

# **The Journal of Applied Instructional Design**

July 2021



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# EdTech Books



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# About the Journal

During the past 50 years, journals in the field of instructional design have been responsive to the changing needs of both scholars and to a lesser degree, the practitioner. We have seen an evolution of AVCR to ECTJ, the emergence of JID, and finally the merging of ECTJ and JID to form ETR&D. ETR&D is a widely recognized, scholarly journal in our field that maintains rigorous standards for publications.

During the past 50 years, we have also witnessed a change in the field due in part to the success of instructional design in business and other nonschool environments. The number of instructional designers working outside the university has dramatically increased. Of particular importance is the rise in the number of instructional designers with doctorates who consider themselves practitioners, but not necessarily scholars. This growing group of designers might be best described as reflective practitioners who can make a significant contribution to the knowledge of our field.

This growth and success in the application of instructional design has also changed the field. From the early days of the field until the mid-1980's, the theory and practice of instructional design was almost exclusively influenced by the academic community. With the growth of instructional designers, the theory and practice of the field is now defined by both academics and practitioners. There is a need for greater communication between the scholars and the practitioners in a scholarly journal that will support innovation and growth of our knowledge base.

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## Goals

The purpose of this journal is to bridge the gap between theory and practice by providing reflective practitioners a means for publishing articles related to the field. The journal establishes and maintains a scholarly standard with the appropriate rigor for articles based on design and development projects. Articles include evaluation reports (summative and formative), lessons learned, design and development approaches, as well as applied research. The articles are based on design and development projects as opposed to pure research projects and focus on lessons learned and how to improve the instructional design process. Rigor is established through articles grounded in research and theory.

A secondary goal of this journal is to encourage and nurture the development of the reflective practitioner in the field of instructional design. This journal encourages the practitioner as well as collaborations between academics and practitioners as a means of disseminating and developing new ideas in instructional design. The resulting articles inform both the study and practice of instructional design.

## Philosophy

This journal will provide a peer-reviewed format for the publication of scholarly articles in the field of applied instructional design. The journal recognizes the role of the practitioner in the work environment and realizes that outside constraints may limit the data collection and analysis process in applied settings. The limitations of real-world instructional design of the practitioner can still provide valuable knowledge for the field.

# Sponsoring Organization

JAID is a publication of the [Association for Educational Communications and Technology](#) (AECT).

JAID is an online open-access journal and is offered without cost to users.

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## About AECT



The [Association for Educational Communications and Technology](#) (AECT) is a professional association of instructional designers, educators and professionals who provide leadership and advise policy makers in order to sustain a continuous effort to enrich teaching and learning. Seizing opportunities to raise awareness and leverage technology, our members may be found around the world in colleges and universities, in the Armed Forces and industry, in museums, libraries, and hospitals, and in the many places where educational change is underway. Our research and scholarly activity contribute to the knowledge base in the field of Learning. We are on the cutting edge of new developments and innovations in research and application.

AECT is the premier organization for those actively involved in the design of instruction and a systematic approach to learning. We provide an international forum for the exchange and dissemination of ideas for our members and for target audiences. We are the national and international voice for improvement of instruction and the most recognized association of information concerning a wide range of instructional and educational technology. We have 24 state and six International Affiliates all passionate about finding better ways to help people learn.

Since 1923, AECT has been the professional home for this field of interest and has continuously maintained a central position in the field, promoting high standards, in both scholarship and practice with nine Divisions and a Graduate Student Assembly that represent the breadth and depth of the field. Other journals sponsored by AECT include [Educational Technology Research and Development](#) and [TechTrends](#).

*The Journal of Applied Instructional Design* (JAID) is a refereed online journal designed for the publication of scholarly articles in the field of applied Instructional Design. The purpose of JAID is to provide the reflective ID scholar-practitioners and researchers a means for publishing articles on the nature and practice of ID that will support the innovation and growth of our knowledge base. The journal is for practitioners, instructors, students, and researchers of instructional design.

## Call for Submissions

JAID is for reflective scholar-practitioners, who through documentation of their practice in ID, make significant contributions to the knowledge of our field. Authors are invited to submit articles documenting new or revised approaches to ID; the processes of ID including in-depth documentation of analysis, design, and development, implementation and evaluation; design-based research; as well as applied research. Articles must be based on instructional design projects as opposed to pure research projects and focus on documented processes, lessons learned, and how to improve the overall process of ID. Articles must be grounded in research and theory connecting the intellectual foundations of the ID field and how these foundations shape its practice.

The journal will establish and maintain a scholarly standard with the appropriate rigor for articles based on design and development projects. A secondary goal of this journal is to encourage and nurture the development of the reflective practitioner in the field of ID. This journal encourages the practitioner as well as collaborations between academics and practitioners as a means of disseminating and developing new ideas in ID. The resulting articles should inform both the study and practice of ID.

[Submit an Article](#)

## Article Types

JAID currently accepts submissions of three article types.

### Instructional Design Practice

This is an applied journal serving a practicing community. Our focus is on what practitioners are doing in authentic contexts and their observed results. These articles cover topics of broad concern to instructional design practitioners. The articles should represent issues of practical importance to working designers.

### Research Studies on Applied Instructional Design

JAID is interested in publishing empirical studies exploring the application of instructional design principles in applied settings. Quantitative and qualitative studies are welcome.

### Instructional Design/Performance Design Position Papers

JAID also accepts position papers that attempt to bridge theory and practice. Examples may include conceptual frameworks and new ideas facing the instructional design community. The paper must also provide enough information to allow the replication of the innovation or continuation of the research in other settings. Position papers must be based in the context of a theoretical framework. Efficacy data is strongly preferred, but not always required, contingent upon the potential generalizability or value of the innovation.

