ABSTRACT: This study focuses on identifying multimedia production competencies and skills on Instructional Design and Technology professionals. Current Instructional Design and Technology employers were queried on what skills and competencies a current graduate needs in order to succeed in their respective workplace. The results of this survey provide insight into the needs of specific Instructional Design and Technology organizations and facilitate redesigning curricula to meet these needs.

Overall Purpose

It is essential for educators to align their curricula to the needs of their respective disciplines and fields. This is as true for instructional design and technology educators as it is for any other field. The goal of just about every program of study in instructional design and technology is to prepare students to become capable and competent field professionals (Orey, McClendon, & Branch, 2007). In order to do this, continuous review and improvement of curricula is in order to ensure that courses will prepare students with the necessary competencies and skills to succeed in the workplace. The goal, one might posit, is to establish a seamless transition between the individual’s role as student and his or her role as instructional design and technology professional.

Any course of study in instructional design and technology must at some point address the issue of media production (Brown, 2004). Yet, multimedia production competency in particular may be difficult to determine as the tools used change, evolve, and fall in and out of popularity. The overall goal of this study is to implement a biennial survey on these multimedia production competencies and skills, querying current Instructional Design and
Technology employers on what skills and competencies that a current graduate needs to have in order to succeed in their respective workplace. This paper presents the results of the first set of biennial survey results.

This study is conducted in the hope that the data collected will help educators modify their respective curriculums to meet the need of students, employers, and the profession in general.

Background

For our initial study we decided to focus on multimedia production competencies and skills. These competencies and skills were identified in two sources: Earle and Persichitte’s (2005) AECT curriculum standards and Richey, Fields, and Foxon’s (2001) instructional design competencies. Specifically, these multimedia production competencies and skills focus on the following areas:

- Incorporate contemporary instructional technology processes in the development of interactive lessons that promote student learning (Earle & Persichitte, 2005)
- Produce instructional materials which require the use of multiple media (e.g., computers, video, projection) (Earle & Persichitte, 2005)
- Demonstrate personal skill development with at least one: computer authoring application, video tool, or electronic communication application (Earle & Persichitte, 2005)
- Use appropriate analog and digital productivity tools to develop instructional and professional products (Earle & Persichitte, 2005)
- Develop instructional and professional products using a variety of technological tools to produce text for communicating information (Earle & Persichitte, 2005)
- Design, produce, and use digital information with computer-based technologies (Earle & Persichitte, 2005)
- Use authoring tools to create effective hypermedia/multimedia instructional materials or products (Earle & Persichitte, 2005)
- Acquire and apply new technology skills to instructional design practice (Richey, Fields, & Foxon, 2001)
- Specify the capabilities of existing and emerging technologies to enhance motivation, visualization, interaction, simulation, and individualization (Richey, Fields, & Foxon, 2001)

As we began this study, we hoped the data collected would help answer our initial question on how to effectively match our respective curricula with the necessary competencies and skills required of an incoming instructional design and technology professional. We anticipated the results might considerably enhance our respective curricula as well as that of other educators’ Instructional Design and Technology programs.

In addition to discovering specific frequencies of various survey responses, we expected to identify significant relationships between various factors within the survey. For example, we hoped we might discover whether incoming instructional design and technology professionals who enter corporate settings are expected to have a different set of multimedia production skills than their counterparts who enter higher education settings.

Methods

We created a survey instrument comprised of fourteen questions that concentrated on the following areas: – Work setting (e.g., College/University, Corporate, etc.) – One’s role/position within organization (e.g., Instructional Designer, Project manager, etc.) – Years of experience and education level – Types of delivery system(s) (e.g., World Wide Web, Intranet/LAN, etc.) – Authoring applications (e.g., Flash, Dreamweaver, etc.) – Attributes that are most important to selecting an authoring application (e.g., price, advanced features, etc.) – Interactive media features that are commonly used (e.g., Customized Buttons, Local or Global Variables, etc.) – Authoring skills for incoming employees (e.g., If-Then Functions, Animation/Video Control, etc.).
Survey Questions:
1. Which of the following professional organizations do you belong to (check all that apply)
   - AACE
   - AECT
   - ASTD
   - ISPI

