# Examining the Foundations of Educational Technology Course in 2009

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## Introduction

The introductory course or course sequence is common among educational technology programs as the means to provide students general knowledge of instructional design and technology. Often, this course or courses provides entry-level students with their first exposure to both historical and recent developments in the field (Klein, et al, 2002; Reiser & Dempsey, 2007). One such recent development is the 2007 revision of the Association for Educational Communications and Technology (AECT) definition of educational technology. The study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Januszewski & Molenda, 2007).

In 2002, a needs assessment was conducted by researchers from Arizona State University to identify optimal instructional content for a foundations course in Educational Technology (Klein, et al, 2002). Among their findings, they concluded that introductory courses should provide more opportunity to learn about contemporary issues (Klein, et al, 2002). Seven years later, we repeatedly encounter evidence of the field being influenced by growth and change in both theoretical and technological advances. According to Januszewski and Molenda (2007), "These theoretical shifts have changed the orientation of the field dramatically, from a field driven by the design of instruction to be delivered in a variety of formats to a field which seeks to create learning environments in which learners can explore often assisted by electronic support systems in order to arrive at meaningful understanding." (p. 2)

In light of these recent advances, the purpose of this study is to follow the admonition of Klein, et al (2002) to collect additional data to determine the optimal instructional content and delivery method for the foundations of educational technology course. In this current needs assessment the following questions will be addressed.

1) What is the optimal instructional content for a foundations course in Educational Technology?

2) What is the optimal delivery method for a foundations course in Educational technology?

3) What feelings do respondents have about the new technologies available for the delivery of a foundations course?

## Method

*Phase I of the study – Syllabi Analysis*

Faculty who prepare instructional design and technology students have to be competent practitioners, prepared to update curriculum based on the changing nature of the field. This study investigated the extent to which the foundations course should remain a static set of topics, or evolve over time. This study follows the design of a similar study examining research courses in educational technology programs (Klein, Martin, Tutty, & Su, 2005). In the first phase, syllabi from a number of universities and the topics from the 2002 needs assessment were analyzed for inclusion in a survey instrument.

Introductory course syllabi were collected from several leading educational technology programs to determine what content is currently being taught to graduate students in the field. Our sample included eight programs: Arizona State University, Florida State University, University of Georgia, Indiana University, Purdue University, San Diego State University, Syracuse University, and Wayne State University. The syllabi were either downloaded from course websites, or requested from the instructors teaching the course. A content analysis of the introductory course syllabi was conducted. Each syllabus was examined for course title, objectives, instructional activities, and topics covered.

*Phase II of the study - Survey*

A survey instrument was then developed to address issues related to the content, use of technologies, and delivery method of introductory courses in educational technology. Fifteen course topics that were addressed in two or more programs as indicated by the course syllabi were identified and included on the survey. In addition, five topics identified by Klein, et al. (2002) that did not appear on two or more of the syllabi were included. A number of open ended questions were added to the survey.

This study focused on the optimal instructional content, delivery method, and emergent technologies for a foundations course in Instructional Technology. A survey was created and disseminated to various higher educational listserv on in Fall 2009.

The survey consists of eight total questions; five required questions and three short answer questions which were not required for survey completion. The survey measured the optimal content delivery method, and emergent technologies for an Instructional Technology foundations course. The questions were grouped into four categories: personal background information, important topics in an Instructional Technology foundations course, delivery methods in an Instructional Technology foundations course, and contributions of emergent technologies to an Instructional Technology foundations course.

The survey created using Select Survey, had the corresponding link distributed through email to the following institutions with higher educational Instructional Technology listservs: University of North Carolina Wilmington, University of South Alabama, Arizona State University, University of North Dakota, Syracuse University, University of Winnipeg, and Indiana University.