## Submission Guidelines

The journal will focus on in-depth applications of the ID process and publish a variety of articles including case studies of the ID process; application articles that go beyond a mere how-to approach that provide implementation insights, guidance and evaluation of a process; evaluation articles that focus on the viability of a product or process; applied research resulting from evaluation of materials, studies of project implementation, articles on ways to improve the ID process from the perspective of the practitioner, and short essays that provide a scholarly debate of relevant issues related to the application of ID and relevant book reviews. When applicable, articles should include supplementary materials including examples of ID products, evaluation instruments, media files, and design artifacts.

The articles in the journal will be from the perspective of the scholar-practitioner rather than from the researcher. However, the manuscripts must demonstrate scholarly rigor appropriate to applied manuscripts.

Articles, including tables or figures, must follow APA 7th edition formatting and be submitted in a word or doc format using at least 12-point New Times Roman font. Each article must have an abstract (75-100 words) and a list of keywords. While there is some flexibility in the length of an article, 4,000 to 5,000 words is a best-guess estimate. If in doubt, contact the editor prior to submitting the article. Identifying information must only be located on the cover page including contact information for the first author.

You may contact the editors via email if you have further questions.

Contact the Editor



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# A/B Testing on Open Textbooks

## A Feasibility Study for Continuously Improving Open Educational Resources

Royce Kimmons

DOI:10.51869/102/rk

Open Educational Resources

Continuous Improvement

A-B Testing

Open Textbooks



*This study examined the feasibility of employing A/B tests for continuous improvement by focusing on user perceptions of quality of six chapters of a popular open textbook over the course of a year. Results indicated non-significant differences in all cases but also suggest that future work in this area should (a) employ A/B testing at a broader, less-granular (e.g., platform-level) scale to increase sample sizes, (b) explore autonomous approaches to experimentation and improvement, such as bandit algorithms, and (c) rely upon more universally collected dependent variables to reduce sample size limitations emerging from self-reports.*

## Introduction

Open educational resources provide great promise to instructional designers as low-cost, high-impact educational materials that can be used, shared, remixed, and adapted with ease. Especially when viewed through the lens of the “5Rs” of openness (Wiley, n.d.)—Retain, Revise, Remix, Reuse, Redistribute—or the lens of “expansive openness” (Kimmons, 2016), such resources give instructional designers the ability to create and share learning materials at a massive scale, to adapt existing resources for better meeting the needs of target learners, and to remix resources from various authors into multi-faceted and rich learning experiences.

Because of the ubiquity of textbooks in higher education, the open textbook as a medium promises to be a valuable means for providing learning opportunities to many students while also driving down costs. Students at four-year universities in the U.S. currently spend an average of \$1,240 on textbooks per year (College Board, 2019), and textbook cost hikes have far outpaced inflation, consumer costs, and recreational book costs, making higher education opportunities more cost-prohibitive and requiring students to skip meals, enroll in fewer courses, and work longer hours

(Whitford, 2018). While open textbooks provide an opportunity for universities to drive down student costs and to improve learning experiences, open textbooks are not widely used (Seaman & Seaman, 2018). This is presumably due to perceptions of time limitations emerging from tenure and promotion practices and perceptions that open textbooks are of relatively poor quality when compared to their copyright-restricted alternatives (Kimmons, 2015; Martin & Kimmons, 2020).

Though systemic challenges to open textbook adoption may be outside the realm of instructional designers to address, one clear way that we can make a difference is to help improve the quality of these resources. Some initial work has sought to establish quality metrics for open textbooks and other open resources (Bodily et al., 2017; Woodward et al., 2017), and Dinevski (2008) proposes that the quality control of these resources is relatively unique by placing accountability in the hands of learners, teachers, and local designers to address localized or demographic-specific needs, rather than upon market-driven publisher considerations. Furthermore, though traditionally published textbook editions are viewed as static entities that are either high- or low-quality, because of their live and open nature, open textbooks can also undergo continuous improvement efforts that iteratively improve their quality over time, correcting mistakes, refining formatting, and providing supplements as needed to improve learning (Wiley et al., 2021).

For these reasons, applying continuous improvement cycles to open educational resources is of increasing interest to designers, but we are only just beginning to figure out how to do this well, especially when large-scale data are involved and resources are being used by a wide array of learners. Borrowing from the software development field (the same field where the notion of openness came from, to begin with; Kimmons, 2016; Open Source Initiative, n.d.; Stallman, 2013), it seems reasonable to consider how modern approaches to software improvement might apply to educational resources as well. As a promising example, A/B or split testing is an approach to software development that places at least two different versions of a product in front of random sets of actual users and analyzes their behaviors over time to determine which is superior (Kohavi & Longbotham, 2017).

When it comes to education, A/B testing has been proposed not only as a process for improving design but also as a process for choosing between competing pedagogical methods or other decisions of educational importance (UpGrade, n.d.). In the case of open textbooks, A/B testing would require having at least two versions of content that users interact with. The “A” version (otherwise called the original version or control) represents the default version of the resource as originally created by the author, while the “B” version (otherwise called the experimental flight or fork) represents a variation of the resource that the researcher hypothesizes might yield differing behaviors or results. To make comparisons, audience size for each version may not need to be equal, and relative sampling for different versions may involve an assessment of the urgency and relative importance of experimental variations. As readers are assigned to the competing versions of the textbook, a variety of analytics could be collected to test which version is superior, and successive tests could theoretically be employed on the same resource to gradually improve it in many different ways.