2. Which term best describes your work setting?
   - K-12
   - College/University
   - Military
   - Government (non-military)
   - Corporate/Business
   - Other (please explain: 

3. Which of the following best describes your role within your work setting?
   - Instructional Designer
   - Asset Manager
   - Project Manager
   - Evaluator
   - Media Producer/Developer
   - Programmer
   - Instructor
   - Other (please explain: 

4. How many years have you been employed in instructional media design/development?
   - Less than 2
   - 2 - 5
   - 6- 10
   - More than 10

5. Which of the following best describes how you acquired your professional knowledge and skills?
   - Graduate Degree (Master’s or higher)
   - College Degree (Associate’s or Bachelor’s)
   - On the Job Training
   - Private Training
   - Other (please explain: 

6. Do you outsource, or have other institutions or companies create instructional media to your specifications?
   - Yes
   - No

7. Is media production part of your professional responsibilities?
   - Yes
   - No

8. Do you oversee or specify content for media production personnel?
   - Yes
   - No

   If you answered “yes” to questions 7 or 8, please continue:

9. What content delivery system(s) do you design/develop for most often?
   - World Wide Web
   - Intranet/LAN
   - DVD/CD

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10. Which authoring applications do you or your media producers regularly use? (Check all that apply)
  __Flash
  __Director
  __Authorware
  __Toolbook
  __Dreamweaver
  __Other (please list: ____________________)

11. What attributes are most important to your choice of an authoring application? (Check all that apply.)
  __Price
  __Compatibility with other products/vendors, etc.
  __Advanced features
  __Ease of use
  __Industry Standards
  __Other (please explain:___________________)

12. Which aspects of interactive media do you regularly include in your instructional media designs?
   (Check all that apply)
  __Standard Buttons
  __Customized Buttons
  __Images that act as Buttons
  __Preset Screen Transitions
  __Linear Navigation
  __Non-Linear Navigation
  __Input Fields (text input)
  __Output Fields (text output)
  __Local or Global Variables (e.g. for keeping track of selections)
  __Math Functions (e.g. for keeping track of scores)
  __If-Then Functions (to determine the next step in a branching sequence based on user input)
  __User Feedback: Dialogue Boxes
  __User Feedback: Test Questions/Answers
  __Sound Files
  __Sound Control
  __Animation/Video files: MPEG, QuickTime, WMV..etc.
  __Animation files: Flash SWF, Director DCR…etc.
  __Animation/Video Control

13. What authoring applications should employees joining your organization be familiar with?
  __Flash
  __Director
  __Authorware
  __Toolbook
  __Dreamweaver
  __Other (please list: ________________)

14. What authoring skills should employees joining your organization have?
   The ability to create:
  __Standard Buttons
  __Customized Buttons
  __Images that act as Buttons
  __Preset Screen Transitions
  __Linear Navigation
  __Non-Linear Navigation
  __Input Fields (text input)
The survey was posted on the Web. Respondents provide their name and e-mail address to begin the survey itself. The survey itself is a form that transmits results to a database. Survey respondents were then solicited via listservs and discussion forums.

In determining which listservs and discussion to post survey solicitations, we decided to focus on Instructional Design and Technology organizations that are represented by the following associations: the American Society for Training & Development (ASTD); the Association for the Advancement of Computing in Education (AACE); the Association of Educational Communications and Technology (AECT); and the International Society for Performance Improvement (ISPI). We also sent survey solicitations to members of university departments of Instructional Design and Technology, requesting that the solicitation be forwarded to their programs’ alumni listservs and discussion forums.

