An Official Publication of the United States Distance Learning Association



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### 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

### **Association Editor**

John G. Flores jflores@usdla.org

#### PUBLISHER

Information Age Publishing 11600 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 76 Canal Street, Suite 400 Boston MA 02114 800-275-5162 x11

### **EDITORIAL OFFICES**

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

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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.

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## Mobile Technology Integration Shared Experiences From Three Initiatives

### Candace H. Lacey, Glenda A. Gunter, and Jennifer Reeves

### INTRODUCTION

obile devices and tablets are fundamentally changing the way students of all ages collaborate, communicate, participate, and ultimately learn. In order to attract highly qualified students, colleges and universities must offer a curriculum that is engagsustained ing and bv the latest technological advancements. To facilitate the use of mobile devices and evolving curricular needs, educators must learn how to integrate the newest tools and apps within

their courses. They need to understand how to develop and use an iCurriculum, tailored specifically for digital learners, and infused with mobile technologies and skills that students can immediately put into practice (21st Century Learning Solutions, 2013).

This article offers an overview of the process involved in envisioning, developing, and integrating mobile technology into the curriculum at two institutions of higher education and a public charter school.



Candace H. Lacey, Program Professor, Abraham S. Fischler School of Education, 1750 NE 176th St., North Miami Beach, FL 33162. Telephone: (954) 262-8575. E-mail: lacey@nova.edu



Glenda A. Gunter, Associate Professor of Educational Technology and eLearning, Department of Educational and Human Science, University of Central Florida, 4000 Central Florida Blvd., Orlando, Florida 32816. E-mail: Glenda.Gunter@ucf.edu

## LITERATURE REVIEW

Tim Flood, former director of information systems for the student affairs division at Stanford University, captures the impact mobile technology is having on higher education: "If you can't carry it with you, why have it'? These are the consumers of today's education. Woe to the institution that does not heed this trend" (as cited in Raths, 2013, p. 5). He concludes with a powerful question that all administrators should ask themselves: "If I have a choice, will I choose to attend the college that appears old and out of touch or one that seems to get where I'm at?" (as cited in Raths, 2013, p. 6).

Schrum and Glassett (2009) suggested that information and communication technologies can play a central role in empowering students to demonstrate authentic, meaningful learning. As part of the Apple Classrooms of Tomorrow study, Sandholtz, Ringstaff, and Dwyer (1997) developed a five-tier model for technology integration: entry, adoption, adaptation, infusion, and transformation. According to Cavanaugh,



Jennifer Reeves, Program Professor, Abraham S. Fischler School of Education, 1750 NE 167th St., North Miami Beach, FL 33162. Telephone: (850) 727-8994. E-mail: jennreev@nova.edu

Hargis, Munns, and Kamali (2012), "In order for new approaches, tools, resources, and environments to transform pedagogy in ways that facilitate student-centered, engaged, meaningful learning, they must be adopted, adapted, and infused in practice by educational institutions" (p. 4).

In a review of the research on student engagement, Prince (2004) reported that student engagement was consistently correlated with increased learning outcomes. Although little empirical evidence exists on mobile technologies and the effects on engagement, a few studies (e.g., Chen, Lambert, & Guidry, 2010; Nelson Laird, & Kuh, 2005) found student engagement increases with the effective use of educational technology. Diemer, Fernandez, and Streepey (2012) specifically found a posicorrelation between perceived tive engagement and perceived learning while using iPads in the classroom. In addition, Diemer et al. also found students who were uncomfortable using mobile technologies for learning at the beginning of the study reported interest in continuing to use iPads in the future, suggesting that although discomfort might initially be a barrier, it is one that can be easily overcome.

### **THE PROJECTS**

Experiences envisioning, developing, and integrating digital media and technology within three projects informed the content of this article. The first project took place at Nova Southeastern University (NSU), a large, private, not-for-profit university in Fort Lauderdale, Florida. The second project took place in a prekindergarten class at Big Pine Academy (BPA), a public preK-3 charter school in Big Pine Key, Florida and the third project took place at the University of Central Florida (UCF), a large public institution of higher education in Orlando, Florida.

The NSU and BPA initiatives stemmed from a brainstorming focus group with fac-

ulty at NSU in the Spring of 2012. The purpose of the session was to envision the future of education. One of the ideas that resulted from that focus group was giving every faculty member and every incoming student an iPad, fully loaded with everything needed to complete their program. None of the colleges or schools at NSU had implemented this innovation. In trying to establish a collaborative research agenda, the researchers envisioned pilot studies using mobile technologies with two convenience samples: NSU's Athletic Administration Master's program, where one of the researchers oversees the curriculum; and BPA's Voluntary Prekindergarten program where one of the researchers is a parentvolunteer.

The third project took place as part of a teacher preparation program at UCF, the second largest public institution of higher learning in the country. The UCF initiative encompasses the Instructional/Educational Technology programs, which include master's and certificate programs in Education Technology and eLearning, and the state mandated undergraduate technology course, EME 2040-Fundamentals of Educational Technology. The course is offered in over 20 sections to approximately 800 students a year. It is a certification class for teachers who desire to become highly skilled at successfully integrating technology into the K-12 curriculum.

During 2007, the Florida Legislature amended Florida Statutes implementing a technology fee of up to 5% to support the instructional technology implementation. At UCF, faculty, student organizations, and administrative staff can apply for funds to assist with technology needs from this Student Tech Fee. A Tech Fee grant was written and submitted by one of the researchers to create a mobile learning initiative for teachers in UCF's College of Education (CED). The project was the first of its kind in the CED and was funded in 2012. This funding was used to purchase two iPad carts with 50 iPads, iPad apps, and other devices to be used as teaching and learning tools for preservice and inservice teachers. The other UCF initiative was to make sure the undergraduates in EME 2040 were also exposed to mobile devices by focusing on using the iPad for skill building in their area of certification.

Because these are evolving projects, this article focuses on the early successes, midcourse challenges, and future directions for these initiatives. These are important considerations as these projects support the creation of a paradigm shift in the way these projects were envisioned, designed, and implemented.

## THE PROJECTS: EARLY SUCCESSES

Looking back on evolution of the three projects, it is clear that three constructs framed the early successes: the evolution was serendipitous, the development was collaborative, and the support was ongoing.

## THE EVOLUTION WAS SERENDIPITOUS

In October 2012 the researchers scheduled a meeting with the dean of NSU's School of Education. The purpose of this meeting was to propose the Athletic Administration Master's iPad initiative. Serendipitously, just 1 hour prior to the meeting, NSU's chief information officer and the executive director of the Office of Information Technology Innovation and Collaboration came to the faculty meeting to discuss recruitment and retention of students. Their discussion focused on describing today's student as: someone who is working on an iMac, surfing the web on an iPad, and communicating with an iPhone, all at the same time. They stressed that NSU must be ready to meet the educational needs of the digital generation. One hour later the researchers presented their proposal to the dean, who had attended the presentation. He readily agreed to purchase 10 iPads for the researchers and program faculty. The project would begin with iPad training focusing on identifying the resources needed to rewrite the curriculum to integrate mobile technologies.

While volunteering with BPA's Pre-K class, one of the researchers approached the principal and the Parent Teacher Organization (PTO) about buying iPad minis for every classroom. By the end of the month, 25 iPad minis were purchased for the charter school (2 for each of the 11 classrooms, and 3 for each of the ESE/Gifted/SLP teachers). These were parents who recognized the importance of technology in their children's future and were eager to fund the project.

There were two serendipitous moments during the UCF initiative: integration projects and the ripple effect. Preservice teachers in the state-mandated technology course were exposed to mobile devices by focusing on using the iPad for skill building in their area of certification. For the final course project, students can choose any technology to integrate into their lesson plan. However, it was unforeseen over that 50% of the preservice educators would choose to create their integration lesson using the iPad. This was the first time preservice teachers integrated mobile devices in an integration project.

Similarly, all in-service teachers enrolled in the Educational Technology master's program at UCF are required to complete subject specific curriculum integration projects in their area of certification (e.g., science, language arts, mathematics, etc.). In fall 2012, for the first time, in-service teachers were required to integrate iPads into their subject specific curriculum. In learning to use the technology each new demonstration of an app or a technique flipped the "lifetime learner" switch within the educators. Students gravitated to the touchscreens with the enthusiasm of digital natives and the experienced wisdom of those always on the lookout for new ways to teach and learn. A course assignment serendipitously resulted in a new way of thinking about learning.

In addition, when the in-service teachers went back to their home schools spreading this new enthusiasm about iPad possibilities and teaching strategies, a ripple effect occurred: the teachers and school administrators began purchasing iPads for the classrooms. Several teachers even applied for and were awarded grants to purchase iPads for their classroom.

### THE DEVELOPMENT WAS COLLABORATIVE

Because the curriculum for the Athletic Administration program is being redesigned around the use of the iPad, the effort has been fully collaborative. The faculty are working with the researchers in designing and writing their courses. A wiki has been established to support communication and share information. The researchers designed a series of predesign assignments that allow the faculty to explore the devices through web quests and data collection. Everything is shared. Training and information meetings are held using Blackboard Collaborate so everyone is able to attend.

At BPA the PTO and the principal collaborated to fund the initiative and the principal collaborated with the researchers to ensure the most appropriate devices (i.e., iPad minis) were purchased. Since the iPad initiative is being implemented schoolwide, all teachers are involved. The researchers have collaborated on two trainings with the BPA teachers: an introductory training and curriculum integration training.

After seeing the success of integrating iPads into the curriculum in the instructional technology programs, other faculty in the CED at UCF have become interested in learning more about the iPad because they see its application to their own curricular areas. Next year, one of the researcher's focuses will be collaborating with faculty in integrating the iPad using different instructional strategies across CED programs at UCF.

### THE SUPPORT WAS ONGOING

The willingness of the dean of the School of Education to fund the NSU's Athletic Administration project was a testament to the level of support offered by the university. Additionally, the university offers the highly competitive President's Faculty Research and Development Grant for innovative research. Once the pilot studies are completed, the researchers will be able will be able to expand their initial data collection by applying for this grant.

At BPA, the principal is continuously supportive and committed to making the initiative a success. The PTO was supportive with funding the initiative and the researchers are supporting the initiative by providing teacher training and an iCommunity where teachers can learn new ideas and share their experiences. One of the researchers plans to provide parent training sessions in the near future to support the use of iPads for education at home.

Support is ongoing at UCF, through several different avenues. The CED is assisting in adding more tools and ways for faculty to check out and use the iPads. The educational technology faculty currently has 10 iPads dedicated to individual program areas. The vice provost for information technologies and resources has provided support by proposing that students, who become future school leaders, have no restrictions on their training in using these devices; students are taught all functions and apps are added constantly and shared during class. In others words, "just in time" teaching and learning is taking place.

One of the researchers provided support at UCF by teaching several workshops for preservice and in-service educators. These workshops allowed not only the opportunity to spark the fire of creativity, but also to bring a needed sense of practicality to teacher strategies. The activities and discussion allowed these future and current educators to think not just in terms of technological capacities, but also possibilities. In other words, what can these devices do, what can they do for me as an educator, and what can they do for my students? This fall UCF will support the local area schools by offering workshops on mobile technology integration.

In looking back on these projects, it is impressive to see just how far each of them has come in less than a year. In addition to enhancing the education of students from Pre-K through master's level, each of the projects provided faculty and students with the opportunity to use the most current mobile technology. The journey, however, had its challenges.

## THE PROJECTS: MIDCOURSE CHALLENGES

As with any initiative, each was confronted with challenges that needed to be addressed. These challenges included start-up time, management responsibilities, security issues, participant accountability, and resistance to change. None of these came as a surprise, but each posed unique barriers to successful implementation.

## START-UP TIME

Working through a university purchasing office involves a tremendous amount of paperwork and signatures. It took 4 months to receive the iPads purchased for the NSU Athletic Administration Project; and even longer to receive the covers. Most of this was the result of the lengthy approval processes. For BPA, time issues presented themselves differently; it was not the technology, but the teachers that took time and nurturing. The researchers provided two half-days of training over the course of 3 months and created an iCommunity (i.e., a wiki solely for the BPA teachers to learn, share, and integrate). However, only about 10% of teachers are truly integrating the iPads into the curriculum (as opposed to having them on a table for students to use at their leisure) and fewer are exploring the iCommunity.

### MANAGEMENT RESPONSIBILITIES

Management responsibilities were another area that posed challenges to all of the initiatives. At UCF, the information technology and facilities administrative team tries to micromanage the project's 50 iPads by locking them down; they want to be the sole managers of the devices, apps, and settings. Perhaps this is because the IT staff does not understand the iPad and the needed flexibility with this mobile device. The IT staff feels the iPad is difficult to manage and has concerns over security issues. In truth, these devices are not like a computer that presents various security issues due to viruses and software. The iPad, in fact, has fewer security issues than most any other technological device.

Within the BPA and NSU initiatives, there has been the opposite effect. Each teacher/faculty member manages and maintains their device. This however, resulted in the next barrier.

### PARTICIPANT ACCOUNTABILITY

At BPA there is a lack of accountability that is minimizing the potential of the initiative. The principal, while supporting the initiative, had avoided setting minimum accountability standards for use. At NSU, the faculty teaching in the Athletic Administration program live all over the country, making accountability more challenging. Initially all faculty were eager to receive a "free" iPad; however, not all have been participating in each of the pilot study phases; and at least one faculty member has failed to participate at all.

Working with classroom students has helped UCF avoid the participant accountability issues facing the other two projects. Since grades are dependent on participation in class activities, students are held accountable.

## **RESISTANCE TO CHANGE**

Finally, resistance to change (or perhaps fear of change) seems prevalent, even in a society where mobile technology is pervasive. The teachers at BPA are resistant to change, the IT team at UCF is resistant to let go, and the faculty at NSU are resistant to moving forward. These are challenges that must be overcome.

## THE PROJECTS: MOVING FORWARD

While not all projects might have the opportunity to experience the early successes that supported the development and implementation of these pilot projects, it is worth noting that many universities and schools are anxious to adopt mobile technology in their classrooms. Moving these initiatives to the next phases of development, full implementation and data collection involves incorporating lessons learned from best practices. Some of these lessons guided the early phases of project development and some were learned during project implementation. For example, it is essential to "go slow to go fast." Before getting started, develop a plan, with flexibility, for integrating mobile technologies into the curriculum. Plan for extra time to order and receive the technology and plan for a slow rollout; choose one or two classrooms/programs for the initial pilot study.

Training and support are critical. Incorporate ample training time. The first training should consist of an introduction to the digital learner and the mobile device of choice. Suggest a few applications for teachers to get comfortable with their devices and allow them time to "play" with them. After allowing time to get familiar with the devices, offer a second training on how to integrate the devices into the classroom. Provide tools for success such as having the teachers create a presentation using Keynote to "teach" their colleagues multiple ways to integrate a designated app. Develop and introduce an iCommunity for stakeholders to seek and share information. If you have the staff, assign a technology mentor to the teachers in the pilot study to assist them in integrating mobile devices. At the end of the pilot study, have a debriefing meeting with the teachers involved to learn what was most effective. Then, slowly begin expanding the initiative to other classrooms, grades, or programs using the original pilot teachers as mentors.

Administratively, one of the most important strategies is to determine how to be supportive and still hold participants accountable. Depending on the group and the time, some options might include having them present a lesson plan at a staff meeting, requiring them to integrate the devices a certain number of times each week in their class or across all content areas, asking them to share favorite apps and integration ideas on the iCommunity, or having them develop out-of-class content or videos for students to view on their own or with their parents. Even for administrators who generally trust teachers to move forward on their own, having an accountability plan is vital to the success of any initiative.

Engaging the digital learner is also important. The first step in engaging the digital learner is choosing appropriate applications. There are more than 1 million apps in the App Store and specifically, over 80,000 education and learning apps (Statista, 2013). There are many free apps out there to use and try out, but be wary of the in-app purchases in many of these "free" apps. For purchasing iOS apps and books in volume, consider The Apple Volume Purchase Program, which offers special pricing on purchases of 20 or more apps (Apple in Education, 2013). Test the apps out fully before using them in class; one of the researchers used an app with the Pre-K class that made inappropriate noises when the children answered incorrectly (the app was tested prior to entering the class, but only correct answers were chosen during testing). App evaluation rubrics are becoming popular as a way to assess educational apps for their relevance and functionality (see http:// learninginhand.com/blog/ways-toevaluate-educational-apps.html or http:// www.educatorstechnology.com/2012/11/ a-must-have-app-evaluation-rubricfor.html for examples).