Bringing these ideas together, this study explores the feasibility of using A/B testing to inform continuous improvement and increase the perceived quality of open textbooks. Relying upon data collection and analysis mechanisms of a popular open textbook for undergraduate and teacher education, the guiding research question of this study was “How feasible is it to conduct A/B testing on highly-used open textbook chapters for the purpose of improving perceptions of quality?”

## Methods

To conduct this study, experimental flights were created within the EdTech Books system by copying six chapters as new flights (or “B” versions), adjusting their contents, and setting each chapter’s “Flight Mode” to “Automatic.” The automatic mode meant that whenever any reader navigated to the chapter, they were randomly assigned to either view the original or the experimental flight. This assignment was done without the reader’s awareness and ensured true randomization. Flight assignment was enabled for a period of 12 months (February 2020 to February 2021), and results were then analyzed to compare reader behaviors and perceptions for the time period. As a methodological note, though

this timeframe coincided with the COVID-19 pandemic in many countries and resulting shifts to online and remote learning might have influenced overall usage of open resources, such a shift would not be expected to influence the types of user behaviors measured here between groups. For instance, though more people might have started reading the textbooks because of the pandemic, we would not expect this to influence the relationship between text size within the textbooks and reading behaviors. For this reason, we did not conclude that the targeted timeframe for the study should be considered as an additional variable or meaningful frame of analysis.

## Context

EdTech Books is a free online publishing platform for open textbooks. Built with PHP, MySQL, and Javascript, the platform operates on four guiding values of freedom, accessibility, usability, and quality, providing authors with tools to easily create, remix, and share textbooks (Kimmons, n.d.). Currently, the platform provides content to roughly 50,000 unique readers per month, representing students, teachers, and the general public. Content is provided in simple HTML via web pages and also as PDFs for download, representing millions of page views over the course of its two-year lifespan.

Central to the mission and design of EdTech Books is the goal of supporting continuous improvement and improved perceptions of open textbook quality. Toward this end, the system provides A/B testing features, quality assurance mechanisms, advanced analytics, and various other tools to support ongoing analysis, adjustment, and improvement of materials. However, since the notion of continuous improvement is not commonly connected to the development of published materials, like textbooks, it is unclear how to do this well and how to develop systems that both empower and encourage authors to engage in this process.

For this study, I analyzed results from six experiments conducted within EdTech Books upon separate chapters of a popular open textbook: *The K-12 Educational Technology Handbook* by Ottenbreit-Leftwich and Kimmons (2020). This textbook has been accessed over 120,000 times in its short lifespan and is widely used for teacher education courses and professional development efforts and is also commonly accessed from search engine results on topics related to technology's role in education.

## Participants

As readers accessed the textbook on the platform for the first time, they were notified that the system collects anonymous analytics related to their behaviors, and they were given the option to opt-out of being tracked in this way. For this study, I focused on opted-in reader data associated with this single textbook.

As with other textbooks in the platform, readers of the textbook accessed chapters in many ways but generally fell into two categories: (a) formal learners who accessed chapters from links or LMS embeds associated with official university courses and (b) non-formal or informal learners who accessed chapters from organic search engine results (e.g., those searching Google for "tech integration"). Backlink analysis of the textbook revealed that it was heavily used by students at a number of universities, including Brigham Young University, Marist University, Oklahoma State University, State University of New York, Montana State University, Purdue University, and others. The breakdown of formal vs. non/informal learners, however, varied from chapter to chapter with some chapters like "Technology Integration" experiencing a relatively even split between the two and others exhibiting high skew in one direction or the other. Even within these categories, we would expect to find great variation in reader goals, purposes, and activities, as higher education institutions use these resources for diverse courses. For the purpose of this study, reader type was not considered in data analysis, and the flight assignment procedure did not take reader category into consideration for random assignment, meaning that the demographics of both the original and experimental versions of each chapter would be expected to exhibit similar distributions of reader types to the overall chapter. This was an intentional design decision but assumes that optimal design decisions for improving perceived quality would not vary by reader category.

## Dependent Variable

Because perceptions of poor quality are a major barrier to open textbook adoption and diffusion (Kimmons, 2016; Martin & Kimmons, 2020) and the improvement of perceived quality is a major goal stated on the platform, we constructed experiments with the goal of improving reader perceptions of quality, as measured by a simple survey. This single-question survey was provided as an unobtrusive “End-of-Chapter Survey” at the bottom of each chapter that asked the following: “Overall Quality: How would you rate the overall quality of this chapter?” Possible responses were coded to an ordinal scale as follows: (1) “Very Low Quality,” (2) “Low Quality,” (3) “Moderate Quality,” (4) “High Quality,” and (5) “Very High Quality.” The form was then automatically submitted as readers navigated away from the chapter or closed their browser tab, resulting in an average quality rating of 4.1/5.0 for the targeted textbook chapters ( $n = 963$  ratings,  $SD = .67$ ). Results also exhibited a strongly negative skew, with only 4 ratings (0.4%) falling below “Moderate Quality” (see Figure 1). These ratings represented results from 810 different users with the average user leaving 1.19 ratings across chapters in the book ( $SD = .75$ ,  $Max = 10$ ).

