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Instructional Design and E-Learning Survey Report

Group on Information Resources (GIR)
Online Interactive Educational Materials Project Team
of the Education Technology Work Group

Association of
American Medical Colleges

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This document was created by the Online Interactive Educational Materials Project Team of the Education Technology Work Group of the Group on Information Resources and is intended to identify common practices, share teaching and learning technologies, and to recommend the resources the AAMC should develop for instructional designers. All content reflects the views of the Instructional Designer Community of the GIR and does not reflect the official position or policy of the Association of American Medical Colleges unless clearly specified.

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Acknowledgments

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Instructional Design and E-Learning Survey Report

Background

The Online Interactive Educational Materials Project Team is a sub-group of the AAMC Group on Information Resources (GIR) Education Technology Work Group. The Project Team was tasked with exploring the needs of instructional designers in the field of medical education, with an ultimate goal to identify common practices, share teaching and learning technologies, and to recommend the resources the AAMC should develop for instructional designers. There were relatively few constraints about what the Project Team should focus on or how it should achieve its goals. During the academic year of 2018-2019, the Project Team developed and implemented a plan. This plan included 1) determining useful information that instructional designers want and/or need to know, 2) developing a comprehensive online survey, 3) collecting and analyzing the survey data, and 4) disseminating the results to the greater AAMC community. This report is the direct result of the survey findings. The next step is providing recommendations for development of the resources based upon these report findings.

Methodology

The survey was electronically distributed to three listservs managed by the AAMC as well as an open call, which was published in a May 2019 Group on Educational Affairs (GEA) Activity Report newsletter. The survey was open from May 17, 2019 until July 22, 2019. Survey respondents had the option of providing their email address for potential follow-up or remain anonymous. Internal Review Board (IRB) exempt status approval was received by Indiana University (IRB#1902448118). The survey asked participants to provide information regarding their current learning management systems (LMSs), eLearning modules, curriculum development, and professional development, as well as basic demographic information such as age, gender, highest level of school completed.

Respondent Demographics

160 participants responded to the survey. The participants' genders were 57.5% female and 36.9% male. The most prevalent (28.8%) age range of the respondents was 50-59 years old (see Figure 1). The most prevalent (53.8%) educational level of the respondents was a Master's degree (see Figure 2).

Figure 1. Which category includes your age?