Another popular way to engage the digital learner is by designing curriculum that offers the opportunity for flipping the classroom and utilizing teacher created materials. In the flipped classroom, teachers provide out-of-class content (i.e., lectures or review materials) for students to watch or play at home and then use class time for working through examples and assisting struggling students. Teachers can create their own out-of-class content (e.g., using screen capture software such as educreations to create a video or tutorial) or use existing tutorials (see Khan Academy at khanacademy.org/ or search YouTube for great examples). Additionally, teaching the production elements of the iPad using iBook Author and iMovie are great ways to support curriculum design and implementation.

As these initiatives move forward, the barriers that impacted these projects must be addressed. Failure to plan for the constraints posed by start-up time, management responsibility, participant accountability, and resistance to change will result in disappointing results.

## CONCLUSION

Mobile technologies are not going away. If teachers and administrators do not want to be left behind, learning and supporting the integration of mobile technologies into their curriculum is essential. The possibilities presented by this technology are limitless. Each new demonstration of app or technique holds the potential to flip the "lifetime learner" switch within all of us. However, the investment in time and money for such initiatives can be extensive. Currently, the research supporting such an investment is limited. Future research needs to focus on providing empirical evidence showcasing the effectiveness of mobile technologies in education.

The researchers are currently working on three studies to provide empirical data: (a) a quasi-experimental design to determine whether iPads significantly improve Pre-K student achievement as measured by the Florida Voluntary Prekindergarten Assessment; (b) an exploratory case study teachers' experiences integrating on mobile devices at a community charter school; and (c) a concurrent, triangulation mixed methods design to determine how integrating digital devices into a master's program affects students' engagement, satisfaction, knowledge and skills, and time on task. Future research focusing on parental involvement is necessary so parents can learn how to use mobile devices to enhance children's learning at home (i.e., supplement what they learn in school).

The future, as is the way with technology, is bright and optimistically uncertain. As student enthusiasm, teacher ease of use and comfort with integrating, and administrative support increase, the use of mobile technologies like the iPad will transcend novelty into the strata of essential tools. As for advancement of these projects, focus will shift from building the plan to actually flying it.

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# The Presumptuous Future of the Online Adult Learner

## **Irving H. Buchen**

he historical case made for distance education relied heavily on the major differences of the adult learner. Older, more self-reliant, already working full time, juggling and balancing work, family, and study, unhappy with classroom seat time and commuting, impatient often with the abstract and the theoretical, et cetera. We are also now familiar with the demographics of the adult learner built on what we knew earlier of continuing education students and buttressed by later theory, guidelines, and findings of cognitive psychologists. But in the process of presenting such a solid and persuasive argument for the differences of the adult



Irving H. Buchen, Capella University, St Clements University Group. E-mail: ibuchen@msn.com

learner and designing curricula accordingly, we may have stopped too soon and believed that our task was over. As long as we value retention and degree completion, we may have to go the extra mile.

Recent surveys and exit interviews of graduates may provide a clue as to the direction to go. Typically learners, especially those with extensive middle level professional work experience, ask that their courses provide them with less theory and more real-world applications. But now there are some new criticisms and expectations:

- Critical new aspects of subject matter already operative in the workplace are missing or slighted in curricula.
- The futuristic projections of current trends are generally unaddressed.
- Learners are willing and able to identify and list all the above sins of omission.
- Many would volunteer to close the gaps.
- They prefer not just being receivers but imparters of knowledge—a role increasingly required of professionals.
- They value a team approach that ensures 360° coverage and resembles again more closely their work environment.
- They welcome postings but they find them hit-and-miss, unstructured, self-advertising, and unfocused.
- Case postings and chat rooms do not satisfy their desire for more engaged input.

A little arrogant, perhaps presumptuous? Maybe. But if we step back for a moment to consider how far we—and they—have come, we may discover how much more is left to do and where else we should be going.

Online learning solved the critical problem of access for working adults. Subsequent developments took the form of enhancements ranging from greater interaction with other learners to technological linkages to sources and archives. In some instances real-time classrooms were created or simulated.

Although welcome and enriching, they all fell short in an organized way of tapping the incredible range and depth of professional work experience of our learners. In other words, contrast young undergraduates and working adults. The former bring little to the table and the curriculum represents nearly 100% of the knowledge they acquire. The latter bring such substantial knowledge and savvy to the course that it may add only 50 percent or less to their knowledge base. In other words, we have solved the problem of access but we have not made it into a two-way street.

We have failed to acknowledge that there is an extensive and diverse source of input in the professional experience of our learners that is untapped. We also have failed to create and to structure an outlet for that knowledge to coexist with and enhance curricula and to generate in effect two parallel curricula threads—the official academic one and supplemental learnercreated stream.

What should be made clear is that the learner-created parallel is supplementary and never replaces the official one. Indeed, unlike the original, the supplement is not only different from course to course, but also different each time. Each one is a unique version of the original—as if it were a second original and unless archived would be lost. The issue then is how this could be implemented and evaluated. As an educational consultant to a number of universities, especially abroad, I often am asked what is next and what is ahead. Too many overseas online universities are anxious to sever their dependence on the ubiquitous American MBA. In any case, one outstanding Swiss online business graduate program was willing to be a guinea pig. We scheduled two sections of a graduate course on the same subject: leadership. One followed the standard format. The other experimented with the following variations:

- A virtual team was assigned to each topic beforehand.
- There were eight topics spanning the quarter.
- Each learner would have at least two team assignments, one as team leader.
- Each team was asked to coteach.
- They were asked to supplement the course by their experiential take on the essentials of the topic.
- Thus, from a workplace point of view they had to identify the principal operative theories, pinpoint the gaps in the research, and asked the class to address these gaps in their postings.
- The team also accepted the responsibility of responding to those postings.
- The official instructor continued to play the traditional role of monitoring and responding to postings and monitoring chat rooms but in terms of presentation and initial responses the team ruled.
- But faculty gave the team its grades.
- The team was also asked to critique the bibliography provided and to offer a supplemental annotated bibliography beyond the one provided.
- The result was a deliverable takeaway that was a unique creation of the class.

In effect, there were two versions of the course. There was the given version of the curriculum—the course version—produced by the university. And then there was the created or collaborative version or amplification produced by the learners and the university. It became the additional task of the instructor to integrate to straddle and mediate between the two versions, to point out what they had common, where they deviated, and in the latter case to invite bridging ideas.

The experimental section was found to be a total success: richer, more multidimensional, more unfinished, more applied, more magical—summed up by one enthusiast as one plus one equals three. The only complaint is that learners had to work harder.

There were six recommendations to the University especially how the training of learners might be improved or enhanced:

1. More attention to mastery of virtual teaming.

Preserving and tapping team diversity and outcomes.

- 2. Including within leadership framework, development of the collaborative relationships between team leaders and members.
- 3. Developing a new rubric for evaluating and measuring coteaching.
- 4. Adopting and applying leader-follower metrics to a virtual team and developing a multiple-level grading system to reflect different competencies displayed.
- 5. Appointing coteaching learners to the faculty or, failing that, granting them the title of course imputers. In the original proposal they were dubbed troublemakers and disturbers of the peace.



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## The Evolution of ODL System in Nigeria The Place of Nigerian Students

of Conventional University Age Bracket

### Janet O. Odeyemi

### INTRODUCTION

igeria's guiding principle on education is the equipping of every citizen with knowledge, skills, attitudes, and values that will enable the individual to derive maximum benefit from being a member of the society and to lead a fulfilling life as well as contribute to both the development and welfare of the society. Educational objectives in Nigeria include the inculcation of national con-



Janet O. Odeyemi, Centre for Lifelong Learning, National Open University of Nigeria, 14/16, Ahmadu Bello Way, Victoria Island Lagos, Nigeria.

sciousness and national unity, inculcation of true values and attitudes needed for the survival of an individual and the society, and training for understanding the world as a whole. These objectives are viable; however, educational development has faced many constraints. Globally, education is seen as the enabler for all, and the continent of Africa particularly needs education for its continued development—the type that can cushion the effect of war, famine, and other man-made/natural catastrophes.

A closer look at the educational scene in Nigeria reveals many disparities, including disparities observed between rural and urban schools and federal-owned and privately owned schools. Gaps are also observed in the enrolment of the genders; admission figures and the available teaching resources.

Figure 1 shows the Nigeria education system and the expected age range toward attaining the educational objectives. It shows the primary school and its expected age bracket, as well as secondary and the tertiary institutions. The higher education is shown as including the colleges of education, polytechnics, colleges of technology and the universities. This paper has as its purview, the Nigerian youths of university age bracket. It will therefore, look into higher education alone.



Figure 1. Nigerian educational system—age range.

## OVERVIEW OF HIGHER EDUCATION IN NIGERIA

Higher education holds a strategic place in national development; it is the platform for the production of quality graduates to drive the various sectors of the economy. Higher education is also seen as the bedrock of the human capital development in economic, agriculture, infrastructure, energy, oil and gas, and other sectors. The importance of higher education in Nigeria and Africa as a whole in catalyzing national development cannot be overemphasized (Adei, 2001).

The polytechnics, colleges of education, and universities are the subsectors that

produce higher education in Nigeria. Within its 774 local governments in 6 geopolitical zones there are 104 universities. The breakdown includes 40 federal, 39 state, and 50 private universities ("Nigerian Universities," 2013). All these universito produce highly ties are skilled manpower for the nation and as a segment of the public service; their management is being guided by various policies. A survey of higher education faces an increasingly hostile and complex issues pertaining to enrolment in conventional education in Africa. This remains a great challenge all over Africa, including Nigeria where closer survey of university education shows serious constraints in the issues of enrollment. In Africa alone, it is said that 10.1 million people are out of school. In Nigeria, 16% of the population accounts for school children, of which 26% are not able to complete the cycle of education. There are an astounding 40 million illiterates (EFA: Profile, 2007). All these have put a peg in the current efforts of developing the educational sector to meet the goals of both the Millennium Development Goals and the Education for All (EFA) targets by 2015. Dodds (2002) observed that globally, 125 million are out-of-school; Africa has more than 50 million out of this total. What, then, are the challenges inhibiting the educational development in Africa, especially in Nigeria?

## CHALLENGES OF HIGHER EDUCATION

The demand for university education is growing in leaps and bounds. This is as a result of high birthrate in some parts of Africa. Nigeria alone is witnessing exponential population growth. According to the EFA profile on Nigeria on Global status (2007), the high rate of population growth has put immense pressure on the country's resources and overstretched public services and the available infrastructure. An after-effect of population growth is the increased enrollment rate, which has created a challenge in ensuring quality education and satisfactory learning outcomes as available educational resources are more thinly spread.

The EFA profile still exposes the fact that despite the heavy investment on infrastructure over the recent years, the number of educational facilities available remains inadequate for the eligible number of education seekers; the teaching curricular are also tilted toward academics and less on skills; and there remains a huge apathy for technical and vocational education. The table below illustrates enrollment rate and its percentages in Nigeria tertiary institutions.

According to Okojie (Table 1), Nigerian universities had a total enrollment of 1,096,312 during the 2006-2007 school year. This is a low rate compared to the number of Nigerian youths who are denied access to university enrollment each year as shown on the table below:

Table 2 shows a huge gap in the enrollment rate of tertiary institutions in Nigeria. Only 20% of applicants out of the percentage are admitted to universities, polytechnics, and colleges of education; others are not given access. For years, in Africa as a whole the educational systems have been saddled with the problem of accessibility, equity, and relevance. Nigeria faces more challenge due to its ever-increasing population rate. The table also shows that the formal education system in the country cannot cope with the admission request of young school-leavers. Kanwar (2008)observed that the conventional universities have problems with the enrollment of new entrants because they lack the capacity-space, facilities, and resources-to admit and cater for the huge number of the populace seeking admission. She also observed that their capacities can never be raised to meet the ever-increasing demand for educational pursuit by the masses. More than a decade after so many forums and conferences-Jomtien, March 1990; Delhi declaration, December 1993; Dakar

Proprietorship	Subdegree	Undergraduate	Postgraduate	Total	Percentage
Federal	4,999	503,154	57,300	610,453	55.7
State	8,734	419,901	19,459	448,094	40.9
Private	357	36,641	767	37,765	3.4
Total	59,090	959,696	77,526	1,096,312	
Percentage	5.4	87.5	7.1		100
Grand total	1,096,312.4				

Table 1. Enrollment in Nigerian Universities (2006/2007)

Source: Okojie (2008).

Level	Number	Learners	No Access
Primary	44,000	24,000,000	20,000,000
Secondary and Voc Tech	10,000 63	8,000,000 280,000	27,000,000
College of Education and Polytechnics	64 80	550,000 350,000	2,000,000
Universities	95 + 4IUC	1,196,312	6,000,000

### Table 2. Enrollment of Nigerian Students, By Level

Source: Jegede (2010).

framework for Action, 2000; Millennium Development Goals-the objectives for all of these are still far from being achieved; most, according to Rumajogee (1999), have been churned into another distant dream for the next 10 or more years. The enrollment in universities in Nigeria compares unfavorably with that of many developing countries. Low female participation and achievement remains a salient feature; lack of access to rural and dispersed youths, lack of appropriately trained teachers, noninclusive practices in conventional universities, long-term disrupted educational provision, lack of access to habitation prone to destruction and insurgency, and poverty are all factors limiting access to conventional education.

Rumajogee (1999) further observes that the traditional face-to-face teaching is a historical heritage that is a disappointment to the masses and has failed to ensure the human capital formation required for Africa's economic edge. Increasingly, alternative or complementary approaches to education delivery are needed to create access, equity and socioeconomic development. What, then, do we need to create access?

## OPEN LEARNING: THE WAY FORWARD

The demand for higher education is on the increase all over the world. Consequently, there must be a proactive orchestration of efforts to satisfy the yearnings of the admission seekers and create access for people thirsty for education at all levels. Open learning is a philosophy of learning that promotes the concepts of flexibility in order to promote access and equity. Open learning has as its major advantage the "seven league boots" which made it, unlike the conventional system of education, able to operate over a distance; cater for widely

scattered bodies; with its evolving technology, can be used as an effective tool for addressing the needs of geographically isolated populations; broaden access to multilevel and multi-sector education; academic and professional training; and lifelong learning for personal and social development of an individual. Other accompanying advantages of open learning include flexibility and cost effectiveness. Stretching the intake of conventional universities will not only imply considerable up-front investment but also training and retraining of teachers. However, in the context of competing priorities, such investment is not possible due to tight budgetary constraints placed on education in Nigeria. Furthermore, the conventional system forbids learning while earning, mostly where the enrollment ratio has been almost stagnant for some years. Open learning does not have the constraint of time and space; its flexible teaching approach promotes lifelong learning. Open learning is a subset of open and distance learning (ODL). ODL is an emerging paradigm in teaching and learning method that is facilitated by information communication technologies. In most countries of the world, ODL has become a dominant force in educational management, especially in higher education. Its main advantage is that it helps to reduce the stress on physical infrastructure and reduces pressure on the limited financial resources in universities while giving access to the unreached and those denied access by conventional universities.

According to Association for the Development of Education in Africa (2002), not one of the African countries in Sub-Saharan Africa has fulfilled the promise of providing education to the entire population through the educational system, Nigeria inclusive. It is in view of all the aforementioned challenges in the Nigerian education system that the government set up the National Open University of Nigeria (NOUN), an ODL institution set up to cater for and give access to all in need of education irrespective of age, status and gender.

## NOUN: VISION, QUALITY, AND THE NIGERIAN YOUTHS OF UNIVERSITY-AGE BRACKET

The problem of inaccessibility in conventional universities in Nigeria with the resultant effect of low human capital index prompted the federal government to join her other counterparts to set up NOUN. This is not only to give access, but to change attitude toward the knowledge economy and see higher education as a critical partner in development. The concept of ODL in Nigeria has come to stay. It was introduced to Nigeria in 1983 (established and dismantled in 1984) but was resuscitated and became functional in the year 2002 with the establishment of NOUN. The vision is to provide highly accessible and enhanced quality education anchored by social justice, equity, and national cohesion through a comprehensive reach that transcends all barriers (Alaezi, 2006).

NOUN, at 11 years since resuscitation, has 49 study centres located across the 36 states of the federation. It is the only single mode open and distance learning institution in West Africa.