**Figure 1**

*Distribution of Textbook Ratings*

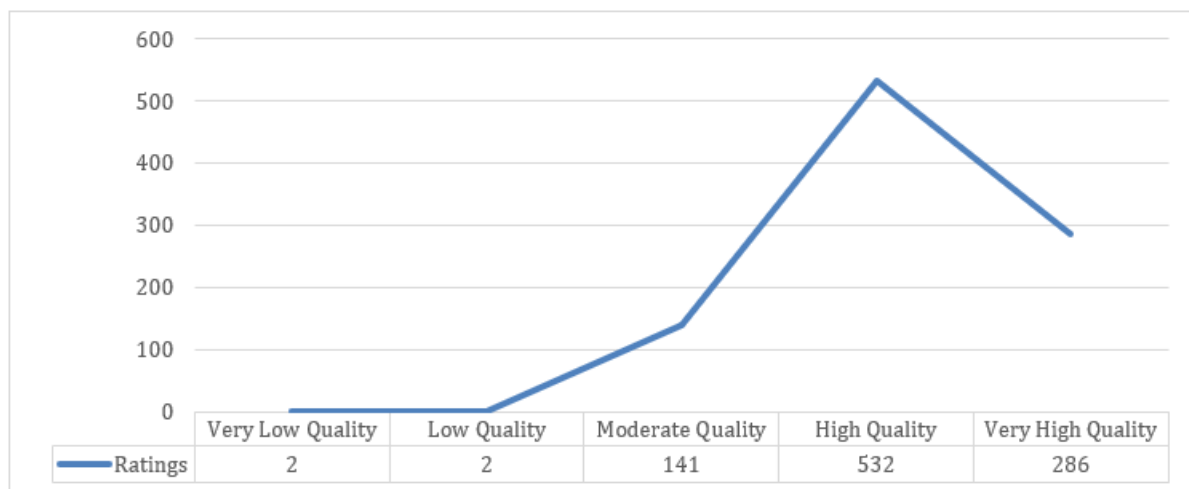


Chart showing the distribution of textbook ratings

The unobtrusive and optional nature of this survey helped to avoid Hawthorne effects in results and provided similar benefits to those found in the analysis of public internet data sources (Kimmons & Veletsianos, 2018), even though some interpretive power was lost with limited contextual information about readers. This approach also provided minimal risk, effort, and discomfort to users and prevented analyses from being classified as human subjects research according to NIH definitions, because the process (a) did not collect information about individuals and (b) did not include identifiable data, such as demographics, names, user type information (e.g., student vs. faculty), or IP addresses. This means that the sample size for each experiment was limited to those who anonymously answered the quality assurance measure at the end of the chapter, which accounted for around 1% of readers for each chapter.

Though such a low response rate would be troubling in some research settings, the fact that readers were randomly assigned to the two groups helps to alleviate concerns of self-selection bias, and low rates of response will always be a necessity when using unobtrusive measures of relatively free-roaming user activities like these. This point is of special importance when studying open resources, because most of the traffic (or user behavior) associated with these resources constitutes lurking (Bozkurt et al., 2020) or those who may briefly open the chapter without any intent to actually read it. To illustrate, Google Analytics reported that the bounce rate for the book in this time period (or the number of users who navigated away after viewing only one page) was 71.85% with the average user session lasting



less than 3 minutes. This is why, for instance, MOOCs have such notoriously low completion rates (Gütl et al., 2014; Rivard, 2013) and why when studying open environments and resources it makes sense to limit analyses to users whose behaviors suggest an intent to participate in the behaviors we are measuring (e.g., Veletsianos et al., 2021). Judging by user scrolling behaviors, time on page, textual length, and chapter text complexity for the target textbook, it is estimated that only about 22.7% of page views actually constituted a “read” of the contents, and among those who read the contents, there was no incentive or prodding to complete the end-of-chapter survey. Yet, such data should nonetheless be valuable for understanding user perceptions of resources in the same way that user ratings are valuable on sites like Amazon or Yelp to determine the quality of products or services, even if the relative representation of ratings is very small in comparison to the total number of customers on those sites.

Embedded automatically by the platform at the end of every chapter, quality assurance surveys provided results to authors in an “Analytics” dashboard at the flight, chapter, and book levels (see Figures 2 and 3). In the “Analytics” dashboard at the flight level, an additional table was also provided to authors that provides statistical comparisons between the original and the experimental flight (see Figure 4). These tables allowed authors to compare reader behaviors between the original and the experimental flight on the “Overall Quality” measure as well as embedded learning checks and surveys in the chapter. In the provided example, for instance, each row (except for the final “Overall Quality” row) represents a different learning check within the chapter, and the table reveals to the author whether the experimental flight influenced performance on the learning measure. Because these learning measures are chapter-dependent, they cannot be compared between chapters and will not be included in this study. However, common learning measures could be compared in future studies as readers are more likely to complete these than quality assurance surveys, thereby providing more robust sample sizes at a faster rate.

**Figure 2**

*Screenshot of the Analytics Overview for a Chapter on EdTech Books*

👍 Overall Rating	4.1/5.0 ★★★★★☆
👍 Total Ratings	253
📄 Page Views	19.0K
📄 Tracked Views ⓘ	20.7K
📄 PDF Downloads	443
💰 Cost Savings ⓘ	\$1.2K
👁 Reading Ease ⓘ	Very Difficult (28.1)
👁 Grade Level	12+
👁 Word Count	5,111
👁 Reading Time ⓘ	27 minutes
👁 Predicted Reads ⓘ	5.9K
👁 Reading Likelihood ⓘ	28%
✍ Last Updated	2020-06-28 17:28:21

Chart showing the analytics categories to evaluate a chapter on EdTech Books

**Figure 3**

*Screenshot of a Chapter Quality Display for a Chapter*

Selection	Votes
Very Low Quality	0
Low Quality	1
Moderate Quality	47
High Quality	133
Very High Quality	72