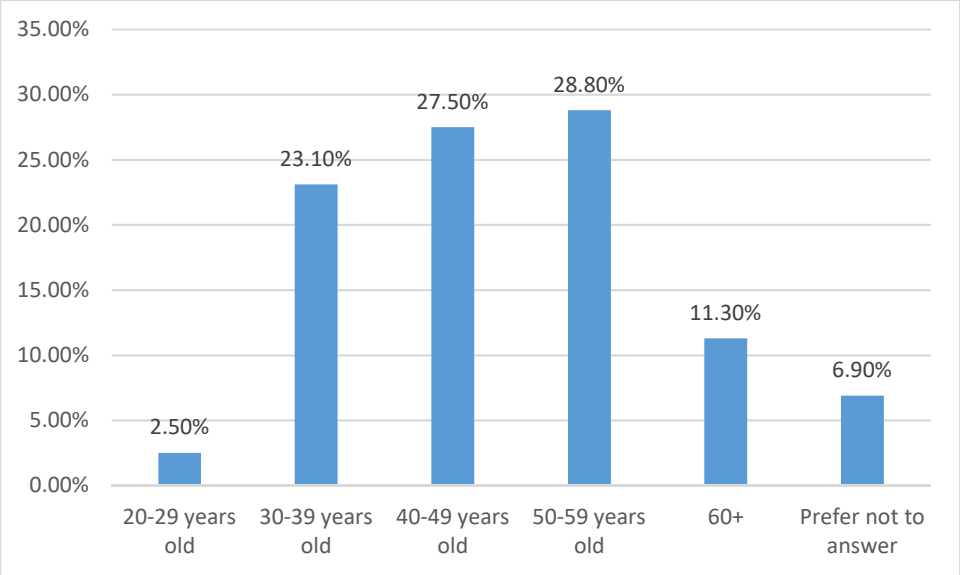
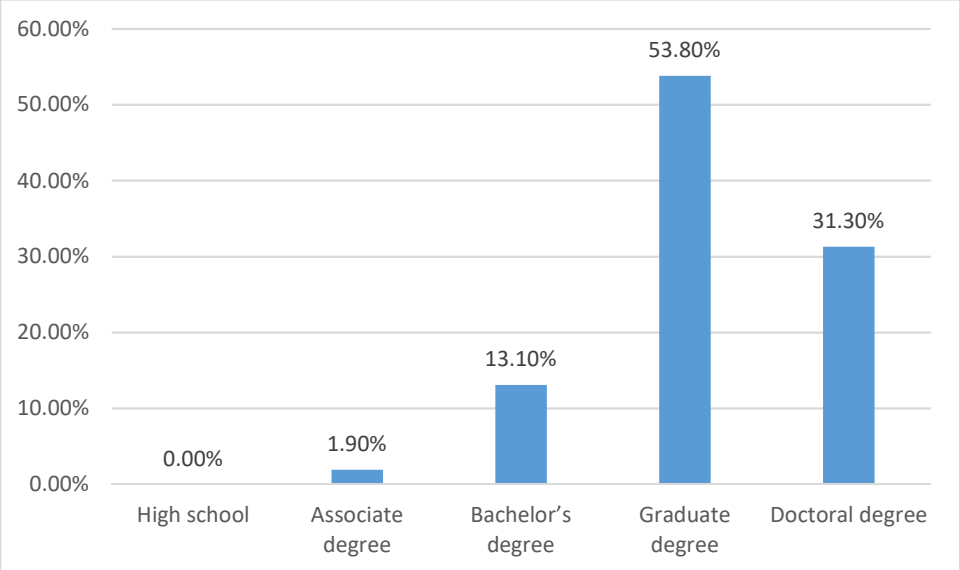


Figure 2. What is the highest level of school completed?



Results

This report represents the findings that could support informed decisions from the data analysis of the survey. While a high volume of data was collected, the focus of this survey was to identify areas in which

the AAMC can develop resources and tools for instructional designers (IDs). As such, the report is broken into the following themes:

- Instructional Design Models
- Instructional Tools
- Learning Management Systems
- Professional Development
- Workflow Processes

Instructional Design Models

Instructional design models and processes are the foundation by which IDs design and develop instructional materials. While there are a plethora of models and processes from which to choose, IDs often use more than one model to support their design and development practices. For this survey question, all 160 participants responded. It is important to note that many of the respondents indicated they that they use more than one model combining various frameworks and processes. As shown in Table 1, the most commonly used framework is Bloom's Taxonomy (19.9%), followed by the traditional process of ADDIE (Analysis, Design, Development, Implementation, and Evaluation) at 15.8%. Backward Design is the third instructional model which the respondents frequently listed (14.32%). Interestingly, 2% responded that they do not use any model or process (see Table 1).

Table 1. Which of the following instructional design models do you use to create eLearning materials (choose all that apply)?

	Count	%
Bloom's Taxonomy	79	19.85%
ADDIE	63	15.83%
Backwards Design	57	14.32%
Rapid Prototyping	40	10.05%
Kolb's Learning Cycle	31	7.79%
Dick & Carey Instructional Design Model	27	6.78%
Successive Approximation Model (SAM)	20	5.03%
Other	19	4.77%
Kemp Design Model	15	3.77%
Keller's ARCS Model	14	3.52%
Thomas, Kern, Hughes & Chen	13	3.27%
Significant Learning	12	3.02%
None	8	2.01%
Total	398	100.00%

**see appendix A for list of "other"*

Instructional Tools

For the sake of this survey, instructional tools are defined, essentially, as any type of authoring tools/software utilized by IDs. As with models, many more than one tool were used by any one ID. A total of 558 instructional tools were reported by participants with Microsoft PowerPoint™ as the most used tool (16.5%), followed by Camtasia (12.4%) (see Table 2).

