me of folks in search of the perfect diet: if it had been found there would be no need for new diets, diet programs, and diet books! Unfortunately, the same can be said of student engagement, for with all the material published, presented, and discussed on the subject there remains a major problem with student engagement in the online course. I really can't fault any school for wanting to push up student engagement a notch or two—beyond the pragmatic reason of the more student engagement equals more retention, thus the more money for the school, one must also look at this from what an engaged student gains. Certainly, with more class involvement he or she learns more—for the long haul—and this is always a good thing. And keep in mind: today's students have many other responsibilities, pressure, and diversions that can contribute to lack

of engagement. If your school offers suggestions and info on how to improve student engagement take it—your students can gain from your efforts, and to continually improve as professionals is what we must strive to do (we will never reach a point where we know all there is to learn about any subject—including student engagement).

***Do you have any guidelines for the user of copyrighted material in the classroom? My school seems to be coming down hard on this recently.***

Although you did not mention whether you teach for a for-profit or not-for-profit online school (or a school offering online courses with both online and face-to-face courses), I suspect you are teaching for one that is for profit. There has been more federal government scrutiny put on these schools of late, and some of them are taking extra precautions in all areas—including the use of copyrighted material by its faculty—to be sure nothing is amiss that can hurt their accreditation and association with the federal government. Certainly, your school can set its own parameters when it comes to the use of copyrighted material—and the school is your employer, thus you are obliged to follow it guidelines on this. Typically, however, teachers have always been covered by what is known as the Fair Use doctrine, which is part of the Copyright Act of 1976. For detailed info on this the University of Maryland University College—the online college of the University of Maryland—has an excellent website: http://www.umuc.edu/library/libhow/copyright.cfm. Also, check out Georgetown University's website on the topic: http://policies.georgetown.edu/copyright/sections/resources/. Finally, Gallaudet University has interesting information on an update to the Fair Use doctrine, the Technology, Education, and Copyright Harmonization Act. Known as the TEACH Act, it provides for legal performance and display of some resources in online education: http://libguides.gallaudet.edu/content.php?pid=47250&sid=1433456.

***I am new to online teaching, and my school has a list of "must dos" that instructors must implement prior to the first day of class (I suspect this is the same at other online schools?). One of these is a welcoming announcement to the class, and we are given a list of items to include in this first announcement; this list has been a great guideline for me. But based on your experience, can you give me some tips on how to make this first connection with my students a really great one?***

Nearly all schools offering online courses place much emphasis on that "Welcome to the course!" announcement or e-mail, and for good reason. No matter how well-stocked with materials is the course and how exciting the subject, all of this only comes to life through the online instructor; he or she must connect with the students, and this connection must be felt by the students as enthusiastic, committed to the course, and interested in the students' learning throughout the course. It is in that first greeting to the class where this gets its beginning – it is that first impression that can get students thinking, "Hey—I think I made a great choice in taking this class!" or "Uh, oh—already I don't like the look of things in this course." To be certain your students have that first impression, pepper your opening message with enthusiasm … show excitement for teaching the class and the students' learning … let the students know you are there to help them, and thus always welcome their questions and comments … use a bit of humor (helps to engage students by lightening up the class a bit) … address why the course is important beyond a grade or degree requirement. Include these with the requirements your school has for the first posting, and your opening announcement will be positively received by your students!

***In teaching online I seldom have the opportunity to meet or intermingle with other faculty who also teach online in my department at the same school. This only happened a few times a year, at department-wide webinars, to go over various policies and teaching strategies. However, this is always an enjoyable get-together, as we learn so much from one another; often, I have taken away some great stuff from my peers that have improved my teaching efforts, and they have thanked me for suggestions and information I offered. My question: is it a wise thing to do what is the obvious—reach out to these folks so we can stay in touch on a regular basis? My school has never said anything about this.***

What you write about is one of those "secrets" to improving our teaching: interacting with colleagues, for when this occurs shared stories of challenges encountered in the online classroom (with possible suggestions for resolving them), additional teaching strategies and exercises, and helpful information are always the result. I have contacted my online peers to do this on many occasions, and all involved have felt it was worthwhile. But before jumping ahead with this remember a few things: (1) Check first with your supervisor to be sure it is acceptable; (2) If in a live webinar or chat don't ask for colleagues' e-mails in front of all—the persons may not want everyone to know their addresses, so either send a private message (an option in webinars and chats) or ask your supervisor for the e-mail addresses; (3) E-mail is a permanent record, so be certain all e-mail exchanges between you and colleagues are professional; (4) Once you have colleagues who have agreed to these exchanges don't hesitate to send them suggestions, info, etc. you come across you believe would benefit others—and always send a copy to your supervisor so he or she can be kept in the loop. Once established, these colleague get-togethers and exchanges can prove valuable to all involved! (NOTE: Some schools have conferences or "rooms" set up for faculty to visit online; these are usually permanent and welcome all input on items relating to the subjects taught by the faculty. Be sure you visit this regularly if your department has one; not only can those great exchanges of info occur bit it also shows you as one really interested in contributing to the department, always a good thing!)