Screenshot Showing the Chapter Quality Ratings

**Figure 4**

*Screenshot of a Flight Comparison Table*

	Original			no stock photos			Change	Welch t-Test	p- value	Cohen's d
	Mean	n	SD	Mean	n	SD				
teacher-values	1.37	336	0.82	1.46	270	0.85	0.09	1.32	NS	0.13
networked- thinking	0.72	410	0.69	0.78	308	0.55	0.06	1.35	NS	0.16
stimulus	0.81	389	0.58	0.78	299	0.65	-0.03	-0.69	NS	0.09
inner-workings	0.74	386	0.71	0.77	298	0.7	0.03	0.49	NS	0.05
prior- experiences	0.75	379	0.6	0.81	298	0.54	0.05	1.22	NS	0.17
tech-admin- values	1.6	331	0.68	1.64	261	0.65	0.05	0.89	NS	0.11
principal- values	0.96	332	0.84	0.97	259	0.83	0.01	0.12	NS	0.01
pck	0.69	327	0.67	0.63	256	0.81	-0.06	-0.99	NS	0.11
pic	0.81	331	0.65	0.85	255	0.63	0.04	0.76	NS	0.1
rat	0.94	333	0.36	0.91	256	0.43	-0.02	-0.68	NS	0.14
usefulness	3.93	336	0.96	3.89	266	0.93	-0.04	-0.49	NS	0.04
Overall Quality	4.09	256	0.7	4.19	195	0.63	0.11	1.66	NS	0.23

Chart showing a flight comparison table

## Independent Variables

To improve perceived quality of the targeted chapters, format- and content-based experiments were created for six different chapters in the textbook, with each experimental flight representing a different variable to be tested. When creating learning content, design decisions are highly contextual. For instance, there is no consensus in the design research literature on whether video is useful for learners simply because the answer depends so much upon contextual factors—such as (a) the type of video, (b) the quality of video, (c) its relationship to the text, (d) the age and characteristics of the learner, etc.—and even proposing decontextualized design decisions that are intended to be universally applied (like “what are the effects of video on instruction?”) has come to be viewed as a misguided or altogether confounded research strategy (Honebein & Reigeluth, 2021). The alternative to this is to employ research efforts in iterative, continuous improvement where a variety of strategies might be tested in deeply contextualized ways to improve learning products, such as adding or removing a specific video to a live textbook chapter. Toward this end, this study focused on six chapters in a single textbook and experimentally tested a different design change for each chapter (representing two versions of each chapter) to determine the feasibility of testing and revising these kinds of design decisions on-the-fly with live products. For instance, in the “Technology Integration” chapter, the experimental flight removed stock photos to determine whether the mere presence of photos influenced perceptions of quality. Similarly, in the “Lifelong Learning” chapter, the experimental flight removed an introductory video for the same purpose. Other changes made to remaining chapters included (a) adding extra images (for “Information Literacy”), (b) removing direct illustrative quotations (for “Online Professionalism”), (c) increasing the font size (for “Online Safety”), and (d) changing the sans-serif font style to a serif font (for “Universal Design for Learning”). In every case, chapters were set to “Automatic” flight assignment for a one-year period, and a series of Welch’s t-tests were conducted to determine whether the change influenced overall quality ratings for the chapter in the target time period.

In constructing these experiments, we did not expect to see drastic differences in results, but we did anticipate that if we could identify small formatting or content changes that resulted in small quality differences, then as these changes were aggregated together and applied to the entire textbook, overall quality could be improved in meaningful ways. For instance, even if adjusting stock photos, fonts, or videos only affected less than a 10% change each in perceived quality, by applying these results to all of the chapters we hoped to be able to improve chapters in ways that would show significant aggregate benefit. Additionally, because all of these experiments reflected relatively low-cost adjustments to resources that are used by a large number of people, even small improvements would be expected to have considerable relative advantage. For instance, if a small change can improve readability by only 1% of a textbook with a readership of 50,000, that small change could mean that 500 more people might actually benefit from the resource. Thus, though small improvements may historically be treated as insignificant in educational settings that are constantly seeking after silver-bullet or 2-sigma solutions (e.g., Bloom, 1984), when we move into the realm of high-impact open resources that we can adjust at low-cost, even tiny improvements can yield drastic results in learning for the broad population.

## Results and Discussion

The simple result of this study is that after one year of constant data collection on a popular open textbook, all experiments came back as having statistically non-significant effects on perceived open textbook chapter quality. It is no secret that educational research exhibits a strong bias against reporting null effect studies, which leads many researchers to not publish valuable work and contributes to “publication bias, a positively skewed research base, and policy and practices based on incomplete data” (Cook & Therrien, 2017, p. 149), but even though results for this study were non-significant, the results may nonetheless be valuable for informing ongoing research and practice with continuous improvement efforts and open educational resources.

Table 1 provides a summary of the results for all six experiments, and there are at least two items of interest from the results that seem noteworthy. First, though non-significant, the Cohen’s  $d$  values for several of the experiments approach levels that suggest mild to moderate strength (e.g.,  $d = .58$  in the case of removing the introductory video for “Lifelong Learning,” and  $d = .45$  in the case of switching to a serif font for “Universal Design for Learning”). Though we

cannot say for sure, these values suggest that with a larger sample size we might see effects that could mildly influence overall chapter quality perceptions, let alone aggregate effects.