Table 2. Which of the following authoring tools are you currently using to create eLearning learning materials (choose all that apply)?

	Count	%
PowerPoint	92	16.5%
Camtasia	69	12.4%
Articulate Storyline	47	8.4%
LMS (built in authoring tools)	42	7.5%
Articulate 360	41	7.3%
Adobe Captivate	39	7.0%
Panopto	35	6.3%
Other*	31	5.6%
SnagIt	30	5.4%
Articulate Studio	18	3.2%
Echo 360	18	3.2%
Prezi	17	3.0%
Mediasite	15	2.7%
Adobe Presenter	14	2.5%
Office Mix	13	2.3%
Jing	11	2.0%
Piktochart	9	1.6%
SoftChalk	8	1.4%
Mediasite Desktop Recorder	5	0.9%
Lectora	4	0.7%
Total	558	100.0%

**see appendix B for list of "other"*

There was a weak correlation with those using Camtasia and Articulate 360 (r=0.356), Articulate Storyline (r=0.353), and Articulate Studio (r=0.249). There was also a moderate correlation between Desktop Recorder and Mediasite (r=0.392). With regard to combining instructional tools and LMS systems, there is a weak correlation between Adobe Presenter and Sakai (r=0.332), Articulate Storyline and Sakai (r=0.233).

Learning Management Systems

Nearly all respondents use an LMS to deliver curricular content. The top LMS used is Canvas (30.9%), followed by Blackboard (18.1%). There were four respondents (2.1%) that do not use an LMS (see Table 3).

Table 3. Which learning management system(s) (LMS) does your medical school use (choose all that apply)?

	Count	%
Canvas	58	30.9%
Blackboard	34	18.1%
Other	31	16.5%
Developed in house/homegrown	19	10.1%
D2L	15	8.0%
Moodle	14	7.4%
Sakai	12	6.4%
We do not use an LMS	4	2.1%
Total	188	100.0%

**see appendix C for list of "other"*

Professional Development

IDs are an integral part of curriculum development. As technology is constantly shifting, professional development is important for IDs to stay current with emerging tools and learn new skills. In response to the question about the areas they would like additional training, respondents often selected more than one response. The majority of respondents ranked "creative media/activities to enhance student engagement" as their first choice (11%), followed by "enhancing student collaboration" (8.3%), "creating infographics" (7.5%), and "LMS analytics" (7.4%) (see Table 4).

Table 4. You would like training in the following areas (choose all that apply):		
	Count	**%**
Creative media/activities to enhance student engagement	58	11.0%
Enhancing student collaboration	44	8.3%
Creating infographics	41	7.8%
LMS analytics	39	7.4%
Rubrics for assessing student learning	35	6.6%
Using concept mapping	31	5.9%
Impactful discussion board questions	30	5.7%
Team-based learning	27	5.1%
Graphic design software (list all)	23	4.4%
Managing large class sizes (projects, grading)	23	4.4%
Using social media in online courses	23	4.4%
Flipped classroom	20	3.8%
How to record and use Podcasts	18	3.4%
Incorporating pre-and post-tests	17	3.2%
Video editing software (list all)	16	3.0%
Knowledge check tools like Kahoot! or Quizlet	14	2.7%
Blogging and Wikis	14	2.7%
Recording a course introduction/lecture with multimedia	12	2.3%
Student surveys	11	2.1%
LMS (list all)	10	1.9%
None	10	1.9%
Authoring tools (list all)	8	1.5%
Other	3	0.6%
Total	527	100.0%

**see appendix D for list of "other"*

When asked which professional development formats are a best fit for their professional development needs, 21.3% indicated "conferences" while 18.7% selected "online certificate training" (e.g., Lynda.com, Coursera, edX, etc), and 18.4% selected "communities of practice" such as EDUCAUSE, GIR, etc. (see Table 5).