Instructional delivery is predominantly through print, multimedia, and face-toface tutorials, seminars, workshops and practicum. The print materials often referred to as course materials are either developed in-house by NOUN or adapted from materials obtained from outside sources—other open universities. They are put together in a manner that activates the dormant critical and analytical abilities of the learner; hence, the course materials are written in an interactive manner

In many cases distance learning is the only way to achieve the scale, the scope, and the impact required to tackle the challenges of education and training faced in Africa (Daniel, 2005). It is not enough to



Figure 2. NOUN study centers in Nigeria.

licence a higher education institution to operate; there must be a constant evaluation to ensure that set standards and operational guides are not violated. A system that grows is such that sets standards and disciplines itself to attain them. Accreditation is a way of examining the state of an institution in relation to where it ought to be (Okojie, 2008). This is a quality assurance process. NOUN has gone through the accreditation process and has been given a merit mark by the National Universities Commission. Thirty-three programs presented by the institution, including MBA and MPA, were accredited by National Universities Commission. The courses have been publicly measured with the rate of enrollment that the university has witnessed—with over 50,000 students. The institution, as single-mode distance learning, follows an established process and standards as expected of open and distance learning institutions all over the world.

NOUN caters to professionals, skilled and nonskilled workers, the qualified, and the underqualified at work level. The mode is to work and learn, with an entry requirement that has no age barrier, and maturity, which is also a key prerequisite in admission. Also the use of feeder approaches creates a niche for admission to NOUN, in that there is room for an individual to partake in foundational programmes in a bid to transit from a deficiency in any entry requirement to the course such individual will like to pursue.

Nigerian youths of conventional age bracket have a lot to gain in NOUN, bearing in mind all the roles the institution plays. NOUN has successfully blurred the normally rather rigid distinctions between formal and nonformal approaches to learning. For youths in geographically isolated, disaster-ridden areas, and habitations prone to destruction, NOUN has overcome all these by filling the isolated areas and bringing education to all at their door steps with the study centres at all nooks and crannies of Nigeria. For youths who have dropped out of the school system due to financial constraints or other factors, NOUN provides reintegration or a second chance. With the use of readymade, self-study educational resources, and courses tailored to learner's needs, youths can benefit more in the institution. The institution is adaptable and flexible, learners can accumulate credits that are transferable, and the examination system gives room for youths to retake examinations because it is learning at one's own pace and space. The educational resources are also structured toward learners' needs; that is, it is learner-centered. There is provision of e-library at the centres as well as visual materials for the hearing and visually impaired learners. Access is given to all, irrespective of age, geographical location, and to the handicapped.

There is a quick deployment of education to where there are no infrastructures in place through the NOUN mode of delivery; with the institution's heterogeneous nature, there is an equitable access to publicly—funded educational services.

## CONCLUSION

With the advent of NOUN in Nigeria, the nation has been able to close the seemingly irreparable and widening gap between the reached and the unreached. The institution has to a large extent mitigated the effect of inaccessibility of those seeking admission in conventional universities by not only giving access but by increasing enrolment for those deprived of such while maintaining sufficient quality to meet the demands of global competition.

The Nigerian youths of conventional university age bracket have a place of pride in the delivery mode of NOUN and according to its vision it has heralded a major breakthrough in opening access to higher education for such and other unreached populations. Therefore, the NOUN vision has removed the constraint of time and space with its mode of delivery.

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# Trends and Issues in Distance Education

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# Navy College Program for Afloat College Education

### **Christopher Bergeron**

### INTRODUCTION

he U.S. Navy has ships deployed around the globe, which brings with it the unique needs regarding delivering a quality college education to the sailors aboard on active duty. The purpose of this article is to outline the U.S. Navy's distance learning programs for supporting sailors at sea.

The Naval Education and Training Command is responsible for the education and training of naval personal. Under their command is the Center for Personal and Professional development, which has the mission "to develop the Navy's workforce



Christopher Bergeron, 39 Cinnamon Ridge Road, Somersworth, NH 03878. Telephone: (603) 842-0407. E-mail: cb1808@nova.edu by providing education and training opportunities that build personal, professional, and leadership competencies in support of mission readiness" (U.S. Navy, 2013c, para. 3). Offerings under the Center for Personal and Professional Development are broken into three categories: personal development, professional development, and voluntary education. Personal professional development and courses are delivered online via the Navy Knowledge Online portal or by CD-ROM as well as classroom format at established sites and via mobile training teams (U.S. Navy, 2013a) The different components to the voluntary education program is targeted to provide a different set of services to its respective customers (McLaughlin, 2010)

Under the volunteer education program sailors have the opportunity to take correspondence courses or online courses through the navy's distance learning partnerships and use a combination of the Navy's tuition assistance program and the Montgomery GI Bill where 43 partner institutions deliver courses via internet, CD-ROM, USB drive, and paper to complete degree requirements. Sailors at sea also have the opportunity to take distance learning courses from the Navy College Program for Afloat College Education, where ten partner institutions have partnered with the U.S. Navy to target their program for sailors deployed in areas where Internet access cannot be guaranteed.

The tuition assistance program offered through the Navy College Distance Learn-

ing Partnership and the Navy College Program for Afloat College Education are the two programs that more than allow for sailors to pursue college degrees in their off duty time while deployed but require participants to be actively working toward a college degree to be eligible (U.S. Navy, 2013a)

### NAVY COLLEGE PROGRAM DISTANCE LEARNING PARTNERSHIP

The Navy College Program Distance Learning Partnership was piloted in 1999 with five distance learning partners. Initially the sailors were required to choose a program that was directly related to their rating or field (McLaughlin, 2010). The partnership approach was chosen to allow "greater flexibility, as well as a more open approach to generating ideas," according to one of the Navy commanders on the project (Carr, 2000, p. A60). But the Navy was interested in more than just online courses since "The education environment of our sailors includes frequent deployments, infrequent or intermittent Internet connectivity, and a mobile lifestyle," said the commander. "Thus, not only is the number of distance-learning courses offered important, but also a variety of distance-learning formats" (Carr, 2000, p. 60). As a result, the agreement's memorandum of understanding specifically includes the requirement that courses must be available without Internet access (Carr, 2000;McLaughlin, 2010).

In 2004 the program was expanded to cover all of the Navy's ratings with 96 degree choices and 17 partner institutions (McLaughlin, 2010). In 2007 the Navy College Program Distance Learning Partnership removed the requirement that sailors take a course of study directly related to their Navy rating or field. The increased flexibility allowed for both wider participation and the opportunity for a wider variety of degrees to be pursued. By 2010 the program had grown to 34 fully accredited academic institutions offering a total of 264 degree programs at the associate and baccalaureate level (McLaughlin, 2010). There are currently 43 institutions participating in the program (U.S. Navy, 2013b).

Participation in distance learning courses grew steadily between 2000 and 2007; the number of sailors taking distance courses with the tuition assistance program grew tenfold, while face-to-face enrollment fell by 29% in the same time period, with distance learning enrollment exceeding classroom enrollment in 2006 (Mehay & Pema, 2010).

## NAVY COLLEGE PROGRAM FOR AFLOAT COLLEGE EDUCATION

Sailors at sea also have the option of using the Navy College Program for Afloat College Education, which offers courses free of charge and also offers the additional benefit of master's degree programs (U.S. Navy, 2013b). Central Texas College has been contracted by the U.S. Navy to administer the Navy College Program for Afloat College Education (NCPACE) and offers the opportunity for sailors to continue their education while on sea duty assignments. The program offers instructor delivered and distance learning courses. The distance learning courses are offered by a consortium of 10 colleges that have service-member opportunity agreements to ensure that the credits are transferable. Because NCPACE tuition is covered by the Navy, sailors pay only for textbooks and materials.

NCPACE is specifically targeted for service members who would otherwise have difficulty gaining access to college courses due to physical isolation, a lack of reliable Internet access, and unpredictable work schedules (Park, 2011). Distance learning courses are delivered via CD-ROM, PDA, and MP4 methods since ships at sea cannot guarantee reliable and consistent Internet access. A total of 287 distance learning courses are offered at the associate's degree, bachelor's degree, and master's degree levels. There are currently 42 associate's degrees, 24 bachelor's degrees and six master's degrees available via the program.

In order to participate in the program sailors need permission from their command to register, they need to have completed an individualized education plan with their ship's education service officer to outline the list of courses needed to complete a degree and to ensure that the sailor understands the requirements of the degree path chosen. Prospective students must take an ACT ASSET test to assess math and English skills (can be administered by Navy College or by the ship's education service officer) or have proof of prior college level coursework and complete a distance learning assessment for distance learning courses as a way to stem previously lower distance learning completion rates.

Sailors then register with their education service officer and buy books. Surface Sailors have 14 days from the start date to drop the course without penalty, and Submarine Sailors have 30 days from the term start date to drop without penalty by seeing their educational service officer to drop the course. The course terms run 90 days and sailors are advised to pace themselves in the distance learning program with a midterm at six weeks and a final at 12 weeks which are proctored by the ship's education service officer.

Ninety-seven percent of program participants are enlisted sailors, with 82.5% falling within the pay grades of E3-E6. Higher ranked sailors had higher rates of success, with E6's three times more likely than E1's to be successful. With the high demands of active duty at sea, only 48.1% of first time technology course students were successful at completing their first course, while 79.5% first-time instructorled students were successful (McLaughlin, 2010). The difficulty of taking classes during off-duty time demonstrates that sailors who enroll in distance learning classes may have higher ability and motivation levels than those who do not enroll in courses (McLaughlin, 2010). With active duty on a naval vessel being more than a full-time job, first-time distance learners are limited to a single course and returning distance leaners are limited to two simultaneous courses.

## DISTANCE DEGREES OFFERED VIA NCPACE

### 42 ASSOCIATE'S DEGREES

- Associate of applied science from Central Texas College (Not intended as the first two years of a bachelor's degree): applied management, applied technology, business management, and criminal justice
- Associate of Arts in General Studies From Central Texas College
- · Associate degrees from Coastline Community College (each can transfer 100% into a bachelor's degree with several universities): American studies, administrative manager, arts and humanities, business administration, communications, computer networking: Cisco, computer network: Microsoft, computer networking: security, electronics, emergency management/Homeland security, financial manager, general accounting, general business, general office manager, gerontology, health and fitness, healthcare management, history, human resources management, human services, management, marketing, psychology, science and math, small business management, social and behavioral science, sociology, spanish, supervision and management, and supply chain management
- Associate in arts general education/ undergraduate transfer from Dallas Colleges Online

- Associate in science general education/ undergraduate transfer from Dallas Colleges Online
- Associate of science in computer and information science from ECPI University
- Associate of science from Vincennes University in law enforcement, administration of justice, criminal justice, and corrections

## 24 BACHELOR'S DEGREES

- Bachelor of science in business administration from ECPI University
- Bachelor of arts in interdisciplinary studies from Governors State University
- Bachelor of science in engineering technology from Old Dominion University
- Bachelor of arts in Criminal Justice from Saint Leo University
- Bachelor of arts from Thomas Edison State College in liberal studies, social sciences, humanities, natural science/ mathematics, history, and psychology
- Bachelor of science in business administration from Thomas Edison State College
- Bachelor of science in applied science and technology for air traffic control, electronics engineering technology, nuclear medicine, biomedical electronics, electrical technology, nuclear energy engineering technology, clinical laboratory science, medical imaging, nuclear engineering technology from Thomas Edison State College
- Bachelor of arts in administrative leadership from the University of Oklahoma

### 6 MASTER'S DEGREES

- Master of engineering management from Old Dominion University (for graduates of Navy's Officer Nuclear Power School)
- Master of business administration from Saint Leo University
- Master of science in criminal justice from Saint Leo University
- Master of science in critical incident management from Saint Leo University
- Master of arts in administrative leadership from the University of Oklahoma

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# The South Carolina Virtual School Program

## Opportunities for South Carolina's Students

## **Robin M. Clinton**

### INTRODUCTION

iddle and high school students in South Carolina now have additional educational opportunities beyond attending traditional "brick and mortar" schools. The development of the South Carolina Virtual School Program (SCVSP) has provided these opportunities for South Carolina's students. This article will examine the development and purpose of the SCVSP.



Robin M. Clinton, Library Media Specialist, York Middle School, 1010 Devinney Road, York, SC 29745. Telephone: (803) 818-6164. E-mail: rclinton@york.k12.sc.us

Student and teacher perceptions of the program are also discussed, as well as the future of the program.

The South Carolina Department of Education (SCDE) launched a pilot program for virtual schooling in May 2006. This pilot program allowed the SCDE to determine the level of need for a virtual school program in the state, and it also presented the opportunity to test the registration and course management systems that would be used for the program. Research on other state virtual school programs was conducted and information and feedback was gathered during this time in order to continue to develop, revise, and refine the policies and procedures for the program. By partnering with local school districts and other groups, the SCDE operated the pilot program through July 2007 (South Carolina State Department of Education, 2013a).

In May 2007, one year after the launch of the pilot program, the South Carolina legislature passed Act 26, which established the South Carolina Virtual School Program at the South Carolina Department of Education. The State Board of Education was given the responsibility of developing program guidelines, which were subsequently approved in December 2007 (South Carolina State Department of Education, 2013a).

The SCVSP was established with the goal of helping to improve the graduation rate in South Carolina by having a focus on graduation requirements and credit recovery. The focus of the program has shifted to encompass offering more courses that meet the needs of many different types of learners. Legislation originally restricted the number of credits that students could earn in one school year, as well as the total credits that could be earned during a student's entire high school career. In June 2013, legislation lifted the cap on the number of credits that could be earned. Students may now earn an unlimited amount of credits through the SCVSP (South Carolina State Department of Education, 2013a).

The SCVSP is just that—a program. It is supplemental in nature; therefore, diplomas are not awarded by the SCVSP. Diplomas may only be granted by the student's sponsoring institution, which may include any public, private, or home school in the state.

## South Carolina Virtual School Program

The vision of the SCVSP is "to become the premier provider of innovative online learning opportunities to prepare South Carolina students to lead in a global society" (South Carolina State Department of Education, 2013b, para. 1). In order to work toward this vision, the program strives to offer a variety of online options to meet students' needs. The objectives for the program are to supplement the traditional high school curriculum, to provide access to courses that may not be offered to students in traditional schools, and to provide options for students to recover credit (Lee, Sanders, Mitchell, Childs, & Zais, 2012). All of the courses offered by the SCVSP go through a quality review process to make sure that each course is aligned with state and national standards. The program and its courses are continually evaluated to

ensure that students' needs are indeed being met.

### LEADERSHIP

The SCVSP is supervised by the SCDE's Office of Virtual Education. The director of this office oversees the operation of the SCVSP. In addition to the director, a fiveperson administrative team assists in the operation and implementation of the SCVSP. Positions on the administrative team include the team leader, two student services coordinators, a blended learning coordinator, and a curriculum coordinator (South Carolina State Department of Education, 2013a). Even with the growth of the SCVSP, no additional administrative positions have been added. However, according to survey results from SCVSP teachers, all agreed that the administrative team needs additional staff (Lee et al., 2012).

### TEACHERS

SCVSP has a full-time faculty of 18 teachers, six of whom were hired in the 2011-2012 school year in response to the growth of the program. In addition to the full-time teachers, 47 adjunct instructors are employed during various terms during the school year to meet enrollment needs (Lee et al., 2012).

One SCVSP teacher explained her reasons for wanting to teach with the virtual school program. She indicated that she had gotten burned out by teaching at traditional school, but was not sure if she wanted to teach from home either. After deciding to give the virtual school program a try, she loves the experience (S. Carrigan, personal communication, November 20, 2013).

### TEACHER TRAINING

SCVSP teachers must be certified to teach in the state of South Carolina and must also be considered highly qualified in the content area. In addition, teachers must have an online teaching endorsement from the state of South Carolina. Online teaching experience in place of the online teaching endorsement is acceptable. SCVSP teacher Shannon Carrigan had never taught online before being hired to teach with SCVSP. She describes the initial training as overwhelming, but she also says that she gained the most knowledge by working with other online teachers.

Not only do teachers have to go through the initial training in order to teach online, but they are also required to complete day-long, monthly professional development, either online or face-to-face. Suzette Lee (personal communication, November 18, 2013), SCVSP Team Leader and Instructional Manager, says that the professional development that is provided to SCVSP teachers is a strength of the program. Training is provided to teachers on every new technology that they are expected to use.

### COURSE OFFERINGS

SCVSP offers courses only for high school credit. Courses for middle school students are not offered at this time, but seventh- or eighth-grade students may enroll in courses for high school credit with approval from the sponsoring institution.

Many initial credit and credit recovery courses are offered through the SCVSP. Six Advanced Placement (AP) courses are offered: English language and composition, English literature and composition, statistics, United States history, art history, and Latin. For rural and small school districts in the state, these AP offerings give students an opportunity to take courses that cannot be offered in those districts. In addition to the AP courses that are offered, 17 career and technology courses are offered.