**Table 1**

*Results Summary of A/B Test Experiments for Specific Chapters*

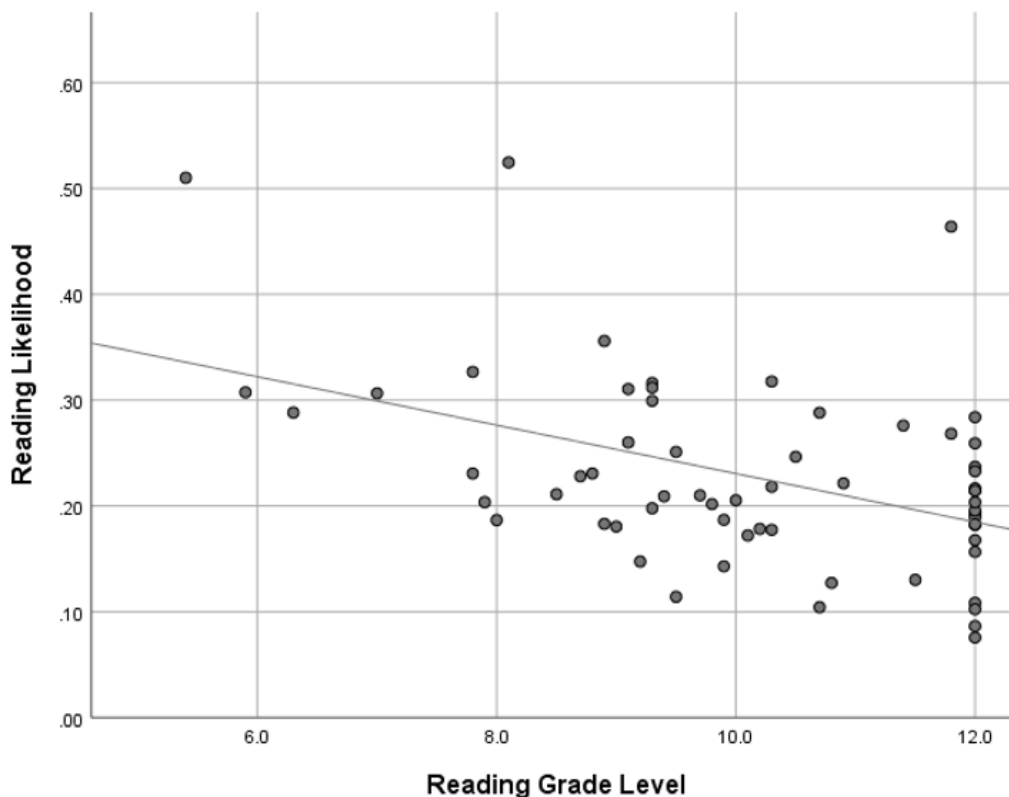
Experiment	Original Version (A)			Experimental Flight (B)			Change	Welch's t-Test	p-value	Cohen's d
	Mean Rating	n	SD	Mean Rating	n	SD				
Remove Stock Photos	4.09	256	0.7	4.19	195	0.63	0.11	1.66	NS	0.23
Remove Intro Video	4.19	70	0.66	3.95	44	0.6	-0.23	-1.92	NS	0.58
Add Extra Images	4.16	56	0.73	3.98	49	0.65	-0.18	-1.34	NS	0.38
Remove Quotations	4.26	100	0.73	4.16	88	0.6	-0.1	-1.04	NS	0.23
Increase Font Size	4.21	78	0.72	4.2	45	0.62	-0.01	-0.04	NS	0.01
Serif Font Style	4.09	58	0.7	3.88	24	0.67	-0.21	-1.29	NS	0.45

Building off of this, the second noteworthy element is the seemingly small sample size for each experiment. Though I explained this phenomenon and provided justification for why we might not expect larger sample sizes from free-roaming user behaviors above, the difficulty that this places on using these data for continuous improvement is that we seem to need an absurdly large amount of reader activity in order to collect a sufficient amount of optional self-report data for reliable testing. However, these results suggest that doing such work is feasible but that it just takes time and lots of data, especially when data are collected in unobtrusive ways and focus on user perceptions rather than discrete behaviors. Using the “Technology Integration” chapter as an example, only 1.2% of original version readers and 2.0% of experimental flight readers answered the quality survey, which means that even though tens-of-thousands of users read the chapters, we still were not able to rely upon these users’ data to provide sufficient evidence for improvement. This is further exacerbated by what is likely the low effect that each of these factors (on their own) has on overall perceptions of chapter quality, because smaller effects will require larger sample sizes to prove significance, and if we are only conducting experiments that we expect to have small effects, then even relatively large datasets may leave us wanting for significance. Furthermore, if these data were to be used in ongoing continuous improvement efforts, authors and researchers would find themselves in the predicament of having to throw out previous data every time they made an iterative improvement, because the original version would no longer be a valid control. The upshot of this reality is that even with a large reader base, using optional self-report data to improve open textbooks may not be a feasible approach to continuous improvement (at least not until the reader base reaches hundreds of thousands of users or more), making it difficult for most authors to make meaningful, data-driven improvements to their textbooks.

To address both of these issues, future research and development efforts would likely benefit from three key practices. First, rather than doing testing at the individual chapter or even book level, these sorts of tests might best be explored at the platform level where flights are created on all content to test for small changes. For instance, instead of removing stock photos on only the “Technology Integration” chapter, running a platform-wide flight of all chapters and programmatically removing stock photos for randomly-selected users would allow platform developers to determine the value of stock photos for EdTech Books users broadly with comparative swiftness. Similarly, doing a site-wide analysis of the effect that textual complexity has on reading likelihood reveals that likelihood goes down as complexity goes up, suggesting that as authors write chapters they should generally aim to simplify language (see Figure 5). The trade-off with this platform-level approach is that it would lose context, because not all chapters might benefit equally from the presence or lack of stock photos due to different content and audiences and some content might require greater textual complexity, but it would at least provide platform developers with data-based guidelines to provide suggestions to authors on what effects their decisions might be having on readers (e.g., “including more than three stock photos is predicted to reduce user quality perceptions of your chapters by 11.5%”).