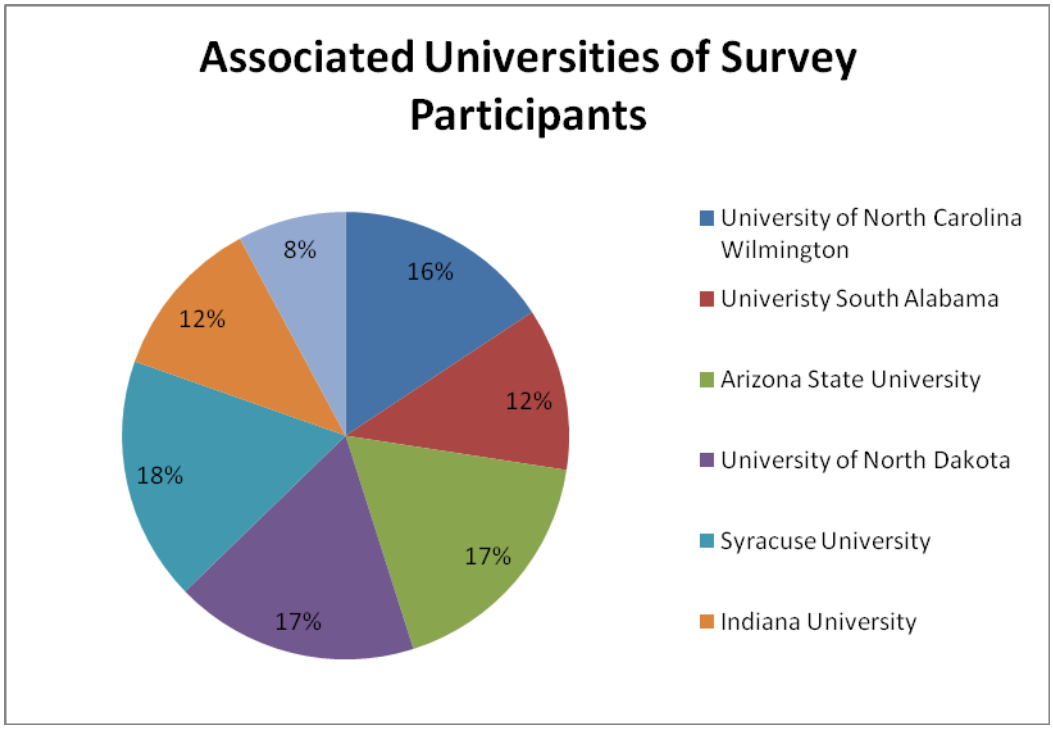


*Figure 1. Associated Universities of Survey Participants*

**Participants**

Fifty-one individuals took the survey. Nineteen participants (37%) were Instructional Technology master students, 11 participants (22%) were Instructional Technology doctoral students, 8 participants (16%) did not fit within the given descriptions and are listed as other, 5 Participants (10%) were Instructional Technology practioners in the K-12 range, 3 participants (6%) were Instructional Technology practioners in the Business and Industry sector, 2 participants (4%) were Instructional Technology Faculty, another 2 participants (4%) were Instructional Technology practioners in Higher Education and 1 participant (2%) was an Instructional Technology practioner for the government.

**Results**

The results of the survey are reported in Table 1. The overall mean of all items was (M=4.23) on a scale of 1 – Very Unimportant to 5 Very Important. Ten topic items were rated above the mean and were considered important to very important for Instructional Technology foundation courses. Among these ten topics the five most important were: Systematic Instructional Design (M= 4.75), Instructional Design Models (M= 4.75), Learning Theories (M= 4.61), Instructional Theories (M= 4.59), and Instructional Media Design (M= 4.45). Though the remaining 10 topics were below the overall mean of (M= 4.23), they were all rated as important with their means ranging from (M= 4.22) to (M= 3.75). History of educational technology and professional competencies (IBSTPI) were rated the lowest at (M=3.75).