Credit recovery courses make up a large part of the SCVSP course offerings. Students who have not received credit for courses they have already taken or who appear unlikely to earn credit for a current course are the students who benefit from credit recovery. In the 2011-2012 school year, SCVSP began to use a new credit recovery model. Instead of using the selfpaced program that employed the teacher as a monitor, SCVSP teachers developed their own credit recovery courses that use a feature that allows students to take unit pretests and then move on to the next unit if they pass with a score of 80 or better. After moving to this new model, the successful completion rate for credit recovery courses improved from 83.7% to 100% (Lee et al., 2012).

Credit recovery courses are also now offered by rolling enrollment. Instead of having to enroll on certain dates, students can now enroll in credit recovery courses at any time. Classes begin on Monday of each week (South Carolina State Department of Education, 2013a).

SCVSP courses are also designed by SCVSP faculty. A course development team works to outline course offerings and to help design courses. Currently, SCVSP teachers are beginning to adapt their courses to align with Common Core Standards. The SCVSP ensures the quality of its courses by reviewing courses for alignment with standards. Courses may be taught asynchronously, synchronously, or through blended learning. For new teachers, SCVSP has a bank of previously designed courses that they can use and make changes. Some school districts also contract with SCVSP directly to tailor specific courses to meet the particular district's needs or to offer a special project for students. Districts can opt to pay a \$3,500 fee for an entire class to take a course from the SCVSP (Adcox, 2013).

### TECHNOLOGY

SCVSP uses Virtual School Administrator (VSA), the same system used by Florida Virtual School, as the student information system. This system is used for registration, posting grades, accessing transcripts, and storing and accessing all other student information. For course management, the SCVSP has recently moved away from Blackboard and is now using Moodle as the learning management system. Teachers are also using a variety of delivery methods that incorporate several technology tools such as Blackboard Collaborate. Skype has been used a method of communication between students and teachers in the past, but soon a new messaging system will be used that will replace Skype.

Students are responsible for making sure that they have access to the needed technology for SCVSP courses. This could include access at home and at school. Many districts provide the access to technology for students who are completing coursework during normal school hours. Students also have access to a technical support through the program's website. The 2012 program evaluation report indicates that additional staff members are needed for technical support (Lee et al., 2012).

### **S**TUDENTS

Any public, private, or homeschooled student under the age of 21 who is a legal resident of the state of South Carolina is eligible to enroll, tuition-free, in courses with the SCVSP. Students, however, must have a connection to a diploma-granting, sponsoring institution. In order to enroll in a course, students must first create an account in VSA, and then they will be allowed to request courses. Once courses have been requested, students must then have their parent or guardian and their guidance counselor sign the course request form for approval. The student's parent or guardian and the guidance counselor must also submit an online approval for the course. Students are then responsible for logging in to VSA to check their enrollment status for requested courses. Once students have enrolled in a course, they must complete an online student orientation program before beginning the course (South Carolina State Department of Education, 2013a).

During the 2011-2012 school year, the SCVSP served 88 school districts in the state of South Carolina. The SCVSP processed 20,466 enrollment requests that same year (Lee et al., 2012) compared to 10,298 (see Figure 1) in the 2008-2009 school year (Southern Regional Education Board, 2009).

Students who enroll have a variety of reasons for enrolling. Students may need to supplement their education if desired courses are not offered at their school. They may need to work around scheduling issues with other classes or with work schedules. Some students may even be nontraditional students who have children themselves or who are adult education students. The needs of all of these learners can be met with the SCVSP (Lee et al., 2012).

Morgan (personal communication, November 18, 2013), a student in the SCVSP is one learner who indicated that she had scheduling issues at her traditional school that did not allow her to take a particular course at school. She talked to her guidance counselor who mentioned the SCVSP as an option. Morgan decided to enroll and has had a very good experience with the SCVSP. She points out her teacher's willingness to help and her prompt feedback as pluses for the program. According to Morgan, other advantages of online learning are that there are no distractions from other students and the course is mostly self-paced. However, she also recognizes that students need to have a high level of self-discipline and maturity to successfully complete an online course with the SCVSP.

## How Is SCVSP Performing?

SCVSP Team Leader, Suzette Lee, reports that students enrolled in the



Figure 1. South Carolina Virtual School Program enrollment requests continue to grow each year.

SCVSP are consistently performing better than state averages. The course completion rate has also continued to climb since the program began. In the 2008-2009 school year, the completion rate for SCVSP courses was 68% (Southern Regional Education Board, 2009). By the end of the 2011-2012 school year, the completion rate for SCVSP courses was 93.3% (Lee et al., 2012) (see Figure 2).

One SCVSP teacher noted that she sees about the same amount of student interaction in the SCVSP courses as she saw in the traditional classroom. Some students perform better than average and stay in contact with the teacher, and other students have no contact or interaction until it is time for an assignment to be due. The SCVSP has found that in general, students perform better when they have more frequent contact with their teachers (Lee et al., 2012).

In order to gain feedback about the SCVSP, students, teachers, parents, and guidance counselors are surveyed each

year. The surveys are used to determine how well needs are being met and for those groups to offer suggestions for improvement. While the SCVSP received an adequate number of student responses in 2012 to draw conclusions about the program, the SCVSP did not receive an adequate number of responses from parents or guidance counselors. One concern is that this lack of response and communication from these groups may hinder the enrollment process and support for some students (Lee et al., 2012).

The State Board of Education is also required, as part of Act 26 that established the SCVSP, to provide an annual report to the legislature that includes information about the program. Each year, the following information must be reported: the SCVSP course offerings, the number of districts and students participating in the SCVSP, the private schools and number of private school students participating, the number of homeschool students participating, course success rates for students,



Figure 2. The South Carolina Virtual School Program course completion rate has continued to rise.

the number of students who dropped a course and the reason, budget items, and the number of students who could not enroll because of limited space.

### THE FUTURE OF THE SCVSP

According to the Keeping Pace report (Watson, Murin, Vashaw, Gemin, & Rapp, 2012), South Carolina ranks third nationally in growth among state funded virtual school programs. South Carolina would like to continue this trend of growth for the program. In the fall of 2014, the SCVSP will have a completely new look that includes a new website and a new name for the program. The program is seeking a new name because it has often and easily been confused with the South Carolina Virtual Charter School. This new look for the program is being referred to as a rebranding of the program. In addition to this rebranding, a request for proposal process is soon to be started for an open student information system. The VSA system that is currently used was created for the Florida Virtual School, and the SCVSP would like to have a system that is tailored to this specific program.

The course development team would also like to continue to work to have more course offerings for students. Some new courses that will be offered are math and English language arts intervention courses for sixth-, seventh-, and eighth-graders. Beginning in 2014, a keyboarding pilot program for third- through sixth-graders will be launched in anticipation of preparing those students for online standardized testing. The SCVSP would also like to explore the option of expanding online learning to the lower grades.

### CONCLUSION

What began as a strategy to help improve South Carolina's graduation rate has now evolved into an opportunity to meet the educational needs of various types of learners in South Carolina. Whether students need to recover credits or want to take a course not offered at their traditional schools, the tuition-free South Carolina Virtual School Program is providing those opportunities for students. The opportunities for South Carolina's students are almost limitless; it is hoped that students will continue to take advantage of them.

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## **Florida Virtual School** From Online Educational Success to Financial Distress

#### Mario Manresa

#### INTRODUCTION

ransforming education worldwide, even if it is one student at a time, might certainly be described, by any measure, as an insurmountable task to accomplish by the faint of heart. But that has never been a problem for Florida Virtual School (FLVS). For the past 16 years, highly qualified educators employed at the nation's largest and first online public school have managed to make a reality such a noble and monumental vision of changing the face of global education by focusing on individual students' needs.



Mario Manresa, 3960 West 16th Avenue, Hialeah, FL 33012. Telephone: (305) 712-2567. E-mail: mm2540@nova.edu

These certified teachers are the true heroes behind the remarkable record of nearly 1.3 million semester completions since 1997, when FLVS opened its doors to online education (FLVS, 2012c, 2013g; Groff, 2013). Public, private, charter, and home-schooled students from kindergarten to 12th grade, living in Florida's 67 districts, America's 49 other states, and more than 65 countries from all over the world, have truly benefitted from the teachings of these education professionals, which number about 1,500 in both part-time and fulltime positions (FLVS, 2013g; Gartner, 2013; McNally, 2012).

The beauty of FLVS is that its courses, which must meet national and state standards as required by law, are offered free of charge to students living in Florida. Outof-state and international students can also take diverse online courses once they have paid their tuition fees (FLVS, 2013f).

### AN APPEALING AND REPUTABLE ACADEMIC OFFER

In the late 1990s, the option of using the World Wide Web for educational purposes was largely reserved for remote locations in Western Canadian provinces. Here in America, there were limited online learning alternatives, plus no budget and no laws and regulations to support and sustain the effort (Johnson, 2007). Thanks to a \$200,000 grant from the Department of Education, awarded to the counties of Orange and Alachua in November 1996, a

strong partnership emerged and a group of forward thinkers plowed ahead to create Florida High School in August 1997, after barely 6 months of planning and development and with only seven staff members (FLVS, 2013g). Baptized as Florida Online High School in the year 2000, and rechristened Florida Virtual School in 2001, this giant online education provider has succeeded thanks to its business management model and partnerships with renowned companies such as IBM, Jones Education, and UCompass (Gartner, 2013; Johnson, 2007). As a result, in the year 2010, FLVS was already considered the largest virtual school in America with state, and national, international students enrolled in over 200,000 different courses (McNally, 2012).

School districts are lured by the opportunity of establishing franchises with FLVS that must be certified first by the state's Commissioner of Education. These franchises started during the 2003-2004 school year with the goal of reaching out to a larger number of students via online courses. Thus, with the help of the FLVS system, districts have been capable of creating "individualized online courses for K-12 students attending public and private schools and enrolled in home schooling, as well as for public K-12 students receiving full-time virtual instruction" (Florida Department of Education, 2013; FLVS, 2013g).

FLVS provides the virtual schools or franchises in the participating districts with the curriculum, all the indispensable educational materials, the learning management system, the student information system, and training and mentoring for the teachers and administrators who will be running them. Due to the reputation and success of FLVS, during the 2013-2014 school year, 58 school districts and two university lab schools expressed their interest in operating franchises (FLVS, 2013f).

Through this model, American full-time high school students can now graduate with a virtual diploma after taking all the required state assessments. Part-time students, on the other hand, get their earned credits transferred back to their original school so they can be counted toward their graduation requirement. This new virtual high-school diploma option began during the 2012-2013 school year (FLVS, 2013a, 2013f). For international students there is the Dual Diploma Program Option if they "want a diploma from an accredited United States high school in place of, or in addition to, a diploma from their home high school" (FLVSGlobal, 2013b). The Virtual Diploma Program is the result of a joint venture with The Cottage School, which "is accredited by the Southern Association of Schools and Colleges (SACS) and the Southern Association of Independent Schools (SAIS)" (FLVSGlobal, 2013c). FLVS received its own accreditation in 2001 from the Commission on International and Trans-Regional Accreditation, which later became part of AdvancEd, an umbrella organization for all agencies in charge of accrediting learning institutions throughout the southern United States (FLVS-Global, 2013a).

Enrolling in this program comes at a price for both out-of-state and international students, who must file an initial application and submit a down payment of \$1,185.00. This money pays for the creation of a graduation plan curtailed to the particular student's needs and other administrative costs. Foreign students may incur in additional charges. Now, every highschool student participating in the Virtual Diploma Program is required to complete 23 Carnegie units of credit to meet graduation standards. These units cover language arts, science, math, social studies, modern foreign language, fine arts, physical education, health, and an elective course (FLVS, 2013e).

The number of courses students can take at FLVS is simply staggering at 125, a figure that represents a 30% increase over the past five years (FLVS, 2012b). For high school, FLVS covers core subjects such as English (I, II, III, IV), mathematics (advanced algebra, Algebra I and II, calculus, and geometry), health and physical education, science (biology, chemistry, marine science, Earth space science), social studies (economics, global studies, U.S. government, U.S. history, world history), and world languages (Chinese, French, Latin, and Spanish). Elective courses include computer programming, foundations of web design, law studies, journalism, guitar, and creative photography, among others. There are also 16 Advanced Placement courses ranging from art history and biology to Spanish language and statistics (FLVS, 2013i).

FLVS also serves middle school students who can take core subjects such as English, science, social studies, and mathematics. And the elective courses include business keyboarding, creative photography, guitar, Spanish, and business, to mention but a few (FLVS, 2013j).

Through the fourth quarter of 2012, FLVS had over 339,000 course completions, out of which part-time students achieved more than 314,000. The course completion figures almost tripled those from the past previous years (FLVS, 2012b). During the 2011-2012 school year, FLVS served nearly 152,000 physical students, both part-time and full-time. Seventy percent of all these students originated from public and charter schools, 23% were home-schooled students, and the remaining 7% came from private schools. The top five districts furnishing students to the FLVS system were Miami-Dade, Broward, Hillsborough, Orange, and Palm Beach (FLVS, 2012a).

#### STUDYING AT FLVS

Students living in Florida do not have to pay a single dime to enroll at FLVS. Therefore, they must demonstrate compliance with any of the following criteria, as required by state statute 1002.455, to keep their studies free:

- be enrolled in a Florida K-12 public school participating in the Florida Education Finance Program (FEFP), or
- be enrolled and in good standing as a home education student with a Florida public school district, or
- be enrolled in an affiliated Florida private school and whose legal guardian is a Florida resident, or
- be the child of a military transferred to the state of Florida within the past 12 months, or
- have a sibling currently enrolled in virtual instruction program (FLVS, 2013d).

After signing up for FLVS, students have the option of becoming either parttime or full-time students. The part-time option allows them plenty of flexibility and control over the time, manner, and place in which they decide to pursue their studies. The courses for Florida residents are, of course, free of charge, and students can take only one or several classes at once. It is really up to them, after careful consideration and analysis with councilors or faculty. Since this is just a part-time enrollment, the student still is answerable to his or her original school, which ultimately determines whether or not he or she has met the necessary graduation requirements (FLVS, 2013l). An additional bonus for these students is that they will thoroughly comply with the Digital Learning Now Act, passed by the Florida legislature in 2001, which requires graduate high school students to have taken at least one course in an online environment (Florida Department of Education, 2013; FLVS, 2013g).

For full-time students the story is completely different, because FLVS is their regular school that will assign them grades and from which they will graduate with a diploma. They are required to take up to 12 courses during the 180-day long school calendar, which is divided into two semesters. From August to June of every school year, full-time students must attend their online courses, complete their assignments, and take standardized tests, just like any other regular student at any Florida brick-andmortar high school institution. The differences between these two groups of students are that at FLVS pupils must be online for long hours and can only contact their teachers through chat rooms, text messages, e-mails, and over the phone. Other than that, they also comply with the Digital Learning Now Act in a much bigger way than any other brick-and-mortar student (FLVS, 2013g, 2013).

Since FLVS provides a digital learning advantage over all the other schools in the state, students also come to it for several other reasons that include improving a grade for a particular course, taking a course as a specific graduation requirement, accelerating the graduation time, and due to the fact that a certain course is not offered at the students' high schools (FLVS, 2013g).

Other students choose FLVS as a personal preference because of the convenient 24/7 schedule it affords, meaning they can log in at any time of the day or night to complete their course assignments. Many of these students usually have sports practice or part-time jobs to attend to, which is why having the opportunity to sign in at any time to study is the perfect way to go. In fact, FLVS reports over 20,000 student logins during and after midnight. This figure slowly decreases till 6:00 A.M. and 7:00 A.M., depending on the days of the week, only to pick up again, in full swing, between the hours of 9:00 A.M. and 7:00 P.M. (FLVS, 2013g).

However, there is more to FLVS than meets the eye. Collaboration is at its highest due to synchronous or live sessions where both teachers and students come together to interact and share knowledge, ideas, and discoveries. Working on group assignments is quite expeditious and effective this way. Therefore, peer-to-peer assistance takes a whole new level, with advanced learners "showing off" their skills with those who need support (FLVS, 2013g).

FLVS settles for nothing less than mastery learning, which is based on high or passing scores. Since the school's faculty takes the time to personalize the learning programs for the students, they can proceed at a comfortable pace so as to score high on any course or state assessments. At FLVS, learning really takes place at any time, at any place, at any path, and at any pace, which is basically its motto.