**Figure 5**

### Relationship Between the Reading Grade Level of Chapters and Reading Likelihood



Picture of a Chart Showing the Relationship Between the Reading Grade Level and Reading Likelihood for Chapters

Note.  $R^2_{\text{Linear}} = 0.199$

Second, many of these types of tests can potentially become automated not just at the random assignment phase but also at the implementation and continuous improvement phase. For instance, if a font size experiment was implemented across an entire platform with a font-size increment of 10%, the system could create an experiment that increases font size for random users by 10% while reducing it by 10% and leaving it the same for others. This site-level test could continue until enough data were collected to determine which of the choices was optimal. In probability theory, this type of approach is called a “bandit algorithm” as it attempts to address the “multi-armed bandit problem” by maximizing positive outcomes (e.g., chapter reads, positive ratings) while simultaneously employing an exploratory mechanism to discover whether other options or features might improve results (Berry & Fristedt, 1985). Employing bandit algorithms for improving any design feature could utilize an infinite number of variables (e.g., different font sizes, types, or colors) in experimental ways that both produce actionable results and minimize undesirable outcomes. For many design decisions, this could allow continuous improvement to occur in an automated fashion without the need for authors or even developers to manually adjust designs to respond to experimental results. Rather, the design of the platform could become self-correcting in many regards to account for ongoing user behaviors.

And third, though relying on self-report data like quality ratings may still have a place (especially in larger scale analyses), more granular and faster improvements would need to rely upon unobtrusive user behavior data that is more universally collected. For instance, based on the textual complexity of a chapter and the time-on-page behaviors of a reader, we can determine whether each user actually read the page. Using this as the dependent variable would mean that we would have reliable experimental data for all learners rather than just the small subset that self-report data provides and would allow us to predict how experimental changes are affecting behaviors for all learners (e.g., does changing the font style influence the likelihood that a user will read the page?). Though this may limit our experiments in

some ways, it would allow for rapid and continuous improvement (especially when coupled with the other suggestions above) that would not be readily possible while waiting for self-report data.

Furthermore, many of these possible dependent variables would likely be correlated to one another. For instance, conducting a simple post hoc bivariate correlation of quality measures, predicted reads, and textual complexity on all chapters in the platform with at least 10 quality ratings ( $n = 63$ ) revealed a significant, moderate relationship between these variables (see Table 2). This suggests that even if the primary goal is to improve perceived quality of textbooks, movement toward this goal might be accomplished in part by engaging in efforts that seek to influence more easily measurable variables (like reading likelihood).

**Table 2**

*Bivariate Correlations of Chapter Factors*

	Textual Complexity	Reading Likelihood
Quality Rating	.526**	.288*
Textual Complexity		.415**

\* Denotes significance at the  $p < .05$  level.

\*\* Denotes significance at the  $p < .01$  level.

## Conclusion

In conclusion, though the experiments presented in this study yielded non-significant results, findings remain valuable for helping researchers and authors interested in engaging in data-driven continuous improvement efforts for several reasons. First, this study points out the relative difficulty of engaging in these efforts at a granular level (e.g., at the chapter or resource level), especially when the resources that we are seeking to improve do not enjoy viral popularity. Rather, such efforts are likely best addressed at the system level where experimental flights may be created with, randomized for, and aggregated from many different resources at once. Second, due to the relative simplicity of many of these experimental conditions, platform developers should explore automating not just the randomization aspect of A/B tests but also the actual implementation and experimental creation of tests, allowing the system to iteratively experiment-improve-experiment in valuable directions by employing bandit algorithms. And third, because these efforts rely upon unobtrusive data collection, continuous improvement will most effectively be influenced by data that can be collected from as many users as possible without relying upon low-probability participation metrics such as prompting users to answer a survey or to provide a rating. Incorporating these suggestions into any open textbook continuous improvement effort would offer great promise for making the most of user experience data that is readily available in many open platforms today. By doing so, the theoretically achievable goal is to create continuous improvement systems that are not only comparable to traditional publishing mechanisms but that far exceed them in ensuring the usefulness, usability, and perceived quality of open resources.

## References

- Berry, D. A., & Fristedt, B. (1985). *Bandit problems: Sequential allocation of experiments* (Monographs on statistics and applied probability). Chapman and Hall, 5(71-87), 7-7.
- Bloom, B. S. (1984). The 2 sigma problem: The search for methods of group instruction as effective as one-to-one tutoring. *Educational Researcher*, 13(6), 4-16.
- Bodily, R., Nyland, R., & Wiley, D. (2017). The RISE framework: Using learning analytics to automatically identify open educational resources for continuous improvement. *International Review of Research in Open and Distributed Learning*, 18(2), 103-122. <https://doi.org/10.19173/irrodl.v18i2.2952>

