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Abstract—Institutions of higher education have had online courses in place for many years but teacher preparation programs in universities have typically not embraced E-learning; many teacher preparation programs have only begun to create online plans for teaching in the event of an epidemic. With the emergence of state based online instructional programs for students K-12, teacher preparation programs must include instruction and pedagogy of E-learning and E-teaching. The University of Maryland University College online teacher preparation program provides a model of E-learning to teacher candidates in a Master of Arts in Teaching program for teacher candidates who will teach at the middle/high school level. A unique learning platform and the use of creative synchronous and asynchronous practices will be discussed in this working paper with emphasis on teaching competencies and effective strategies.

Index Terms—e-learning, teacher preparation, virtual teaching, Web Tycho.

INTRODUCTION

The University of Maryland University College (UMUC) has recently reinstated a Master of Arts in Teaching program (MAT) in Secondary Education that had been dormant for five years. The UMUC MAT program seeks to develop outcomes that are in line with the Interstate New Teacher Assessment and Support Consortium (INTASC) standards and Maryland state education standards. The Department of Education at UMUC is guided by its conceptual framework that places the students that our teacher candidates will teach as a priority and guiding influence. The program encourages critical and reflective thinking, seeks to develop a repertoire of strategies and tools that are applicable to virtual and real classrooms, and, promotes the teaching of all students at a high level. In an effort to create a state of the art teaching program for career changers, the institution has determined that the new MAT program will include use of innovative web 2.0 technologies, and develop protocols to prepare teacher candidates to be leaders in 21st century global practices in the field of education.

I. TEACHER PREPARATION - RATIONALE FOR INCORPORATING E-LEARNING AND E-TEACHING INTO TEACHER TRAINING

Teacher preparation programs have historically been under scrutiny regarding their quality and rigor. Improving the practice of teaching has been the hallmark of teacher preparation programs for the last century [1]. The main criteria currently used for identifying successful teacher preparation programs are student achievement and the longevity of teachers (retention) in practice. Teacher preparation programs not only need to improve the practice of teachers, demonstrate student achievement through their candidates teaching practice, be held responsible for the retention of teachers in the field, but must also demonstrate that the teacher candidates that they are preparing are capable of integrating subject knowledge through engagement of their students and themselves with use of both low and high technology to mesh theory with practice. By providing teacher candidates with the best teaching tools that can be used to reach their future students, the teacher candidates at University of Maryland University College (UMUC) receive a solid foundation of strategies that promote practice, retention, and student achievement.

Teacher candidates at University of Maryland University College (UMUC) are immersed in the practice of teaching through technology tools that they can use in their teaching in the actual or virtual classroom [2] [3]. UMUC is one of the largest providers of online education for adult students in the world. It is the second largest public university in Maryland and is considered a global university that offers one of the largest online selections of courses available. The Master of Arts in Teaching (MAT) at UMUC is completely online with the exception of a traditional on site, one semester internship. The Mat students, identified as teacher candidates in this article, use synchronous and asynchronous mediums in course work and in assignments and engage with their professors and peers using both. The management platform that is used is Web Tycho, a platform developed by UMUC. Within the Web Tycho platform, conversations are held in what is known as 'conferences'. Participation in conferences occurs asynchronously. Teacher candidates must respond to at least two classmates each week within the conferences. Pedagogy of online teaching is discussed and analyzed as it relates to the teaching of students, who they may teach in virtual 6-12th grade class settings, and in regard to their own preparation in a content area. As teacher candidates enter the program with individual experience and content area specialization, the practices and pedagogy of teaching are personalized and mutually guided, and technology instruction is facilitated by instructors and by other teacher candidates with more technology experience.

This paper will provide examples of both E-teaching and E-learning practices used in one course within the MAT program and provide data on the first cohort in the
program who will be starting their third course in June 2010, and, will have completed half of the program when they complete their summer course. As research demonstrates that teacher candidates will teach in the manner that they have been taught [4], by following best practice protocols, the program at UMUC provides E-teaching through the use of E-teaching practices as its model of choice.

II. E-LEARNING AND E-TEACHING THROUGH E-PRACTICE

A. An Introduction to the UMUC MAT program and a Course

The MAT at UMUC enrolled its first cohort in Fall of 2009 with a total of 35 teacher candidates. All UMUC MAT teacher candidates must have a content area specialty in math, English, earth science, biology, chemistry, physics, computer science, history, or social studies. There are currently two cohorts in place, with a third scheduled to begin in summer 2010. The MAT program consists of 36 credits that allow candidates to complete the program in two years; candidates may select to move more quickly towards their degree or may choose to take longer. Each course in the 36 credit program is 6 credits with an additional 3 credit course in technology applications geared towards assessment in the classroom, and a 9 credit internship and seminar.