Apart from the academic life, which is quite demanding in order to support its high achievement standards, FLVS offers its students a number of extra-curricular and enrichment activities. They are organized into three clusters: K-5, 6-8, and 9-12. K-5 students can participate in math, environmental, book, chess, and robotics clubs. 6-8 grade students have some of those clubs plus broadcast, gaming and technology, science, theater arts, and debate clubs. They also can participate in the design of the student newspaper called The Monitor. New for the 2013-2014 school year FLVS put together a music club with monthly themes. For their part, 9-12 students are free to enjoy the activities organized by Earth Day, Future Business Leaders of America, Human Rights, Latin, and Model United Nations clubs, among others (FLVS, 2013c).

With so much attention to academics and other supporting activities that enhance student enrichment, FLVS normally performs above the expectations of the state's educational authorities. The 2012 Advanced Placement Exam results revealed that 62% of FLVS students achieved qualifying scores. The figure is 2% higher than the national average (60%) and 14% higher than the state's average (48%). On top of this, on the end-of-course (EOC) exams, which comprise Algebra I, geometry, biology, and U.S. history, 74% of FLVS part-time students and 63% of FLVS full-time students scored between levels 3 and 5. Level 3 is a passing score, while levels 4 and 5 show student potential to meet College Readiness standards. For the state of Florida, the percentage of student mastery on the end of course exam stood at 59%, which clearly indicates why FLVS is a leader in the field of learning (FLVS, 2013g, 2013h).

#### THE PEOPLE BEHIND FLVS' SUCCESS

They are the teachers, of course—over 1,500 in all, holding adjunct and full-time positions and living throughout the state and even beyond its borders. All of them hold the appropriate Florida teaching certificates and had to undergo and pass a background screening to get a job at FLVS (FLVS, 2013f). School officials say they also consider teacher candidates who live outside Florida and are badly needed in critical need subjects such as math and language arts. Eventually, these teachers must get a Florida certificate to continue teaching at FLVS (FLVS, 2013k).

Support for teachers at Florida Virtual School includes the assignment of an instructional leader who functions as nearly a school principal, a lead teacher for a group of 6-9 instructors, an assistant teacher to help with the grading process, literacy coaches to reach struggling students, ESE and curriculum specialists, and a Guidance Counselor who works together with teachers, students, and parents (FLVS, 2013k).

Ongoing enrichment for teachers is highly encouraged at FLVS, where they can participate in numerous professional development workshops and become much more proficient at what they teach. As a result, 125 FLVS faculty members hold National Board Certification. These professional development opportunities have also led instructors to attain higher degrees of education. A case in point is FLVS-Global, the international arm of Florida Virtual School, where 70% of the teachers have obtained advanced degrees, while 20% hold doctoral degrees (FLVS, 2013k; FLVSGlobal, 2013c).

Student support comes from the teachers, who are available seven days a week, from 8:00 a.m. to 8:00 p.m., and are also accessible through the phone, text, e-mail, and IM. Teachers will do whatever it takes to ensure successful course completions. After all, FLVS funding is "based solely on course completions, and not on course enrollments<sup> $\ddot{n}$ </sup> (McNally, 2012). If the school does not get paid, then teachers will not get a bonus for course completions either, and may not enjoy their full salaries, which can reach up to \$75,000.00 a year, or up to \$108,000.00 if they are appointed instructional leaders and/or principals (FLVS, 2013b).

#### AN UNCERTAIN FUTURE AT FLVS

At present, the livelihood of teachers and the academic success of FLVS hangs in the balance, due to a highly controversial funding formula approved by the Florida House Education Appropriations Subcommittee in early 2013. State Representative Erick Fresen told the *Miami Herald* that the formula was necessary because FLVS "was receiving a disproportionately large share of state education dollars" (McGrory, 2013, para. 5).

However, districts may not be strongly encouraging students to sign up for FLVS courses. The cause for this is that under the new formula school districts will be receiving less money than in 2012 for students who enroll in online courses. On top of this and for the past few years, many Florida school districts have been busy setting up their own virtual academic environments, perhaps in direct competition with FLVS (Gartner, 2013; McGrory, 2013).

As a result of the House measure, 177 full-time instructors lost their jobs in early August 2013, which eliminated 10% of fulltime positions at FLVS. The job cuts were prompted by a 32% decrease in student pre-enrollment. Fortunately, 1,231 full-time instructors and instructional support staff were lucky enough to stay on their jobs. Earlier in the summer of 2013, 625 parttime instructors were also released due to the decrease. Only 36 remained in their positions (Gartner, 2013; McGrory, 2013). Eighty-four open positions will likely remain vacant because there will not be any money to pay their salaries. All in all, FLVS stands to loose about \$40 million dollars in state revenue in 2013 as a result of reduced funding (Herold, 2013).

Florida Virtual School had never experienced anything like this since its founding in 1997. So, the layoffs were a sad but historical event, as was the decrease in student enrollment. Even though FLVS has shown clear results in recent years in terms of course completions, the jury is still out on the effect of online education on K-12 student achievement. The U.S. Department of Education reviewed existing research and found a modest positive impact of online courses, but cautioned that the findings were mostly on results for postsecondary students. Emerging reports show a troubling overall picture of poor performance and low graduation rates for full-time online students (Barth, Hull, & St. Andrie, 2012).

Apparently, legislators are not fully convinced about the success of online education, even though this type of learning continues to gain ground slowly but surely. On the other hand, it is not only about the different types of school legislation passed by politicians, but also about the fact that, of the 52 million students currently attending American public schools, only a small fraction actually takes online courses. By way of illustration, during the 2010-2011 school year about 250,000 American students were enrolled full-time in virtual schools (Barth et al., 2012). Besides, there seems to be a countrywide trend to provide students with a variety of online education providers rather than a single state virtual school (Herold, 2013).

#### CONCLUSION

Course completion alone cannot be identified as the sole measure for student achievement. Unfortunately, not much is known about the effect(s) of online learning on student outcomes either. This is mostly due to sparse data and weak monitoring procedures that fail to paint the true picture (Barth et al., 2012). Even so, the success of FLVS has caught on and prompted many institutions to follow suit and create their online learning platforms (Groff, 2013). After all, the convenience of any time and self-paced learning cannot be denied and seems to be gaining momentum with the availability and affordability of mobile devices. Only the future will tell which way online education will go and what status FLVS will achieve in the face of competition from Florida school districts and shrinking state budget allocations.

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## Attributes and Barriers Impacting Diffusion of Online Education at the Institutional Level Considering Faculty Perceptions

#### Jason Neben

#### INTRODUCTION

he traditional model of face-to-face instruction continues to dominate the higher education landscape. However, over the past decade online education has entered the mainstream. Universities across the broad spectrum from



Jason Neben, Director of Technology, School of Education, Concordia University Irvine, 1530 Concordia West, Irvine, CA 92612. Telephone: (949) 214-3349. E-mail: jason.neben@cui.edu state schools, to small private schools, to Ivy League schools are getting into the marketplace of online education offerings. Allen and Seaman (2013) report that over 6.7 million students, or 32% of total higher education enrollment, are taking at least one online course.

Online education is a subset of distance education. Schlosser and Simonson (2010) define distance education as "institutionally-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors" (p. 1). Distance education is not new. It has its roots in the 19th century with correspondence courses. Simonson, Schlosser, and Orellana (2011) describe the evolution of distance education in three phases

first, correspondence study, with its use of print-based instructional and communication media; second, the rise of the distance teaching universities and the use of analog mass media; and third, the widespread integration of distance education elements into most forms of education, and characterized by the use of digital instructional and communication technologies. (p. 131) Online education, characterized by delivery of instruction using a learning management system via the Internet, has become the dominant platform for distance education in the third stage.

Unlike most technologies, online education, and distance education in general, is a disruptive innovation (Simonson, Smaldino, Albright, & Zvacek, 2012). An innovation is "an idea, practice, or object that is perceived as new by an individual or other unit or other unit of adoption" (Rogers, 2003, p. 12). A disruptive innovation may enter an environment and challenge the status quo by addressing a need the current technology is ignoring or not able to meet. Online education provides students access to academic programs they might not otherwise have, or schedule flexibility permitting participation without physical presence in a particular time and place. Innovations, whether disruptive in nature or not, present an individual with the choice to adopt or reject its use. As individuals across an organization or other populations choose to adopt, the use of the innovation spreads. Rogers' (2003) diffusion of innovation theory describes this as the innovation-decision process.

The diffusion of online education in higher education involves many stakeholders, including faculty. Faculty are at the core of the teaching and learning process directly impacting student achievement. Whether faculty choose to adopt or reject online education as a delivery model for instruction depends on many factors. Understanding these factors and the faculty perceptions of the impact these factors have on the diffusion process informs the educational community, including scholars and policy decision makers (Mitchell & Geva-May, 2009).

#### BACKGROUND

The rapidly changing higher education marketplace requires institutions to strategically consider how to enter the online market and the implications of such change. Nearly 70% of academic leaders report online learning as critical to the long-term strategy of the institution (Allen & Seaman, 2013). Some administrators are even viewing online education as a necessity for survival in higher education (Lesht & Windes, 2011). This entrée into the online marketplace becomes extremely complex for small private institutions operating on thin profit margins, small endowments, and minimal amounts of reserve funds for the development costs needed to enter the online market.

Concordia University Irvine (CUI) was founded in 1972 as a parochial college committed to preparing professional church workers. A School of Education and School of Arts and Sciences were formed in 1988 and 5 years later the college became a university and joined a national system of nine other sister universities. In 1999 the original college was restructured and a School of Theology emerged. Three years later a School of Business and a School of Adult Studies were established, resulting in the five schools that currently make up the university.

About a decade ago the university invested in an online course management system and schools within the university began to independently explore using the course management system to deliver instruction. The School of Education was the first to offer a complete academic program online, beginning in 2003. The School of Arts and Sciences followed in 2008. The university has recently formally included an initiative to systematically expand online education as part of its strategic plan.

Efforts are escalating to carry out the initiative. An assistant provost position specifically tasked with expanding online education was created and filled. In this position, Doug Grove, with the support of the president and provost, acts as the primary change agent in the diffusion process at CUI. Additional human resources are being added and strategies for short and long-term growth are being investigated and developed.

#### RELEVANCE

When attempting to diffuse online education across an institution, it is critically important for leadership to understand faculty perceptions. Faculty participation in online education will not increase substantially unless leadership minimizes barriers that inhibit faculty participation (Betts, 1998). For example, faculty may perceive online education as not aligned to their respective discipline contributing to breakdown of the innovation during implementation (Hannon, 2009). Using inclusive processes to gain buy-in, garnering commitment, developing a vision, and providing appropriate support to faculty during the implementation process promotes adoption of online education (Bremner, 2007). At CUI, Grove has emphasized that developing and communicating with faculty the institutional vision of online education is central to his role and responsibilities.

Since faculty are the direct connection to students, it is crucial to understand the perceptions of faculty when considering any major change to the teaching and learning process. Moore and Kearsley (1996) emphasize that faculty must remain a central figure in the transition from traditional teaching to distance education. Success of online education rests on the commitment of the faculty to develop and deliver online courses (Betts, 1998). When administrators are aware of particular faculty barriers to online education, targeted strategies, including effective policy development, can be implemented to increase motivation and mitigate barriers at their own institution (Howell, Saba, Lindsay, & Williams, 2004; Mitchell & Geva-May, 2009).

The expanded use of online education at CUI involves substantial change for all

stakeholders, faculty and students being most affected. The change process is complex and teacher advocacy is a key factor to the initiation stage of successful change (Fullan, 1982, 1993; Fullan & Stiegelbauer, 1991). Actively engaging faculty in the change process involves understanding and responding to faculty perceptions about the adoption of online education. Rogers' (2003) diffusion theory emphasizes the importance of understanding the perceptions of potential adopters of an innovation, online education in this case, in the process of adopting an innovation.

#### THE CHALLENGE

Allen and Seaman (2013) report higher education faculty acceptance of online learning as valuable and legitimate at about 30%, a level that has remained relatively unchanged over the past decade. There is a widening gap between the view of academic leaders about online education as critical to the long-term strategy (almost 70%) and the faculty acceptance of online learning as valuable and legitimate (Allen & Seaman, 2013).

#### DIFFUSION OF INNOVATIONS THEORY

Rogers (2003) defines diffusion as "the process in which an innovation is communicated through certain channels over time among the members of a social system" (p. 5) Revealed in the definition are the four main elements of diffusion: an innovation, communication channels, time, and a social system. Diffusion theory has often been applied to the study of technology innovations (Sahin, 2006) and specifically used as the theoretical framework for studying diffusion of online education in higher education (Alhawiti, 2011; Bassett, 2012; Li, 2004). Eineke's (2004) study of online professional education demonstrated how the diffusion of innovations theory could be used as a successful structure to improve understanding of the adoption process and implementation of online education.

Diffusion of innovations theory is useful in many fields of study. Ellsworth (2001) summarized educational change theories through the lens of a change communication model. In doing so, he identified applications of change theory for educational practitioners. More specifically, Ellsworth constructed typical questions a practitioner might answer with an application of a theoretical framework. He proposed that diffusion theory could help address questions such as "What attributes can I build into the innovation or its implementation strategy to facilitate its acceptance by the intended adopter?" and "How can the presence or absence of these attributes affect the rate of acceptance by the intended adopter (or prevent acceptance altogether)?" (Ellsworth, 2001, p. 37).

#### Perceived Attributes of Innovations

All innovations are not equal when it comes to the rate at which members of the social system adopt their use. Some innovations may be adopted over a period of years while others may take decades. Rogers (2003) describes five attributes (relative advantage, compatibility, complexity, trialability, observability) of an innovation that contribute to the variance in rate of adoption. It is important to understand that these attributes are measured as perceptions of the potential individual adopter.

Relative advantage is defined as "the degree to which an innovation is perceived as better than the idea it supersedes" (Rogers, 2003, p. 15). An individual is more likely to adopt an innovation if she perceives it provides an advantage over current practice. What constitutes an advantage can vary with the potential adopter or the innovation. For instance, Alwahiti (2011) found that a majority of Saudi faculty viewed online education as a

means to reach more students, indicating an advantage over traditional face-to-face instruction. The possible reasons for being able to reach more students could be due to geographic location, family time commitments, or flexibility in scheduling. The important factor in relative advantage contributing to the overall rate of adoption is that the potential adopter perceives some advantage. The reason for the advantage is not necessarily the focus. There is a direct, positive relationship between relative advantage and rate of adoption. The more an innovation is perceived as advantageous, the faster the rate of adoption (Rogers, 2003).

Compatibility is define as "the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2003, p. 15). There can be different reasons why a potential adopter may not find online education compatible with values, experiences, and needs. Some studies have found that faculty perceive online education as compatible with their values and current teaching practice (Alwahiti, 2011; Li, 2004). It may only take one perceived incompatibility to cause a potential adopter of online education to reject. Bruner (2007) found that some faculty considered online education incompatible with the mission of the institution. This perception works against the rate of adoption of online education. As CUI faculty member Tim Schumacher noted, "online education is compatible with our mission, if it is intentionally done." This is a typical response. Faculty at CUI believe that there must be an intentional and purposeful way that online education can carry out the mission before they will engage. There is a direct, positive relationship between compatibility and rate of adoption. The more an innovation is perceived as compatible with the social system, the faster the rate of adoption (Rogers, 2003).

Complexity is defined as "the degree to which an innovation is perceived as difficult to understand and use" (Rogers, 2003, p. 16). For example, a complex unclear process for developing e-learning environments was found to be an inhibitor for diffusion of online education at one Australian university (Burch & Burnett, 2009). Dr. Grove has been very attentive to faculty concerns about complexity at CUI. From the beginning of CUI's online education initiative, an emphasis has been placed on establishing a clear structure and process for faculty participation in online course development. This is likely to promote adoption. The complexity attribute is different from the other four in that it has a direct, negative relationship with rate of adoption. According to Rogers (2003), the more complex an innovation is perceived, the slower the rate of adoption. Innovations that are perceived as extremely complex are typically rejected altogether.

Trialability is defined as "the degree to which an innovation may be experimented with on a limited basis." (Rogers, 2003, p. 16) Allowing an individual or organization to test out a new idea can reduce doubt about the innovation and promote adoption. In the case of online education, this could mean time for faculty experimentation with the technology tools used or time to participate in the course development process without mandate to teach in the online arena. According to Rogers (2003), if an innovation is trialable its rate of adoption will increase.