Results

For our preliminary survey, we had 36 respondents. Over sixty percent of these respondents (22) worked in the College/University environment and over thirty-six percent of these respondents (13) worked in the Corporate/Business environment. One respondent reported working the in the K-12 environment. As illustrated in Figure 1, more than thirty-eight percent (14) of the respondents were instructional designers and over twenty-two percent of the respondents (8) were either instructors or project managers/directors. Two respondents were media producers and developers, two other respondents were evaluators and two other respondents were researchers and marked “other” on the survey. The respondents were a part of four Instructional Design and Technology associations (see Figure 2); almost 70% of the respondents were members of AECT. All of the respondents were involved with the media production process. Over eighty percent of the respondents (80.6%) administer or specify content for media production personnel and almost seventy percent of the respondents (69.4%) had media production as one of their professional responsibilities.

Figure 1: Responses to the question, “Which of the following best describes your role within your work setting?”
In determining the necessary computer-based authoring skills that an Instructional Design and Technology graduate needs to possess, we asked two questions: *Which authoring applications do you or your media producers regularly use?* and *What authoring applications should employees joining your organization be familiar with?*

Clearly, as illustrated in Figure 3, the top two choices were Flash and Dreamweaver. Though selected by individual respondents, Director, Authorware, and Toolbook were not as popular. A distinct third choice among respondents was the “Other” choice. Other applications consisted of a variety of applications, including: e-learning applications (i.e., Lectora and Articulate); screencast applications (i.e., Captivate), video and audio editing software (i.e., Final Cut Pro, Premiere, i-DVD, Audacity, and Pinnacle Studio Media); graphics editing software (i.e., Photoshop, Fireworks and Illustrator); Javascript and other programming languages; open-source applications; course management software (i.e., WebCT, Blackboard, Moodle, Contemplate, Breeze, and BBEdit); and PowerPoint.

Similarly, more than 70% of the respondents design and develop CBI applications for the Web and more than 35% of the respondents design and develop CBI applications for an Intranet and/or LAN (see Figure 4). Interestingly, over 40% of the respondents use CBI applications to design and develop printed materials. We also note a third of the respondents deliver their CBI programs via DVD or CD-ROM.

Figure 3: Responses to the question, “Which authoring applications do you or your media producers regularly use?” and “What authoring applications should employees joining your organization be familiar with?”

Figure 4: Responses to the question, “What content delivery system(s) do you design/develop for most often?”
We also wanted to establish a set of core CBI competencies that Instructional Design and Technology students need to have upon completion of their respective degree programs. In responding to the following two sets of questions, *Which aspects of interactive media do you regularly include in your instructional media designs?* and *What authoring skills should employees joining your organization have?*, respondents identified key CBI competencies (see Figures 5 and 6). We note that a majority of the respondents (~50%) identified using images as buttons, non-linear navigation (>60%), sound files (>60%) and animation files (>60%) as key CBI skills. Though not identified by a majority of the respondents, at least a third of the respondents noted that use of local/global variables, if-then statements, math functions, and sound and animation control also were essential CBI skills and competencies.
Figure 5: Responses to the question, “Which aspects of interactive media do you regularly include in your instructional media designs?”

Figure 6: Responses to the question, “What authoring skills should employees joining your organization have?”
Implications

36 responses represent a very small portion of the entire population of Instructional Design and Technology professionals. It would be unwise to generalize the survey results to the entire population, but the survey and its initial results are a place to begin the discussion on how best to align program curriculums with the needs of the professional Instructional Design and Technology community. For example the top two choices for authoring applications were Flash and Dreamweaver, which suggests that it may be prudent to use these applications in instructional media production course work; using the survey results to make a decision about this, even with a small pool of respondents, may be preferable to relying solely on the predilections or best guesses of a single faculty member or small faculty group. Most importantly at this point, the survey results suggest it may be possible to determine trends in the use of various software applications for instructional media design and production. Subsequent iterations of the survey would strive to increase the number of respondents to a number that might allow for generalization to the entire population.

This first effort may best be viewed as a pilot study, the result of which suggests to the authors that more research in this area is recommended, and that the use of a survey instrument similar or identical to the one used for this study applied to a larger pool of respondents may indeed reveal how to effectively match our respective curricula with the necessary competencies and skills required of an incoming instructional design and technology professional.

References