**Instructional Design Foundations Survey**

*Table 1*
*Topics in an Instructional Technology Foundations Course*

| | ***Topics in Foundation Instructional Technology*** *(5= Very Important, 4= Important, 3= Neutral, 2= Unimportant, 1= Very Unimportant* | ***Average Response*** |
|---|---|---|
| *1* | Instructional Design Models | 4.75 |
| *2* | Systematic Instructional Design | 4.75 |
| *3* | Learning Theories | 4.61 |
| *4* | Instructional Theories | 4.59 |
| *5* | Instructional Media Design | 4.45 |
| *6* | Needs Assessment | 4.43 |
| *7* | Evaluation | 4.39 |
| *8* | Definitions of Educational Technology | 4.37 |
| *9* | Trends in Educational Technology | 4.33 |
| *10* | Gagne's Events of Instruction | 4.29 |
| *11* | Using Professional Resources | 4.22 |
| *12* | Human Performance Technology | 4.06 |
| *13* | Innovation & Change | 4.06 |
| *14* | Technology Integration | 4.02 |
| *15* | Media Selection | 4.00 |
| *16* | Adoption & Diffusion | 3.98 |
| *17* | Distance Education | 3.96 |
| *18* | Technology Standards (ISTE) | 3.84 |
| *19* | History of Educational Technology | 3.75 |
| *20* | Professional Competencies (IBSTPI) | 3.75 |

The results for delivery methods are reported in Table 2. Course Websites were rated the most appropriate delivery method (M= 4.47) on a scale of 1- Very Inappropriate to 5 Very Appropriate. Learning Management Systems (Eg. Blackboard, Moodle) and Virtual Classrooms (Eg. Wimba, Elluminate, Connect) were rated the next most appropriate delivery method with means above (M=3.35). Slightly lower in the middle of the results were Video Podcasts (M= 4.12), Audio Podcasts (M= 3.84), Wikis (M= 3.80), and Blogs (M= 3.67) all deemed appropriate delivery methods. Rounding out the bottom of the results were Social Networking Sites (Eg. Ning) (M= 3.53), Mobile Devices (Eg. iphone, Blackberry) (M= 3.31), and Virtual Environments (Eg. Second Life) (M= 3.18) all being deemed as slightly appropriate delivery methods for blended online foundations course in Instructional Technology.

*Table 2*
*Delivery methods for a blended or an online foundations course in Instructional technology*

| | ***Delivery methods for a blended or an online foundations course in Instructional Technology*** *(5= Very Appropriate, 4= Appropriate, 3= Neutral, 2= Inappropriate, 1= Very Inappropriate)* | ***Average Response*** |
|---|---|---|
| 1 | Course Websites | 4.47 |
| 2 | Learning Management Systems (Eg. Blackboard, Moodle) | 4.41 |
| 3 | Virtual Classrooms (Eg. Wimba, Elluminate, Connect) | 4.39 |
| 4 | Video Podcasts | 4.12 |
| 5 | Audio Podcasts | 3.84 |
| 6 | Wikis | 3.80 |
| 7 | Blogs | 3.67 |
| 8 | Social Networking Sites (Eg. Ning) | 3.53 |
| 9 | Mobile Devices (Eg. iphone, Blackberry) | 3.31 |
| 10 | Virtual Environments (Eg. Second Life) | 3.18 |

The results for the contribution of emergent technologies within a blended online foundations course in Instructional Technology are reported in Table 3. Contributions were rated on a scale of 1 – Not at all Significant to 5 – Very Significant. Among the ten items in this category, the item, Help students stay current with technology

(M= 4.41) was reported to be the most significant contribution of emergent technologies to Instructional Technology Foundation courses. The items: Provides student with the flexibility in time, Prepare students for the job market, Provides student with the flexibility in space, and Encourage student-student interaction were rated above (M=3.95) and are also considered significant reasons for the use of emergent technologies in Instructional Technology foundation courses. The remaining 5 items rated below (m=3.95) which were still considered significant were: Encourage faculty-student interaction (M=3.90), Provides students a sense of community (M=3.67), It enhances student effectiveness (M=3.67), Help students succeed in the course (M=3.65), and It increases student performance (M=3.49). There were no ratings below (M=3.0) which could have been considered insignificant.