Observability is defined as "the degree to which the results of an innovation are visible to others." (Rogers, 2003, p. 16) When a potential adopter is able to observe the results of the use of an innovation, adoption is more likely. It is encouraging when faculty observe their peers successfully teach online (Lesht & Windes, 2011). People value the experiences of their peers and the sharing of positive information about an innovation's use promotes acceptance. Of course, the converse is true as well. If the observable results are negative, adoption is discouraged. If an innovation is perceived as observable and the observable results are positive, its rate of adoption will increase (Rogers, 2003).

Faculty members make value judgments about online education characterized by these five attributes. The end result may or may not be using online education as a method for teaching and learning. According to Rogers (2003), individuals progress through a series of stages when constructing these opinions about an innovation. This series of stage is referred to as the innovation-decision process.

#### THE INNOVATION-DECISION PROCESS

Rogers (2003) defines the innovation-decision process as

the process through which an individual (or other decision-making unit) passes from gaining initial knowledge of an innovation, to forming an attitude toward the innovation, to making a decision to adopt or reject, to implementation of the new idea and to confirmation of this decision. (p. 168)

The five stages of the innovation-decision process are knowledge, persuasion, decision, implementation, and confirmation. Rogers cites the landmark study by Ryan and Goss (1943) as establishing that potential adopters of an innovation progress through a decision-making process. Ryan and Gross's study of Iowa corn farmers and hybrid seed adoption illustrated that adoption was not based on an impulse decision, but a process over time.

The knowledge stage is where an individual usually enters the innovation-decision process. Information about an innovation may be obtained actively or passively. Active seekers may have some sort of issue or problem that current practices cannot address that prompts them to seek out a new idea or method to accomplish the task. For instance, educators have actively sought online education to serve populations in rural areas that cannot be served by traditional face-to-face instruction. Information may be received passively when a change agent seeking to encourage a shift in practice shares the new idea or method. For instance, when university leadership promotes online education to faculty as a means to deliver an existing program. In this case the faculty member is not seeking out knowledge on her own about the new idea stemming from a perceived or real need to address an issue or problem.

Knowledge acquisition by faculty at CUI was primarily by active seekers until relatively recently. For the past decade those faculty who have actively sought out to engage with online education are the ones who have developed and taught online courses. This has been changing, though, over the past year as leadership has begun to promote the use of online education.

Usually following discovery and knowledge acquisition, a potential adopter begins to form an attitude toward an innovation during the persuasion stage of the innovation-decision process. During this stage, the collective perception of the five innovation attributes contributes to the development of a favorable or unfavorable opinion of the innovation. Rogers (2003) states that relative advantage and compatibility have a greater influence on the formation of an attitude than the remaining three attributes. It is very common for a potential adopter to seek the opinion of or observe the use of the innovation by peers. Lesht and Windes (2011) concluded that, when unsure faculty observe other faculty being successful teaching online, it promotes engagement. Social reinforcement plays an important role in forming an attitude toward an innovation (Rogers, 2003). The attitude that is formed then contributes to the decision to adopt or reject. As a smaller higher education community, CUI faculty have a relatively close-knit community where social reinforcement is likely to

play a substantial role in opinion formation.

Forming an attitude toward an innovation like online education typically results in a decision to adopt or reject it. This is described as the decision stage. Adoption is "a decision to make full use of an innovation as the best course of action available" (Rogers, 2003, p. 177). Most potential adopters of an innovation want to try it out, or observe someone else try it out, before making a decision. This creates a type of probationary period for the innovation (Rogers, 2003). Rejection is "a decision not to adopt an innovation" and can occur at any point in the innovation-decision process (Rogers, 2003, p. 177).

Typically following quickly after a decision to adopt, implementation of an innovation is characterized by observable actions by an individual to use the new idea. Most innovations will face problems and raise questions during the implementation stage. During this time adopters actively seek solutions to these problems and change agents promoting an innovation are typically tasked with providing technical support (Rogers, 2003). Again, rejection can occur at any point in the process.

Having adopted and implemented an innovation, or rejected it, the individual typically seeks to reinforce the decision with additional information in the confirmation stage (Rogers, 2003). The individual may be unsure about the decision, creating what Rogers refers to as dissonance, "an uncomfortable state of mind that an individual seeks to reduce or eliminate" (Rogers, 2003, p. 189). Adopters and rejecters both seek to mitigate any unsettled thoughts about the innovation. This may result in confirmation or reversal of a decision.

Passing through the innovation-decision process is not strictly linear. Rogers (2003) cautions that sharp distinctions between stages should not be anticipated. An individual is likely gaining knowledge about an innovation during the entire process, but certainly takes definitive actions that move away from a strictly knowledge acquisition phase. It is these behaviors that characterize and place the individual along the innovation-decision process continuum.

#### **BARRIERS TO DISTANCE EDUCATION**

Advances in technology have occurred faster and in greater frequency during the last decade than in previous decades. However, these advances do not necessarily translate into similar rates of online education adoption. Significant barriers to implementing distance education continue to exist and are well documented in the literature. Barriers may be related to institutional factors, technological issues, financial costs, pedagogical beliefs, or other factors.

#### INSTITUTIONAL BARRIERS

The literature reveals most barriers to implementation of distance education are related to institutional issues. Over the last 15 years studies have consistently identified lack of release time (Berge & Muilenburg, 2000; Betts, 1998; Birch & Burnett, 2009; Bollinger & Wasilik, 2009; Bruner, 2007; Haber & Mills, 2008; Lesht & Windes, 2011; Schifter, 2000; Seaman, 2009) and concerns related to allocation of faculty workload (Berge & Muilenburg, 2000; Betts, 1998; Bollinger & Wasilik, 2009; Bruner, 2007; Chen, 2009; Meyer, 2012) as prominent barriers to distance education. It should be noted, however, that at least one study (Birch & Burnett, 2009) indicated that interviews with participants revealed that "it may be more a matter of priorities than time, with some academics revealing that they can find time for things that are important to themselves and their career and those which they perceived to be rewarded such as research" (p. 11). Nevertheless, the overall time commitment, from training to course development to instruction, is perceived to be more for distance education than for traditional classroom education.

Institutional policy, or lack of institutional policy in many instances, contributes to established barriers. For example, studies have shown institutions not recognizing the teaching of online education courses as progress toward promotion or tenure in policy creates a barrier (Bolliger & Wasilik, 2009; Bruner, 2007; Howell et al., 2004). Likewise, unclear policies, or no policy at all regarding copyright and intellectual property, has been found as a barrier (Bolliger & Wasilik, 2009; Berge & Muilenburg, 2000). At CUI some faculty have expressed substantial concerns about intellectual property rights in the context of online education. One main concern is how long material in an online course might be used. There is a perception that material might be used too long and become irrelevant, possibly negatively affecting the reputation of a faculty member. Unless addressed by leadership in policy, this perception will inhibit adoption. Finally, lack of appropriate faculty compensation and reward systems in institutions is recognized in the literature as an important barrier (Berge & Muilenburg, 2000; Chen, 2009; Haber & Mills, 2008; Meyer, 2012).

#### TECHNOLOGICAL BARRIERS

Issues related to the technology associated with distance education make up another category of barriers. Effective online education involves many different skills than traditional classroom education from development through instruction. Not receiving the training needed for course development and instruction for online education has been shown to be a substantial barrier perceived by faculty (Berge & Muilenburg, 2000; Lesht & Windes, 2011; Mitchell & Geva-May, 2009; Schifter, 2000). In a 2010 study, Allen and Seaman reported that about 19% of chief academic officers indicated their institution provided no training for faculty teaching online. That percentage dropped to 6% 2 years later (Allen & Seaman, 2012), which is a promising indicator that training is improving. CUI is incorporating an inhouse training protocol for instructors who teach online. It began with a needs assessment via an online teaching inventory of all faculty. Grove's office has established three levels of online teaching proficiency, identified where each faculty member resides, and planned training accordingly. This is likely to promote adoption.

Lack of technical support is one of the most frequently identified barriers for impeding the adoption of distance education (Betts, 1998; Berg & Muilenburg, 2000; Lesht & Windes, 2011; Schifter, 2000). The kind of support needed ranges from allocation of appropriate hardware and software to providing support for the many different technical skills needed for online education. Among others, online education involves interaction with the learning management system, converting print materials to electronic media, and using synchronous web-conferencing tools, all of which require initial specialized training and ongoing support. This is not limited to faculty support. Faculty perceives lack of student technical support as a barrier as well (Haber & Mills, 2008).

#### FINANCIAL BARRIERS

The lack of financial resources to meet the costs of implementing online education has been identified in the literature as a barrier to distance education (Berge & Muilenburg, 2000; Birch & Burnett, 2009; Chen, 2009; Schifter, 2000). There are substantial costs associated with the design and development of quality online education courses. Institutions may mitigate costs by adding responsibilities onto existing faculty. Meyer (2012) found additional responsibilities for faculty to be a major barrier to participation in distance education. This has been common practice for CUI, but that has changed with the establishment of online education as a strategic initiative. Substantial resources have been allocated to assist in mitigating these barriers.

#### PEDAGOGICAL BARRIERS

The literature reveals that pedagogical concerns are a major barrier to distance education. Over the last 15 years studies indicate that negative faculty perceptions about the quality of online education inhibit participation (Berge, 1998; Bolliger & Wasilik, 2009; Lesht & Windes, 2011; Meyer, 2012; Schifter, 2000; Seaman, 2009). The faculty perception of the quality of online education has not changed much over the past decade and it remains relatively low. Allen and Seaman (2013) report that less than one third (30.2%) of chief academic officers believe faculty accept the value and legitimacy of online education. Other pedagogical barriers include perceived incompatibility with a discipline (Hannon, 2009) and the desire to experiface-to-face studentence traditional teacher interaction (Bruner, 2007; Haber & Mills, 2008; Lesht & Windes, 2011).

#### SUMMARY

While traditional classroom instruction continues to dominate higher education, online education is now mainstreamed across the United States. Institutions of all types are including online education in strategic plans, some even as a means of survival in an increasingly competitive market. Concordia University Irvine is a small, private, liberal arts institution investing substantial resources into online education as part of its strategic plan for growth, not just survival.

There are many factors and people that impact such an endeavor. One of the primary stakeholder groups in online education is faculty. How faculty perceive online education and the factors that promote or inhibit its use is central to successful implementation.

Rogers' (2003) diffusion theory principles of the innovation-decision process and perceived attributes provide a roadmap for leadership to follow in promoting faculty adoption of online education. Understanding faculty perceptions about the relative advantage, compatibility, complexity, trialability, and observability of online education informs decision makers seeking to increase adoption. CUI leadership must be attentive to faculty perceptions about these online education attributes in this strategic plan.

CUI leadership is attentive to diffusion theory concepts in the context of known barriers to online education. These barriers may be categorized as institutional, technological, financial, or pedagogical. Most barriers are institutional in nature, and for CUI this is no different. With a lack of centralized control and vision over the past decade there is a substantial lack of institutional policy in most areas relating directly to online education. While finances are always an issue, CUI has strategically allocated resources to address major financial barriers in hiring and for compensating existing personnel for online education development and delivery. An emphasis must be placed on addressing faculty perceptions of these barriers as faculty play the key role in institutional adoption.

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# Barriers to Implementing STEM in K-12 Virtual Programs

#### Jennifer Ashton

#### INTRODUCTION

**H** ngineering in K-12 education is an important phenomenon that is the foundation for discussions regarding science, technology, engineering, and mathematics (STEM) in education (Katehi, Pearson, & Feder, 2009). The National Science Foundation is "blurring the lines between science and technology by using design and inquiry interchangeably as pedagogic approaches" in order to promote scientific and technological literacy in students (Lewis, 2006, p. 256). As jobs



Jennifer Ashton, School Director, Odyssey Charter. E-mail: jashton01@aol.com requiring knowledge of science, technology, engineering, and mathematics are growing, the number of students choosing to major in these areas is decreasing (Just & Thomas, 2011). The United States needs of 400,000 college graduates in STEM fields by 2015 (Just & Thomas, 2011). With this in mind, STEM degrees will be a ticket to a good career (Morrison & Bartlett, 2009).

The educational system, whether public or private, needs to implement effective engineering programs to satisfy growing demands. Part of the issue with implementing a quality STEM program is not necessarily the academic content, but rather providing equitable access to all students (Morrison & Bartlett, 2009). Limited research exists relating to the importance of STEM. In addition, there is a lack of research regarding the barriers for implementing a STEM program in K-12 virtual education. This article will address what STEM is, why STEM is important, barriers for successful implementation in a virtual program, and possible solutions based on virtual educator recommendations.

#### WHAT IS STEM?

The term STEM originated in the early 1990s, created by the NSF (Sanders, 2009). STEM stands for the four separate fields of science, technology, engineering, and math (Sanders, 2009). STEM education represents a "symbiotic relationship" between the four fields (Basham & Marino, 2013, p.

9). Together the subjects alter a typical lecture-based curriculum and require the implementation of inquiry and projectbased, hands-on learning experience (Breiner, Johnson, Harkness, & Koehler, 2012).

STEM activities represent a constructivist, hands-on learning approach in education (Sanders, 2009). There are four cognitive themes driving an integrative STEM curriculum. The themes are: learning is a constructive process; motivation and beliefs drive cognition; social interaction; and knowledge, strategies, and expertise are critical (Bruning, Schraw, Norby, & Ronning, 2004). To successful integrate and implement these themes into a K-12 virtual program, the technology and the end user must be considered.

#### WHO ARE THE STAKEHOLDERS?

Stakeholders are individuals or groups who are significantly influenced by the decisions and actions organizations make (Coulter, 2008). Stakeholders can include, but are not limited to, the government investing funds into the programs, the teachers expected to teach the STEM curriculum, parents who may not understand the requirements for learning STEM, businesses who are in need of STEM employees, and the students who ultimately make the entire effort work (Breiner, Harkness, Johnson, & Koehler, 2012). Hence, the strategic decisions for instructional design will deal will multiple stakeholders (Coulter, 2008).

#### TECHNOLOGY IN K-12 EDUCATION

Many reasons exist as to why one school system lags behind the other in regards to technology as part of their core function (Januszewski & Molenda, 2008). The inequity of technology is a challenge that most school systems face. Budget is probably the lead cause of the inequity. Regardless of the inequity, teachers and school systems must use the resources available to prepare today's students for tomorrow's challenges.

With Millenials as the primary stakeholders, distance educators must be very familiar in order to design effective STEM instruction (Moore, 2007). Millenials are the "current learners in virtual K-12 schools" (Simonson, Smaldino, Albright & Zvacek, 2012, p. 234). Millenials will be the students participating in the virtual learning environments discussed.

#### VIRTUAL SCHOOLS

There is a major push to implement online distance education programs for K-12 schools (Archambault & Crippen, 2009). In 2008, the Florida State Legislature passed a law requiring all school districts to implement a virtual program for K-8 students (Just & Thomas, 2011). Pinellas County, Florida has been offering STEM courses through the course management system, Moodle, for just over 3 years (Just & Thomas, 2011). Moodle is a free course management system very similar to Blackboard and Angel (Just & Thomas, 2009; Maikish, 2006; Martin-Blas & Serrano-Fernandez, 2009). The Pinellas County school system has now expanded the program to offer courses at the high school level (Just & Thomas, 2011). With both the push and the mandates, school systems, including the teachers need to be prepared to work in virtual learning environments and engage students in virtual learning communities and explore all opportunities.

#### VIRTUAL LEARNING ENVIRONMENTS

A virtual learning environment, also known as a course management system, is a "software system designed to assist in the management of educational courses for students" (Simonson et al., 2012, p. 162). The virtual learning environment is the platform for online learning. Online learning refers to a course being "partially or entirely through the Internet" (Ko & Rossen, 2010, p. 3). A virtual learning environment is delivered through the vehicle of online learning and provides a platform for the virtual learning community.

#### VIRTUAL LEARNING COMMUNITY

In a virtual learning environment, a virtual learning community may exist. The virtual learning community consists of a holistic environment involving student learning, peer synergy, and academic knowledge (Oosterhof, Conrad, & Ely, 2008). The collaborative communication a virtual learning environment permits enables students to communicate without having to physically talk or engage with one another (Czarnecki, 2008). For those who may have self-confidence or selfesteem issues, the virtual learning environment allows everyone to have an equal opportunity to communicate their knowledge (Tatli & Ayas, 2013). To have a successful virtual learning environment and learning community, effective instructional design must take place.

#### **DESIGNING EFFECTIVE INSTRUCTION**

By definition, effectiveness is "measuring the degree to which learners accomplish objectives for each unit or a total course" (Morrison, Ross, Kalman, & Kemp, 2011, p. 474). Instructional design is using a systematic process to design a course based on learning theories, information technolsystematic analysis, educational ogy, research, and management methods (Morrison et al., 2011). To implement an effective course, there are six basic principles of design to consider: balance, center of interest, emphasis, unity, contrast, and rhythm (Simonson et al., 2012). When designing a course, the instructional designer must consider these six principles, as well as teaching strategies, design principles, and the expected learning outcomes (Ko & Rossen, 2010).