The outcomes of each course in the MAT program have been developed with the knowledge that many teacher candidates in the program are digital immigrants, as they are adult career changers. Diversity and global perspectives are specific outcomes of this particular course used in the examples to follow. In the course identified in this working paper, Adolescent Development and Learning Needs, EDTP 635, the following course objectives are expected to be met at high levels:

1) Critically evaluate research-based theories of adolescent growth and development.

2) Develop strategies for identification and instruction of adolescent individuals with and without disabilities, including those from diverse backgrounds.

3) Articulate the possible variations in adolescent behaviors across and within cultures.

4) Identify appropriate strategies and environments for addressing different abilities and learning styles in adolescents.

5) Use knowledge of legal rights of adolescent learners to come up with a ‘plan’ for the appropriate continuum of services and procedures within the school context.

6) Critically evaluate the implications of making instructional modifications and accommodations for individual adolescent learners with the UDL framework.

7) Formulate a personal philosophy of teaching for a range of different types of adolescent learners at various developmental phases, which will serve as a basis for educational decision making.

8) Describe culturally responsive factors that promote effective communication and collaboration with adolescent students, families, school personnel and community members.

9) Compare and apply the different approaches of several adolescent learning and developmental theories toward creating a behavior management plan and creating a positive learning environment.

10) Be able to use the web and web 2.0 tools for research, analysis, and creation of lessons geared specifically to the adolescent learner.

Technology practices of E-learning and E-teaching are applied within the course and are invaluable in insuring that the teacher candidates successfully meet the outcomes of the course and its objectives, including objective 10 with competence and confidence.

B. Support of Integration of Technology

The MAT program provides support for the use of technology, as supported by Reference [3], via modeling from instructors on how to integrate technology into teaching. Teacher candidates share technology tools with one another and are encouraged by the instructors and peers to experiment with and create blogs, web pages, wikis, etc. to share their lesson plans and group work with an audience larger than the class itself. By posting to outside sources, students learn that the community of learners is diverse and global and that they each have pertinent information to share with current and future educators. Teacher candidates are encouraged to ‘speak’ with master teachers through chat rooms, skype, Wimba, Facebook, and/or face to face to interview and discuss best practice, shared governance in school systems, and management strategies. The use of E-learning and E-teaching technologies provides for greater personalization, creating a culture of initiative and placing the onus of learning on each teacher candidate. Teacher candidates are not graded on the techniques of technology used in their posted assignments or conferences but their increase in the use of technology to supplement individual knowledge and teaching processes is assessed frequently and documented; each candidates development is demonstrated differently and assessed through an individual context. And through the Web Tycho platform, technology integration is made simple; each student has access to 24 hour support with the Web Tycho system.

The body of the paper will share examples of E-teaching and E-learning experiences extrapolated through the course discussions, known as ‘conferences’. These examples are displayed in Table 1.

<table>
<thead>
<tr>
<th>TABLE I. CONFERECE PARTICIPATION STATISTICS @ 9 WEEKS</th>
<th>LINKS TO E-LEARNING EXPERIENCE</th>
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<tbody>
<tr>
<td>EDTP 635 Adolescent Development &amp; Learning Needs</td>
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The International Conference on E-Learning in the Workplace 2010, www.icelw.org
C. Example 1 - E teaching Experience: Norms of the Classroom

E – teaching involves creation of an environment that facilitates the acquisition of knowledge of teaching skills from a technology foundation. In each course of the MAT program, teacher candidates are taught with the inclusion of elements of computer based/web based tools. Content is created within each course relative to the pedagogical level of the teacher candidates; as the teacher candidates move through the sequenced courses, real world, authentic, problems and situations are presented by experienced practitioners via use of a constructivist approach. The managed learning environment, Web Tycho, allows for synchronous chat, asynchronous discussion, use of audio and video and email. For the individual student the pedagogy is problem based and for group teaching experiences, the pedagogy is didactic and problem/inquiry based. Simulations are provided and facilitated by the instructors. Online content is punctuated with the six standards identified by Southern Regional Education Board (SREB) which include orientation to technology and skills, instructional design of an online environment and its relationship to teaching, creating relevant assessments, creating online formats that support the type of content to be taught, and clinical experiences supported through the learning management system [5].