*Table 3.*
Contributions of Emergent Technologies

| | **Emergent Technologies**<br>*(5= Very Significant, 4= Significant, 3= Neutral, 2= Insignificantly, 1= Not at all)* | ***Average Response*** |
|---|---|---|
| 1 | Help students stay current with technology | 4.41 |
| 2 | Provides student with the flexibility in time | 4.29 |
| 3 | Prepare students for the job market | 4.24 |
| 4 | Provides student with the flexibility in space | 4.04 |
| 5 | Encourage student-student interaction | 3.98 |
| 6 | Encourage faculty-student interaction | 3.90 |
| 7 | Provides students a sense of community | 3.67 |
| 8 | It enhances student effectiveness | 3.67 |
| 9 | Help students succeed in the course | 3.65 |
| 10 | It increases student performance | 3.49 |

Twenty of the 51 respondents completed at least one of the three open-ended survey items. When asked what additional topics or trends not identified in the survey should be covered in the foundations course, responses reflected a desire for increased practical application of the topics indicated in the survey. When asked about preference for other methods of delivering the foundations course, 8 of 14 (57%) respondents indicated they had no preference for additional delivery methods, 4 of 14 (29%) respondents indicated a preference for social networking tools, and the remaining two respondents complained about course management systems. When asked to identify additional benefits of using emergent delivery methods, 13 of 20 (65%) respondents identified increased access and engagement. The remaining responses did not address the item.

## Discussion

According to Januszewski and Molenda (2007), "Theoretical shifts [in instructional technology] have changed the orientation of the field dramatically, from a field driven by the design of instruction to be delivered in a variety of formats to a field which seeks to create learning environments in which learners can explore often assisted by electronic support systems in order to arrive at meaningful understanding." (p. 2).

The results of this study seem to fall short of fully endorsing the assertions by Januszewski and Molenda. Our findings certainly do place a high value on the communicative and collaborative benefits of electronic support systems. Furthermore, respondents recognized the importance of fluency with technological tools, rating items related to staying current with technology consistently high. Delivery mode appears to be driven by convenience not a particular advantage of one mode or another.

However, results also reinforce the need to maintain sound instructional design practices in the face of emergent technological demands. It maybe argued to the extent that such practices remain the driving force in the field. Respondents placed the greatest value on the topics of Systematic Instructional Design, Instructional Design Models, Learning Theories, and Instructional Theories; not social networking or virtual environments. It would seem that even in this current age of unparalled technological advance, the historical foundations of the field still belong in the foundations course.

It may be somewhat presumptive to challenge to driving force of the field based upon the content of a foundations course, but As one respondent indicated, "It is not the technology that does all these things. It is the instruction behind how the technology is used to facilitate and support learning and instruction. All of these things can be enhanced or distracted by technology used."

## References


Beldarrain, Y. (2006). Distance education trends: Integrating new technologies to foster student interaction and collaboration. Distance Education 27(2) 139-153.

Boulos, M. N. K., Maramba, I., Wheeler, S. (2006). Wikis, blogs and podcasts: A new generation of Web-based tools for virtual collaborative clinical practice and education. BMC Medical Education, (41)6. Retrieved February 11, 2009 from http://www.biomedcentral.com/1472-6920/6/41.

Duffy, Peter D. and Bruns, Axel (2006) The use of blogs, wikis and RSS in education: A conversation of possibilities. In: Online Learning and Teaching Conference 2006, 26 Sep. 2006, Brisbane.

Gillard, C. (2007). Better teaching with Web tools: How blogs, wikis, and podcasts are changing the classroom. Harvard Education Letter, 23(3) 4-6.

Januszewski, A., Molenda, M. (2007) Definition. In A. Januszewski & M. Molenda (Eds.), Educational technology: A definition with commentary (pp. 1-14). Routledge/Taylor & Francis Group, London.

Klein, J. D., Brinkerhoff, J., Koroghlanian, C., Brewer, S., Ku, H., MacPherson-Coy, A. (2002). The foundations of educational technology: A needs assessment. Tech Trends 44(6), 32-36.

Klein, J. D., Martin, F., Tutty, J. I., Su, Y. (July-August, 2005). Teaching research to instructional design and technology students. Educational Technology, 45(4) 29-33.