In an online course, there is a shift in the approach to learning. Virtual classrooms focus around how the course is structured and what teaching materials are used (Archambault & Crippen, 2009). To teach a subject effectively, teachers need to know the frequent struggle areas for students, the age of students and student backgrounds (Archambault & Crippen, 2009). Understand the needs for course design and the needs of students can help to minimize barriers.

In order to minimize the barriers for implementing a successful online STEM program, programs need an effective and efficient online course design. What approach is taken will depend on school preference, instructional needs, instructional objectives, time, and available resources (Morrison et al., 2011). Curriculum and standards, as well as academic rigor, need to be two of the primary considerations when designing a STEM curriculum.

For STEM teachers, need to create an engaging curriculum with a range of "metacognitive and content-specific instructional support" must be present (Basham & Marino, 2013, p. 9). Specifically for engineering, the courses must include systems thinking, creativity, collaboration, and communication (Basham & Marino, 2013). Online teachers not only need to have a strong understanding of their content area, they need to have an appreciation for how technology affects the content and pedagogy of what they are trying to teach (Archambault & Crippen, 2009).

#### WHY IS STEM IMPORTANT IN K-12 EDUCATION?

Engineers engage in tasks on a daily basis that require the application of STEM content knowledge (Brophy, Klein, Portsmore, & Rogers, 2008). These requirements include both quantitative and qualitative reasoning, which is outlined in the national standards (Brophy et al., 2008). The growing concern for STEM in K-12 education stems from concerns regarding the quantity, quality, and diversity of future engineering applicants (Brophy et al., 2008). According to the U.S. Bureau of Labor Statistics, technology jobs will have increased approximately 24% between the years 2006 and 2016 (Just & Thomas, 2009). The United States ranks 27th in science and 30th in math based upon the results of an international student assessment (Baldi et al., 2007). The federal government has made STEM a top priority in funding educational systems, due to the predicted 400,000-candidate shortage by 2014 (Breiner et al., 2012).

Each of the individuals interviewed stated the importance of a STEM education in preparing today's youth for growing career fields. Erica Beerbower, a middle school science teacher, explained a STEM education can make the curriculum more relevant to students and see how the material is used in the real world. The application of engineering design will provide students the opportunity to explore STEM related occupations and possibly have access to job-shadowing opportunities (Basham & Marino, 2013).

Not only will STEM allow for preparation in a real-world context, a STEM program will help to prepare students for the standardized assessments (Czarnecki, 2008). In 2014-2015, states that adopted Common Core will be administering the Partnership for Assessment of Readiness for College and Career (PARCC), which will be an online, standardized assessment for students up through 12th grade. The PARCC consortium consists of 22 states and over 24 million students (PARCC, 2013). The purpose is to build "a pathway for college and career readiness" (PARCC, 2013).

#### WHAT ARE THE BARRIERS FOR IMPLEMENTING A STEM PROGRAM IN K-12 VIRTUAL SCHOOLS?

Several barriers exist for implementing a K-12 virtual STEM program. First, there are a large number of educators expected to retire. Second is the large number of inadequately prepared individuals who are not qualified to teach STEM courses (Hailey, Erekson, Becker, & Thomas, 2005). Solid instruction of scientific inquiry, specifically in engineering, is difficult to implement due to nonscience teachers teaching science (Ketelhut & Nelson, 2010). Political implications, budget limitations, time, and available resources can be problematic (Basham & Marino, 2013). Additionally, the United States has a diverse student population and the instructional content does not reflect this (Hailey et al., 2005).

After conducting interviews with K-12 virtual educators, additional themes arose when asking about barriers to successful implementing. The themes included lack of funding, lack of accessibility to tangible objects, which would appear in a traditional science classroom, and teacher training. Additionally, an Florida Virtual School instructor stated, "The time demands placed on the teachers are strenuous. I am very busy answering my phone, calling all students every week, calling parents one time a month and then grading a barrage of assignments within 48 hours. I am not sure I would have the time to implement STEM activities even if I was able to" (J. Miller, personal communication, April 14, 2013). Educators realize the importance of STEM, but due to a lack of time and resources did not appear to feel a successful virtual STEM program is feasible at this time.

Real objects, or tangible objects, are an important part of the instructional process and allow learners to involve students in a hands-on process (Smaldino, Lowther, & Russell, 2012). One online instructor stated the lack of accessible tangible objects can take away the meaning from the lesson (A. Geeter, personal communication, April 19, 2013). Although some virtual programs deliver real objects to student homes, for STEM and the intensity of critical thinking, additional materials maybe needed. Given the extent of content knowledge required, educators must have expertise in science, mathematics, and technology, as well as the pedagogical knowledge to be effective STEM teachers (Sanders, 2009). Few individuals are aware of what STEM is. Katehi, Pearson, and Feder (2009) noted the "E" in STEM is the least understood. If stakeholders are not aware of what the program is, buy-in can be difficult. However, most stakeholders involved have a general understanding of the meaning of STEM (Breiner et al., 2012).

#### **POSSIBLE SOLUTIONS**

Several methods for bridging the gap of inequitable course offerings for students may be by providing STEM educational programs through distance education. A Florida Virtual School school instructor stated that some of the barriers maybe minimized through training from professionals in the engineering fields. Additionally, having a blended program whereby the virtual instructors periodically meet with the STEM students (J. Reyes, personal communication, April 17, 2013). Universal design for learning can allow for varying learning styles and abilities to participate (Basham & Marino, 2013). Finally, there is the concept of virtual laboratories.

#### Teacher Training

Because teachers are more familiar with the content they teach, personal professional development may not be geared toward understanding the between technological content and technological pedagogy (Archambault & Crippen, 2009). Learning how to teach online is an "ongoing process" that includes the mastery of new skills (Ko & Rossen, 2010, p. 28). Additionally, online teachers need to review, reflect, and evaluate the content of the course and the design of the course (Ko & Rossen, 2010).

Three areas need to be considered to plan training. These areas to consider

include, appropriateness of the training, competencies of the trainees, and what benefit does the training have to the overall organization (Morrison et al., 2011). Once teachers are able to analyze the learner's needs, then the professional development can be built aimed at achieving student success (Just & Thomas, 2011).

#### BLENDED LEARNING

A blended or hybrid course has a combination of online and face-to-face delivery, meaning 30% to 79% of the course content is delivered through online delivery (Simonson et al., 2012). While some believe blended learning can be easier than full online teaching, some find blended learning is actually more difficult (Ko & Rossen, 2010). Blending learning is a compromise for most since it does not reject the values of teachers and students who believe a traditional brick and mortar institution is more effective (Moore, 2007).

#### UNIVERSAL DESIGN FOR LEARNING

Universal design for learning offers the opportunity for all levels of learners to participate by eliminating the one-size-fits-all approach (Center for Applied Special Technology, 2013). Universal design for learning uses both instructional practices and modern instruction, which includes the use of technology. The overall purpose of universal design for learning is to "enable each learner to actively engage in targeted learning, with a specific focus on making all learners "expert learners" (Basham & Marino, 2013).

#### VIRTUAL LABORATORIES

Virtual laboratories, where students simulate a real laboratory, offer students the opportunity to apply theoretical knowledge into practical knowledge by conducting experiments (Woodfield, 2005). There are several advantages to utilizing a virtual laboratory compared to a traditional brick-and-mortar science lab. A virtual lab minimizes safety concerns, allows individuals with little or no experience to attempt labs who may normally have a lack of self-confidence, allows for labs where a lack of equipment can be an issue, and having additional time—no time lost for cleaning up (Tatli & Ayas, 2013).

#### RECOMMENDATIONS

Further research is required in order to understand the full-scale potential of STEM in K-12 virtual programs. Additional research is required to analyze the barriers for implementing STEM in a K-12 virtual learning environment and whether or not the barriers can be minimized. Several important questions must be addressed to the participants including "What is the knowledge of STEM?," "Why is STEM important to K-12 education?," and "What are the noticeable barriers for implementing a successful STEM program in K-12 virtual schools?" Researchers need to look at the infrastructure of the institution, stakeholder information, and the demand for STEM career placements in the geographical study area.

#### CONCLUSION

STEM is the new push so the United States can remain competitive with emerging countries in the field of engineering (Breiner et al., 2012). Limited research was located relating to the importance of STEM and the barriers for implementation. This article addressed what STEM is, why STEM is important, barriers for successful implementation in a virtual program, possible solutions based on virtual educator recommendations, as well as recommendations for future research for the new phenomenon.

There are barriers for any new phenomenon. The barriers existing for implementing a K-12 virtual STEM program are not much different from other educational entities. Budgets and funding, political implications, diversity, time, and available resources affect numerous facets of the economy in the United States. The key is preparing the current K-12 students with the tools necessary to pursue a desirable career field and helping to minimize the 400,000-job candidate shortage by the year 2015 and thereafter (Just & Thomas, 2011).

Education is commodity high in demand. Without education, individuals cannot be prepared for any job or career in the future (Ko & Rossen, 2010). Katehi et al. (2009) recommended K-12 education focus on engineering design and the acquisition of knowledge in mathematics, science, and technology. Morrison and Bartlett (2009) stated that STEM needs to be a unitary idea rather than just a grouping of the four academic disciplines. Regardless, there is a paradigm shift from compartmentalizing subjects to integrating these four disciplines (Breiner et al., 2012). If STEM is successfully implemented into the K-12 curriculum, more students will be exposed to the possibilities, thereby increasing the percentage of students who later pursue STEM subjects and STEM careers (Sanders, 2009).

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# The History and Status of Remote Proctoring

#### **Michael London**

ne important aspect of distance learning is distance learning assessment. As the chief executive officer of Examity, exploring this need and its nuances has been part of my daily life since Examity was founded in 2011.

Proctoring has come a long way from the days when professors walked up and down the classroom rows to ensure students were uncomfortable enough to



Michael London, President and CEO, Examity, 20 Pickering Street, Needham, MA 02492. Telephone: (855) 392-6489.

hopefully not cheat. Times have changed and remote proctoring has emerged as a direct result of the new times. The growth of online degrees, courses and certifications have driven logical—and very fundamental—questions for test providers:

- How can we know the test-taker is our student?
- How can we be sure our student does not cheat?
- How can we keep our test questions secure?
- Can we still ask online students to go to physical test locations?
- Given our online growth, do we have the ability to keep up with exams?
- How can we offer appropriate flexibility to online students?

Rather than answer these questions, which have clearly pointed test providers to a remote proctoring solution, let's discuss why most high volume exam givers, both institutions and corporations, have not gone enterprisewide with remote proctoring.

• Commercial solutions have not easily integrated with existing software and learning tools.

- Not every learning assessment has the same requirements, and therefore not every learning assessment should be proctored the same way.
- Tests have nuances that the remote proctoring groups may not be able to handle.
- Fear that this could get expensive.

In other words, vendor limitations have been the problem. Given that remote proctoring is almost 5 years old and these questions have still not been answered well, the logical question is ... why not?

The answer is quite simple. The tidal wave of online learning gave early entrants a way to achieve success without satisfying the strategic needs of the customer. If a vendor can proctor with a few excited professors at each university, why do the heavy lifting associated with a deeper enterprisewide relationship? With more than 20,000 universities worldwide, there is low hanging fruit everywhere and that fruit is easy to eat and tastes good monetarily. The problem with this strategy, however, is it has kept the test security industry from truly blossoming. The space should be growing even faster.

In 2012, a new type of university and university division entered the scene, meeting an increasing demand for remote learning opportunities for a growing online student clientele. Some of these institutions had tested the waters with early remote proctoring entrants and others were simply waiting for something better to come along. Traditional colleges like Temple and Rutgers that sought to empower students by giving

them additional choices, and innovative test providers like UniversityNow and Duolingo, all realized that remote proctoring must be more strategic. They eliminated early commercial vendors who could not answer critical questions to ensure that they have a sustainable competitive advantage for their entity. These test providers are keenly aware that whether they need 100 proctored tests or 100,000, a proctoring relationship must be made with the group who is able and willing to align with business needs and trends.

So what does the future look like for remote proctoring?

- Better alignment with strategic exam goals.
- Integrated with LMS for ease-of-use and scaling with test-taker growth.
- Varied proctoring levels and styles to reflect differences in professor needs.
- Test environment flexibility to ensure you can handle what is now and next.
- Sophisticated account management to facilitate enterprise-wide goals.
- Full transparency and the use of data to drive cost containment.

Given that most universities are using remote proctoring in one area or another, there is little debate whether it is a solution that is here to stay. More interesting, however, will be its evolution to maintain test integrity, please students, and keep costs in check. We are not far from remote proctoring becoming a true enterprise-wide objective. The question is whether early players can adapt to meet this challenge.

# Easing Students' Transition to Online Graduate Education

#### Laurie Posey and Christine Pintz

S chools, organizations, or institutions that offer online education share the same dilemma: how to best orient new students to the online learning experience. Research supports the need for a comprehensive orientation for online learners, including an introduction to the

technology, ways to access and use learning resources, and strategies for successful learning (Mueller & Billings, 2000). Most institutions achieving high retention rates among online learners require an orientation that includes technical and academic information about using the learning man-



Laurie Posey, Director of Instructional Design and Assistant Professor, George Washington University School of Nursing, 2030 M. Street, NW, Washington, DC 20036. E-mail: posey@gwu.edu



Christine Pintz, Associate Dean for Graduate Studies and Associate Professor, George Washington University School of Nursing, 2030 M. Street, NW, Washington, DC 20036. E-mail: cpintz@gwu.edu

agement system, making effective discussion posts, accessing student services, figuring out time management, setting goals, and participating in community activities (Moore & Fetzner, 2009).

The George Washington University School of Nursing has been offering online education to graduate nursing students since 1997, with full degree programs offered online since 2005. While we have always offered a technology orientation to new students, over time we have recognized the need for a more robust approach to address common academic difficulties faced by the experienced, nontraditional students we serve. Many of our students return to school after an extended period in nursing practice. Ensuring that these students have the supports they need to succeed in their online studies poses a challenge shared by many universities offering similar online programs. For example, a study by the American Association of State Colleges and Universities (2006) found that many adult learners are underprepared for college level work. This is consistent with observations made by our faculty that incoming students often lack essential, basic academic competencies such as writing and research knowledge. In addition, to succeed in online studies, many students need additional assistance in digital literacy and basic study skills, as well as instruction about how to learn with technology. To compound the challenge, while traditional on-campus students have access to academic support services such as the writing center, these resources are limited and often difficult for online students to utilize during traditional working hours, when these centers are typically open.

To address these challenges and move beyond our traditional technology-focused orientation, the School of Nursing developed five self-directed online learning modules that comprise *The Graduate School Bootcamp*. The interactive multimedia modules target specific learning skills, the same skills in which our students had demonstrated weakness. The modules are designed to help incoming students with refresher education on learning strategies and time management, academic writing, managing technology challenges, basic research concepts, and using library resources. The concept of a "bootcamp" seemed to fit the need for students to come up to speed in these different areas in a relatively short period of time. The bootcamp metaphor provided the foundation for a fun, fitness-based theme, with each module related to a different athletic activity. Figure 1 is a screenshot of a sample module menu.

The first module, Warming Up to Graduate School, provides a "warm up" to the expectations of graduate study. The module opens with a learning strategies selfassessment that includes customized feedback based on students' responses. It also addresses stress management, time management, study skills, and preparation for online discussions. The second module, Cycling for Sources & Success, shows learners how to conduct literature searches and use online library resources. The third module, Tech-Savvy: Tools for the Trek, helps learners use technology and digital media effectively for successful online learning. The fourth module, The Write Track, reviews the distinctive characteristics of academic writing and describes strategies for success in completing writing assignments. The fifth module, Diving into Research, presents basic research concepts students should have learned in their previous programs, such as research terminology, formulation of research questions and hypotheses, research design and methodologies, threats to validity, and data analysis. By providing a review of the basic concepts, skills, and technology required for graduate study, we can help ease our learners' transition into graduate school.