E-teaching experiences are linked to all conference topics in the second course of the MAT program. Conferences are where teacher candidates conduct the majority of their online participatory discussions through Web Tycho. The selected conference topics in Table 1 are derived from textbook readings that encourage critical thinking and application. Example 1 – Norms of the Classroom: The E teaching discussion linked to the conference and the readings regarding classroom norms in middle and high schools had included not only a discussion of open source, but within the conference section of the course were links uploaded by both the instructor and the students where they found, analyzed, and implemented the open source media, based upon the needs identified in the conference. This lead to an E learning event when some of the teacher candidates used an open source medium for an assignment that was due later in the semester that required the teacher candidates to interview a master teacher regarding the topic of norms in their classroom. Slightly less than 50% of the teacher candidates chose to facilitate online interviews based upon the exposure to and discussion of open source websites to engage in interviews while on the computer.

D. Example 2 - E learning Experiences: Know Your Learner

E- learning provides an opportunity for self instruction and personalization of instruction. All individuals learn at an individual pace and the capacity to use E learning provides for a personally effective development of an applicable knowledge base. By providing the teacher candidates with knowledge of web based tools that will allow them to create opportunities of learning (i.e.: active engagement), they develop their own learning schemas in the field of teaching through investigation and ciphering of latest research, latest technology tools and shared experiences. Some tools that are/may be used include web walk, web quests, shared field experiences, internet audio/visual group work, and video conferencing with instructors and students within the Web Tycho system. E-learning is expected to be demonstrated in assignments and group work. Example 2 – Know Your Learner conference: Teacher candidates were previously provided a library module conducted by an online librarian at UMUC. The module demonstrated how to identify and select from relevant sources to develop a rational for an action research design that they would use in a later course. The teacher candidates were required to research material that would be applicable to their identified student populations and their possible developmental and social levels. The instructor facilitated the conference discussion and provided a synchronous discussion related to current media representations of adolescents in current research. In addition, the instructor demonstrated how to analyze research articles by reviewing through a section by section analysis of two articles. Students demonstrated strategies learned through that particular conference in an upcoming assignment. As part of a follow up assignment, students worked in groups to select and review a fictional movie that focused on adolescents and their developmental levels. Some teacher candidates created a blog detailing how they believed that adolescents were portrayed in the areas of emotional, social, and cognitive development following a viewing of the movie Superbad. http://superbadvideoanalysis.blogspot.com/. Other teacher candidates chose to create their own blog while some chose to create a power point regarding other movies and post to a website or to a chat room.

E. Example 3 - E learning Experiences: IDEA and Assessments

Example 3 – The Individuals with Disabilities Education Act (IDEA) and Assessments conference included video viewing and discussion with the teacher candidates. The teacher candidates viewed segmented videos that were contiguous but could be viewed as independent videos. The teacher candidates read information in their text books on ways to include students with disabilities, students who are non native English speakers, students who are non traditional, and strategies to use to make the class inclusive for all genders, races, religions, etc. The instructor provided discussion in the conferences with students but did not provide specific information regarding the viewing of the videos. The teacher candidates recognized that how one
viewed the videos would effect the perception of the questions in the conference (differentiation). The use of segments, the lack of directions, and the overall experience of this class session, assisted the teacher candidates to develop an awareness of how they would teach, the pedagogical knowledge necessary to make instructional decisions, be able to identify effective strategies and when to use them, and demonstrate how to integrate materials for all participants. The teacher candidates decided that they would research and list, in the class webliography, a list of virtual sites devoted to teaching strategies and Universal Design. Many of the course objectives identified for individual student progress were mastered for some in this particular course session.

III. CONCLUSION

All educators who will practice in the 21st century need to learn and use E practices. The UMUC MAT program and courses are enabling teacher candidates to work effectively, systematically, and compassionately with diverse populations no matter where they may reside and no matter if their teaching practice is face to face or virtual. The teacher candidates graduate from the program with a conceptualization that goes beyond boundaries. Virtual technologies, pedagogies, and organizational approaches are continually being redeveloped, implemented and evaluated. The elements of effective teaching that are available and experienced within each course in the MAT program includes information sharing, guidance, facilitation, and exemplars that lead the teacher candidate to analysis and assessment of their practice and their pedagogical beliefs, culminating in a synthesis of and practice of learner centered outcomes that leads to educational leadership.

The MAT program prepares the teacher candidates to be able to provide equal access to education through the practice of E learning and E teaching, through digital awareness and demonstrated understanding of technology applications in teaching and learning [6]. The teacher candidates will know how to access, adapt, and assess resources to create the most appropriate opportunities for themselves, their colleagues, and for their future students.

UMUC MAT graduates will have the tools to become leaders, facilitators, and designers [6] in the field of education as they have been prepared with an education that allows them to reach all populations, be able to seek out information, and prepare for a broad audience through the practice of E-learning.

REFERENCES


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