Table 5. Which of the following professional development formats best fit your professional development needs (choose all that apply)?		
	Count	**%**
Conferences	66	21.3%
Online certificate training (Lynda.com, Coursera, edX, Quality Matters, etc.)	58	18.7%
Communities of practice (EDUCAUSE, GIR, etc.)	57	18.4%
Institutional training sessions	50	16.1%
Informal spaces (social media, listservs)	47	15.2%
Academic degree courses	20	6.5%
Other	8	2.6%
None	4	1.3%
Total	310	100.0%

**see appendix E for list of "other"*

When asked what barriers IDs face in participating in professional development, 39.0% selected "time" as their number one barrier, 30.5% selected "financial support" as their number one barrier, and 13.3% selected "leadership buy-in" as their number one barrier (see Table 6).

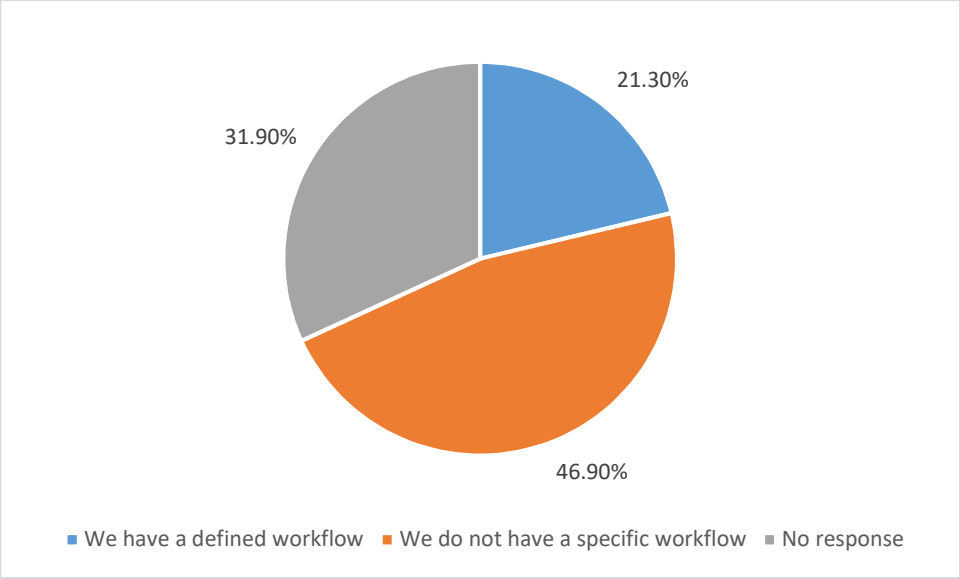
Table 6. Please rank the barriers that discourage you to participate in professional development in order of relevance with 1 being most relevant.		
Barrier	**Count**	**% ranked #1**
Time	41	39.0%
Financial support	32	30.5%
Leadership buy-in	14	13.3%
Lack of resources	5	4.8%
Institutional policy	3	2.9%
Not enough course development knowledge	3	2.9%
Staying abreast with the technology and pedagogy	2	1.9%
Other	5	4.8%

Workflow Processes

For this report, workflow process is loosely defined as how eLearning materials are designed and developed at the respondents' medical school. This process begins when the ID is notified about a project and ends when the project has been completed. Of those who responded to this related question, 68.8% reported that they do not have a defined workflow process (see Figure 3). Twenty-four respondents shared examples of their workflow processes. Among those that provided a description of their defined workflow, the projects typically start off with an initial consultation between an ID and the subject matter expert (SME). After this meeting, the SME creates the contents (PowerPoint™ is used most often), followed by the design team that creates the prototype, combining the ID model/theory and technology.

According to respondents, the prototype is reviewed (ideally with usability testing) and eventually launched in an online environment such as their LMS. It was also noted in the responses that most schools evaluate and update their curricular materials annually.