An interdisciplinary team, including a project director, faculty experts, instructional designers, graphic artists and multimedia specialists collaborated to develop



Figure 1. GW School of Nursing's Graduate School Bootcamp: Sample module menu.

the modules. To engage and motivate learners, the team applied Keller's ARCS model of gaining Attention, demonstrating Relevance, building Confidence, and ensuring Satisfaction (Keller, 1987). Each module engages learners with an animated map integrating a fun, graphical sports theme. Real-world examples and demonstrations reinforce the relevance of the learning content. Each module also includes a self-check section with interactive activities requiring learners to think critically and practice new knowledge and skills, which also builds confidence. To promote satisfaction with the learning experience, learners receive feedback to reinforce or remediate their learning.

The modules are now part of our standard orientation for all incoming online students. Students are required to complete all of the modules, along with a preand posttest and user satisfaction survey, before the end of their first semester. While the jury is still out on the long-term impacts of the modules on student success, initial findings indicate that most students found the modules engaging and relevant. A majority of students agreed that they would apply the information learned in their courses, and expected to refer to one or more the modules again. Most also expressed feeling that the content was presented in a way that helped them learn and the modules were just the right length. There was also a difference between pre- and posttest scores, indicating that students' knowledge and skills related to the different content areas improved after completing the modules.

The *Graduate School Bootcamp* was funded through a grant from the Health Services and Resources Administration. The program is available as an open-access resource for the benefit of other institutions who may wish to develop similar academic orientations for online students. While some of the content is specific to our university, any student can register and complete the program. To access the program, visit http://bootcamp.gwnursing.org

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#### **CALL FOR PAPERS**

#### PUBLISH IN DISTANCE LEARNING

The editors of Distance Learning would like to publish your paper. We are interested in papers dealing with practical applications of distance education in a variety of settings. Contact Michael Simonson, editor, if you have questions about your idea (954-262-8563; simsmich@nova.edu). Guidelines for submitting your paper can be found on page iii of this issue.

Try This

## A 2014 Guide to Engaging Students It's Not Your Grandfather's

Online Classroom!

#### istance education been around for many years, and I've been teaching online for 20+ of those years. Again and again one of the top questions distance educators would ask me is ... "Just how do I engage my stu-



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

#### **Errol Craig Sull**

dents and keep them engaged?" There are basics, of course, that will never change, involving faculty involvement and timeliness, but also new approaches that coincide with advances in technology. This is exciting, because there are so many more approaches and tools online educators can use to keep students interested and actively involved in their courses. What are presented here represent the "top performers" to actively engage students in distance learning: some you already know (but a good reminder is always in place!) but others may be new. (Please do send me additional ones that work well: erroldistancelearning@gmail.com—I'll include them in the next issue!) Use a good number of these; your students will leave your courses quite happy with what they experienced!

#### NONTECHNICAL

#### Post an Enthusiastic and Motivating "Welcome to the Course!" Announcement

The first announcement in the distance learning class is the most important of
your course, as students get an immediate feel for you: enthusiasm, approach (inviting or intimidating?), attitude (upbeat or really not interested?), and willingness to help out. Students can read this throughout the course, so its wording and tone are crucial. Not only does this post introduce your professionalism but also guidelines from which you do not want to vary: students can always compare what you do in the class against this first posting.

## Let the Students Constantly See You

One tried and true strategy to keeping students engaged is when the faculty member is a regular presence in the online classroom-and, when possible, is the first person the students encounter, such as in Discussion postings. First, with the instructor visible on a constant basis the students know they are not on their own, that the instructor is really "into" the course, and the faculty member is on constant watch for problems and confusion. Second, there is a strong motivational factor at play when students encounter a discussion thread with the instructor's posting waiting for them: these set the tone, give direction, and get the students going. (Tip: One can overdo being an active presence, i.e., don't be so visible and so overwhelming that students become intimidated to the point of staying away! There must be a balance.)

# RESPOND TO STUDENT E-MAILS, QUESTIONS, ETC., WITHIN A DAY

As much as a great class platform (such as Blackboard, eCollege, etc.) and solid content are important, it is the distance learning instructor who is critical to students staying active in the course. Thus, any e-mails or postings of students to the faculty member must be answered in what is considered an immediate time in the online classroom: within 24 hours. Go beyond this and students can lose interest, may submit wrong info in assignments, or could miss deadlines. Knowing they can depend on you is crucial. And there is a huge bonus as well: you can post at any time because of the asynchronous nature of the class, thus making it easier to follow up to student posts received.

## ASSIGNMENT FEEDBACK MUST BE POSITIVE, UPBEAT, AND DETAILED

It makes no difference the course: the more feedback students receive on assignments the more they feel the course is a learning experience and the faculty member truly cares about their learning. Also, give positive messages in the feedback that encourage the student, including an overall motivating and upbeat summary at the end of each assignment grading (this includes grading discussions and group projects). Two additional suggestions that can really make your feedback something the students embrace: (1) Use reality-based education, i.e., link some assignment comments to the student's use of an item in the assignment-or all of the assignment-to the professional world. This extends the course beyond the computer and puts more meaning into an assignment. (2) Don't hesitate to use some humor-it can make feedback more palpable!

# BE THE CONDUCTOR IN THE DISCUSSION THREADS

The Discussion feature in the course becomes the heartbeat, for it is constantly alive, with students posting daily and at all hours. Each post not only extends and clarifies the content of the course but also takes the course deeper and wider—for an enhanced learning experience. The faculty member's ongoing presence here is crucial for a few reasons: new discussions questions/threads can be inserted that keep discussion going at a brisk pace; guidance can be given when discussions go off topic, to clarify a student's posting, or to give additional information; and the instructor's postings will help keep the discussion moving and motivate students to post substantively. (Tip: Always send out reminders about the importance of discussion students need understand this is not merely an exercise for a grade.)

# CHECK OUT ALL AREAS OF A COURSE BEFORE IT BEGINS

Students can become frustrated, confused, or upset when a course link does not work, when course dates are incorrect, when assignments are out of order-the list goes on. It is so much better the faculty member first discovers any such problems, rather than have a student point these out; this can give an impression the faculty member is not really devoted to the course. Additionally, students have enough content and assignments on which to focusthey don't need any course platform problems added to this. So ... get into the course early enough so any problems can be reported, then corrected before the course begins.

#### OFFER ADDITIONAL RESOURCES FOR YOUR STUDENTS

In addition to the content that comes with the course, adding other resources for the students can keep them more involved—post articles, videos, and audio that relate to daily events, the workplace, new research, professionals in the fields, etc. This helps keep the course alive, more current, and always interesting. Additionally, post content-related cartoons and puzzles—and it's always fun to include a crossword puzzle or two (http://www.puzzle-maker.com/CW/ is a good one).

#### TECHNICAL

There are many; these tend to be the most popular in distance learning courses and quite easy to use.

#### YOUTUBE

Many online instructors develop their own YouTube videos to deliver additional course content, to clarify course information, to explain assignments, and to offer thoughts on various happenings in the course. This visual tool speaks to today's online education, and it can give the course a more personal experience for the students. For a solid tutorial see http:// www.youtube.com/watch?v= 7Szqx2oLO9g

#### JING

Jing is used by instructors primarily to clarify information in a course, as its video and audio capability tops out at 5 minutes. However, it is extremely effective in giving student an in-course look, as Jing allows you to video whatever you'd like in your course, then present it to students. (Jing can also be used for still shots, with audio explanation.) See http://www.youtube .com/watch?v=aTF7ryUyeuY for help.

#### POWERPOINT AND PREZI

PowerPoint and Prezi allow the user to create slide-by-slide presentations of a topic or topics; the user can insert text, graphics, visuals, et cetera. PowerPoint is the more static of the two, as Prezi allows for more animation, and comes with a vast assortment of graphics and animated possibilities. Both of these are extensively employed by online educators for explaining course content in more detail and offering additional applications of course content; these are also used by faculty in giving presentations to other faculty. For good overviews of each: PowerPointhttp://www.youtube.com/watch?v=3ZUw Prezi-http://www.you-FwooMrY ... tube.com/watch?v=dInC4zPbV6I

#### VOICETHREAD

This program allows one to upload, share, and discuss documents, presenta-

tions, images, audio files, and videos. It's a good resource when there are group projects in a course or the faculty member presents information for student feedback. While there are premium versions of VoiceThread that require a fee there is also a basic version that is free. See http:// www.youtube.com/watch?v=2jVW

\_aAyGPE for details on getting started with VoiceThread.

#### GO ANIMATE

A do-it-yourself animate video website, it's an engaging approach to creating a video as it comes close being a cartoon. Use it for explaining content, showing students the way around a course, explaining an assignment, or discussing course content. A good tutorial is available at http:// www.youtube.com/watch?v=MCf5cihiL\_ g&feature=c4-overview&list=UU\_ 3TILVT161zgkHJ0MAdjWg

#### .mp3

This is an audio upload—instructors will often give student feedback or course information into a recorder, then upload it to the course; the students simply click on the link to hear the instructor's comments. See http://www.wikihow.com/Make-an-MP3-File for instructions.

#### LIVE CHATS/WEBINARS

These are used in courses by the distance learning instructor to offer weekly info on upcoming assignments, clarify content, explain various course topics in more detail, and allow students the opportunity for live interaction with the faculty member. They are also used extensively by schools to present seminars to online faculty. There is a variety of live chat and webinar software programs, and nearly all are made available by the school, where tutorials are offered.

*Remember:* The more tools available the better we can construct something that is high-end quality, extremely functional, pleasing to the eye, and a joy to use.

# Ask Errol!

# **Errol Craig Sull**

**T** t's 2014, and with a new year comes more distance learning courses and more developments in distance learning. These will result in new problems and confusion, and I invite you to again share them with me—I'll do my best to help you out from my 20+ years of online teaching experience!

This column's selection...

I have been teaching online for 8 years, and recently I was asked to develop a training



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

session at our school to teach other faculty members the "how tos" of teaching online. These individuals have not previously taught online, I will be doing the workshop in a face-2-face classroom, and I want to do a really good job—any tips?

Kudos to you, both for accepting the request to teach others the fundamentals of teaching online and for your enthusiasm: too many teachers are asked to teach online with little or no training, and the students ultimately suffer. And let me begin with a cardinal rule in teaching such a course: have a minimal amount of lecture and a large portion of doing. The more your attendees can get the feel of being in an online classroom the better prepared they will be when it comes time to teach their courses.

A great way to start off such a session after a brief introduction-is to have a dummy online course set up that is rife with errors, asking those in your class to wander through the course, jotting down what they believe are problems, inconsistencies, and poor teaching. Examples may include too little feedback on assignments, poor response time to student e-mails, lack of presence in the classroom, a link or two that does not work, and typos throughout announcement posting. Once X an amount of time has passed point out the correct answers, with a brief explanation as to what is wrong with each, indicating the items will be covered in more detail during

the seminar. Also, ask for others you did not mention—attendees may pick out items that are really okay or fall into a gray area, and it's good to discuss these so no confusion lingers in your classroom.

A second teaching technique is to post a discussion question in the mock course, then give the class approximately 20 minutes response time for the question and to each other's postings; when this is over delve into what makes a good discussion, using the postings in class for examples. (Of course, be positive in all remarks—these folks are, after all, learning!) Please drop me an e-mail when the training is over—I'd like to know how it goes!

Thanks very much for your columns—they have proven extremely helpful to my faculty in their online teaching efforts! But your columns also present me with a somewhat perplexing item: there is so much information coming over my desk and through my computer on how to effectively teach online that it is becoming time-consuming to read it all, let alone attend any live webinars on the topic. Additionally, there is such a wide variety of subject areas that it becomes increasingly difficult to decide what I need and what I don't. Any guidance you can give me on this would be greatly appreciated.

Thanks for the kind words—helping others become better online instructors through my experience and knowledge in the field is a true joy for me! And let me see if I can extend this to you again.

Perhaps the best umbrella piece of guidance for your concerns is to know what is most important to your courses. As an example, teaching writing courses might not need too much info on metadata relating to chemistry courses; classes that have no team or group assignments don't benefit from information on how to improve this setup; and classes that have 30-40 (or fewer) students per class won't find much help from articles on MOOCs (massive open online courses). Doing this will immediately save you time.

Second, know which sources can be trusted to provide salient, timely, and quality material—this can take some time to discover, but once you have a reliable group of sources it becomes easier to disregard others.

Also, know what interests you. While this may seem obvious, there are subject areas in distance learning that might appear quirky or initially not related to your courses—but they just happen to grab your attention. Do look at these—you might be pleasantly surprised at what you find.

Finally, new avenues for information will continue to pop up—blogs, podcasts, videos, online and print columns and articles, books. Each of these offers the possibility of information useful to your courses, but a combination of your experiences with previous sources, your interests, and where you'd like to see your courses improve will give you the honing tools needed to find the best sources of useful info.

Is there one overriding area that is ignored or given scant attention by those who are distance learning educators? I regard myself as an excellent online teacher, but sometimes I wonder—is there something so obvious I'm just not seeing it? Thanks!

Much time—important time!—is spent focusing on getting courses just right and being certain one offers students the best in an online educator that often overlooked are setting up the most conducive environment in which to teach, keeping oneself organized, and having a good sense of time management. Ignore one or more of these, and the course (and thus the students) is immediately impacted. To be certain this does not happen: (1) create an online teaching environment that allows you to relax and focus on the course (clean desk or surrounding area; something to drink—nonalcoholic, of course!; good lighting; efficient computer; a pad and pen or blank screen for notes); (2) organize what you will do each day in class, stay on top of "problem" students, plan ahead for each week of teaching, keep your personal life organized so it does not interfere with teaching duties; (3) have a good sense of how much time is needed to fully complete each day's teaching, respond to student e-mails and other queries in a timely manner, and take time for yourself so you can always teach refreshed.

While these three items are not "in" the course each is crucial to keep a course well managed and producing excellent learning experiences for the students.

#### Online education has been here for quite some time, and it seems like it's pretty much stayed the same. Are there any new trends or developments coming along?

The easiest way to answer this is step back a bit, and see how we are more and more receiving our information: through mobile devices where we can use our fingertips while waiting for an appointment, on a treadmill, riding a bus, on vacation, walking in the park—just about anywhere. Translate this into the online learning environment, and text-heavy/time-consuming courses do not match. Some schools understand this—and more will—leading to online courses that are rich in quizzes, podcasts, videos, and small chunks of content. The course content remains the same, but it is delivered in bite-sized pieces, making it easier to digest in a handheld device with a bit of time here, a small amount of time over there.

Another interesting development is the increased use of apps for mobile devices that focus specifically on distance learning. Course components can be included in these apps, including audio and video, and they can be accessed online or offline.

A final big trend is toward what is known as gamification—the use of games and gaming mechanics to teach content. While online instructors have been using puzzles and games for quite some time as adjuncts to course content, gamification takes this one step more by using the gaming techniques of competition to become a core part of online instruction. Although now primarily found in corporate e-training, gamification is beginning to find its way into academic distance learning.

I will be featuring a full column of these and other new distance learning trends in my other column, "Try This," later in the year.

*Remember:* Snow White had the seven dwarfs, Dorothy the Munchkins, and Robin Hood his band of merry men—and each was stronger for the help these aides provided.



- 16. Paper shredder
- 17. USB webcam with built-in microphone
- 18. HDTV connected to cable
- 19. Supplies
- 20. Bookshelves

What a list, and oops, we forgot the most important item—a room with doors that can be closed. The distractions in the

home are too powerful to be ignored; closed doors keep cats, kids, noise, and the home part of the home office outside.

*And finally,* as Theodore Roosevelt said, "When you play, play hard; when you work, don't play at all." So, when in your home office, don't play at all—or do the laundry.

# Where Is as Important as Why, When, and What

# **Michael Simonson**

here? A home office? You bet! The solitary learner and solitary instructor need a place to learn or teach—a home office. The home office is a growth area of the 21st century more are working from home, and many students are learning from home.

Just what constitutes a home office—is it the couch and 50-inch HDTV? Is it in the



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

garage? Or, can it be my smartphone and the kitchen table. Well, none of these options are going to work, especially when most online courses are designed for the student to spend about 8 hours per week for each course they are taking at a distance. The home office, and home classroom should probably be a dedicated place—a place with "stuff."

Here is a list of what seems to be the consensus of what should be in the home office—the Big 20, if you would.

- 1. A modern computer with monitor
- 2. Software—MS Office at a minimum
- 3. A desk
- 4. A chair
- 5. Lighting—ceiling and desktop
- 6. A high speed internet connection—a cable modem, for example
- 7. A wireless router
- 8. Telephone with speaker and cordless handset
- 9. Electrical outlets with surge protectors
- 10. An all-in-one printer (copier, printer, fax, scanner)
- 11. Back-up drive
- 12. Uninterruptable power supply
- 13. File cabinet
- 14. Storage
- 15. Fire-proof safe

... continues on page 75

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