***I've read your columns since you began writing for Distance Learning, and I've gained much valuable information and suggestions—thanks! But something you seem to stress that has me asking for guidelines: the use of extra resources in the online classroom. How does one know—or can one know—when there is too much of the extras in the class? Won't the instructor reach a point when these can take away from the core material being taught?***

Your questions and concerns are valid—the use of these extra materials in the online classroom is one of those "slippery slopes" that can have severe consequences if not handled correctly. It is easy to gather extra resources on any subject for the online classroom—they are easily found on the Internet, as well as in many print, audio, and visual sources. And because of this ease it may, at first, seem just grand to toss many around a classroom to give the students a better understanding of the subject and to demonstrate to supervisors your interest in the course. But these must be planned wisely: too many, as you say, and they have the risk of overtaking a course; rather, they should be a minor part of each lesson or unit or course. And when you do find yourself with an extensive amount of resources that you believe will really help in the class—including any suggested by students—create a resource bank where students can visit on their own but without you placing special emphasis on it (so it doesn't take the place of the core course material). In the end, common sense must be employed if using these additional resources, but I do stress—as

you point out I have in previous columns—they can be great aids in making the course richer, keeping the students more engaged, and strengthening the student-instructor rapport.

***Remember***: Fertilizers improve the quality of lawns, spices the taste of foods, and exercises the health of our bodies—as do questions the vitality, insight, and depth of our minds.

learners. Some claim that systematic planning is not important or even needed when learner-centered instruction is developed.

In spite of claims, the evidence remains clear that the key to effective instruction is the concept of design, defined by Seels and Richey (1994) as: "the process of specifying conditions for learning. The purpose of design is to create strategies and production at the macro level, such as programs and curricula, and at the micro level, such as lessons and modules" (p. 30).

At the root of most widely practiced and classic design approaches is the concept of systems. The idea of systems used in instruction is derived from Bertalanffy's General Systems Theory (1968), and Banathy's Instructional Systems (1968, 1991), usually called instructional systems design. This process has served as the intellectual technique of those in the field of instructional technology and distance education for decades.

Instructional designers, the engineers of quality instruction similar to the construction engineers and architects who designed the Gateway Arch, are on the front-lines of distance education implementation. Certainly, modern interpretations of the ADDIE model, such as the Unit-Model-Topic approach (Simonson, Smaldino, Albright, & Zvacek, 2012), have been proposed to clarify and simplify the approaches for the systematic design of distance delivered instruction. However, any approach that makes claims about quality but that does not have the systems approach at its foundation should be considered suspect.

*And finally,* Aeschylus once again provides insight about why an organization should be concerned about quality instruction delivered at a distance: "resolve is not to seem, but to be, the best."

## References

Banathy, B. (1991). *Systems design of education*. Englewood Cliffs, NJ: Educational Technology Publications.

Banathy, B. (1968). *Instructional systems*. Belmont, CA: Fearon.

Bertalanffy, L. (1968). *General systems theory.* New York, NY: Braziller.

Liggett, R. (1998). A prescription for telemedicine. *Telemedicine Today, 6*(5), 2.

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

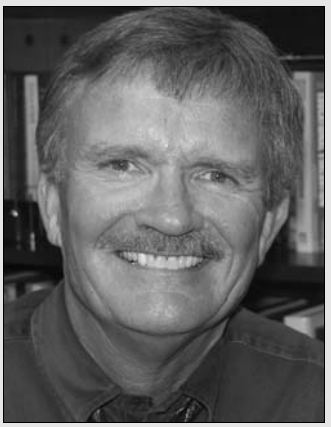
Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (2012). *Teaching and learning at a distance: Foundations of distance education* (5th ed.). Boston, MA: Pearson.

AT THE ROOT OF MOST WIDELY PRACTICED AND CLASSIC DESIGN APPROACHES IS THE CONCEPT OF SYSTEMS. THE IDEA OF SYSTEMS USED IN INSTRUCTION IS DERIVED FROM BERTALANFFY'S GENERAL SYSTEMS THEORY (1968), AND BANATHY'S INSTRUCTIONAL SYSTEMS (1991; 1968), USUALLY CALLED INSTRUCTIONAL SYSTEMS DESIGN. THIS PROCESS HAS SERVED AS THE INTELLECTUAL TECHNIQUE OF THOSE IN THE FIELD OF INSTRUCTIONAL TECHNOLOGY AND DISTANCE EDUCATION FOR DECADES.

# Design
## The Fundamental Element

**Michael Simonson**

On October 25, 1965, downtown St. Louis stopped in its tracks and thousands watched as the last piece of the mammoth Gateway Arch was being put into place. The weight of the two sides required braces to prevent them from falling against each other. Fire hoses poured water down the sides to keep the stainless steel cool, which kept the metal from expanding as the sun rose higher. Some horizontal adjustments were required, but when the last piece was put into place and the braces released, it fit perfectly, according to plan, and no one was surprised (Liggett, 1998). The thousands of onlookers applauded as the sun reflected off the bright span. The architects and engineers who were also watching smiled and went back to their offices.



Michael Simonson, Editor, *Distance Learning*, and Program Professor, Programs in Instructional Technology and Distance Education, Fischler School of Education, Nova Southeastern University, 1750 NE 167 St., North Miami Beach, FL 33162. Telephone: (954) 262-8563. E-mail: simsmich@nsu.nova.edu

Just like the Arch, distance education requires a careful process that includes systematic design before implementation. Success is almost guaranteed if all the pieces of the plan receive the same attention as the most obvious. The base sections of the Gateway Arch required more engineering savvy and study than any other component. The last and most visible span that connected the two halves received the most attention from the thousands of onlookers, but success was directly related to how the original supports were positioned.

Design is the fundamental element of effective instruction. Many think that the traditional systematic models of instructional design are not relevant to online teaching. Some claim that the traditional models of design such as the Dick, Carey, and Carey's model, and its derivative the ADDIE model, cannot be readily applied to instruction that is delivered to distant

*… continues on page 99*

ISSN: 1547-4712
*Distance Learning*
IAP–Information Age Publishing
P.O. Box 79049
Charlotte, NC 28271-7047
www.infoagepub.com