Figure 3. Which of the following best describes the development process/workflow for creating eLearning materials in your medical school?



Next Steps

The AAMC Group on Information Resources (GIR) will review the survey data. From this review, specific workgroups will be formed to address the determined problems that medical school IDs face. The goal of these workgroups is to develop resources that will be available to all IDs in medical education. The timeline for these resources varies; however, most will be available by October 2020. Updates will be posted.

Appendix A: Other Instruction Design Models Used

AGILE	1
4CID (van Merrienboer)	1
ACTIONS	1
Anderson and Krathwohl (2001) which was built off Bloom	1
Andragogy	1
ASSURE	1
Charlotte Danielson's work	1
design thinking	1
First Principles of Instruction (Merrill)	1
Framework for teaching and learning	1
Gagne's 9 Events	1
Principle of Multimedia Learning (Mayer)	1
Project dependent	1
SAMR	2
Team-Based Learning	1
We have designed a Six Step Active Learning Design Process	1
Wiggins & McTighe - Understanding by Design	1

Appendix B: Other Authoring Tools Used

365 Notebook	1
Adobe After Effects	1
Adobe Captivate	1
Adobe Illustrator	1
Adobe Photoshop	1
Adobe Premiere	1
Cidi labs tools	1
Evolve	1
Explain Everything	1
Green screen video recording	1
H5P	2
IBooks	5
HoloLens	2
iSpring	1
Jamboard	1
Kaltura	4
KuraCloud (LT)	2
mdcases.net	1
Near Pod	1
Oculus	2
Office365	1
OneNote (SharePoint)	1
PlayPosit	1
Powtoon	1
Qstream	1
Qualtrics	1
Rev Create for lecture capture	1
Screenflow	3
SoftChalk	1
SurfacePro Tablet	1
Techsmithrelay	1
Video production	2
Videoscribe	1
VoiceThread	1
YouTube	1

Appendix C: Other LMS Used

Blusky eLearning	1
Brightspace for UME, Cloudcme for CME	1
Cornerstone product modified with the company to meet the needs of our organization.	1
DaVinci Education (formerly LCMS+)	2
Docebo	1
Elentra	6
Entrada with modifications in-house	2
Examsoft	1
Heavily modified	1
Home Grown LMS, TUSK	1
ILIOS developed in-house, but we do use Moodle as a repository and for the quizzing feature	1
LCMS+ and Oasis	1
LCMS+/Leo	2
LearningSpace	1
OASIS	1

Appendix D: Other Training Areas

Graphic design software		
	Adobe After Effects	1
	Adobe Creative Cloud	3
	Adobe Illustrator	4
	Adobe Indesign	1
	Adobe Photoshop	6
	Adobe Premiere Pro	1
	Dimension	1
	Doodly	1
	Gimp	1
	More technology to make digital learning more engaging	1
	Software for designing 3-D images	1
	Spark	1
	Photoshop, Illustrator, InDesign	1
Video editing software		
	Adobe Premiere	5
	Camtasia	2
	Final Cut Pro	
Authoring tools		
	Adobe Captivate	2
	Articulate 360	2
	Articulate Storyline	2
	Panopto for both faculty and student video authoring	1
LMS		
	Canvas	6
	Moodle	2
	Basic options	1
Other		
	App developmet	1
	Augmented Reality	1
	Github	1
	Mixed reality	1
	Virtual Reality	1

Appendix E: Other Professional Development Formats

I have seen some online conferences that have been fantastic - one of the learning communities did quarterly learning days that were great to set aside for a series of webinars. Degree courses are by nature expensive and my dept burden is already onerous, communities of practice on a large scale are frankly overwhelming and rarely applicable to what is needed in my corner of the 'verse. Something more pick and choose is needed, preferable with something at the end that I can show an accomplishment from - perhaps badge or competency/certificate system would be most suitable
Online webinar style training
Online webinars
Personalized just in time; I have specific project to deliver under time constraints
Third-party certification training
YouTube