- Bozkurt, A., Koutropoulos, A., Singh, L., & Honeychurch, S. (2020). On lurking: Multiple perspectives on lurking within an educational community. *The Internet and Higher Education*, 44, 100709. <https://doi.org/10.1016/j.iheduc.2019.100709>
- College Board. (2019). Published prices. *Trends in Higher Education*. <https://trends.collegeboard.org/college-pricing/figures-tables/published-prices-national>
- Cook, B. G., & Therrien, W. J. (2017). Null effects and publication bias in special education research. *Behavioral Disorders*, 42(4), 149-158. <https://doi.org/10.1111/ldrp.12163>
- Dinevski, D. (2008). Open educational resources and lifelong learning. In *ITI 2008 - 30th International Conference on Information Technology Interfaces* (pp. 117–122). IEEE.
- Gütl, C., Rizzardini, R. H., Chang, V., & Morales, M. (2014, September). Attrition in MOOC: Lessons learned from drop-out students. In *Learning Technology for Education in Cloud, MOOC, and Big Data* (pp. 37-48). Springer, Cham.
- Honebein, P. C., & Reigeluth, C. M. (2021). To prove or improve, that is the question: the resurgence of comparative, confounded research between 2010 and 2019. *Educational Technology Research and Development*, 1-32. <https://doi.org/10.1007/s11423-021-09988-1>
- Kimmons, R. (n.d.). About EdTech Books. *EdTech Books*. <https://edtechbooks.org/about>
- Kimmons, R. (2015). OER quality and adaptation in K-12: Comparing teacher evaluations of copyright-restricted, open, and open/adapted textbooks. *The International Review of Research in Open and Distributed Learning*, 16(5).
- Kimmons, R. (2016). Expansive openness in teacher practice. *Teachers College Record*, 118(9).
- Kimmons, R., & Veletsianos, G. (2018). Public internet data mining methods in instructional design, educational technology, and online learning research. *TechTrends*, 62(5), 492-500. <https://doi.org/10.1007/s11528-018-0307-4>
- Kohavi, R., & Longbotham, R. (2017). Online controlled experiments and A/B testing. *Encyclopedia of Machine Learning and Data Mining*, 7(8), 922-929.
- Martin, M. T., & Kimmons, R. (2020). Faculty members' lived experiences with open educational resources. *Open Praxis*, 12(1), 131-144. <https://doi.org/10.5944/openpraxis.12.1.987>
- Open Source Initiative. (n.d.). *The open source definition*. <http://opensource.org/osd>
- Ottenbreit-Leftwich, A., & Kimmons, R. (2020). *The K-12 Educational Technology Handbook* (1st ed.). EdTech Books. <https://edtechbooks.org/k12handbook>
- Rivard, R. (2013, March 8). Measuring the MOOC dropout rate. *Inside Higher Education*. <https://www.insidehighered.com/news/2013/03/08/researchers-explore-who-taking-moocs-and-why-so-many-drop-out>
- Seaman, J. E., & Seaman, J. (2018). Freeing the textbook: Educational resources in U.S. higher education, 2018. *Babson Survey Research Group*. <https://www.onlinelearningsurvey.com/reports/freeingthetextbook2018.pdf>
- Stallman, R. (2013). *FLOSS and FOSS*. GNU Operating System. <https://www.gnu.org/philosophy/floss-and-foss.html>
- UpGrade. (n.d.). UpGrade: An open source platform for A/B testing in education. *Carnegie Learning*. <https://www.carnegielearning.com/blog/upgrade-ab-testing/>
- Veletsianos, G., Kimmons, R., Larsen, R., & Rogers, J. (2021). Temporal flexibility, online learning completion, and gender. *Distance Education*, 42(1). <https://doi.org/10.1080/01587919.2020.1869523>

Whitford, E. (July 26, 2018). Textbook trade-offs. *Inside Higher Ed*.

<https://www.insidehighered.com/news/2018/07/26/students-sacrifice-meals-and-trips-home-pay-textbooks>

Wiley, D. (n.d.). Defining the “open” in open content and open educational resources. *iterating toward openness*.

<http://opencontent.org/definition/>

Wiley, D., Strader, R., & Bodily, R. (2021). Continuous improvement of instructional materials. In J. K. McDonald & R. E. West (Eds.), *Design for learning: Principles, processes, and praxis*. EdTech Books.

[https://edtechbooks.org/id/continuous\\_improvement](https://edtechbooks.org/id/continuous_improvement)

Woodward, S., Lloyd, A., & Kimmons, R. (2017). Student voice in textbook evaluation: Comparing open and restricted textbooks. *The International Review of Research in Open and Distributed Learning*, 18(6).

<https://doi.org/10.19173/irrodl.v18i6.3170>



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# Applying the Design of Narrative Distance in Instruction

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Instructional Design

Transformative Learning

Narrative

Instructional Design Practice



*The field of instructional design has a history of exploring the possibilities of narrative in instruction. One aspect of narrative that has not received significant attention is the relationship between the indirect nature of narrative (narrative distance) and its power to create powerful transformative experiences. This article builds upon Taeger and Yanchar's (2019) qualitative study of storytelling experts by offering practical applications of the indirect nature of story into instruction. Numerous examples and design patterns are offered in order to illustrate how instructional designers (IDs) can use the potentially transformative effect of narrative distance.*

## Introduction

Humans are storytelling creatures. Not only do we engage and understand the world through narrative (Bruner, 1990; Polkinghorne, 1988; Young & Saver, 2001), we can be invited to change in significant ways through stories (Green & Brock, 2000; Kaufman & Libby, 2012). The effects of incorporating elements of narrative into instructional design have been explored in a variety of ways. For instance, the use of narrative or storytelling techniques have been discussed in contexts such as online learning (Hirumi et al., 2012; Lindgren & McDaniel, 2012), storification (Akkerman et al., 2009), interactive storytelling (Baldwin & Ching, 2017), the creation of design stories (Parrish, 2006), audio instruction (Carter, 2012), narrative-centered learning environments (Rowe et al., 2011) and problem solving (Dickey, 2006; Jonassen & Hernandez-Serrano, 2002).

One way that narrative may inform instructional design is creating what Wilson and Parrish (2011) call transformative learning experiences. According to Wilson and Parrish, a transformative learning experience (TLE) “results from an especially meaningful engagement with the world that leaves a lasting impact on a person’s sense of themselves and their relationship to a subject matter” (p. 12). In this article, TLEs are understood to occur in varying degrees; they could be as small as helping learners become more patient with coworkers or as large as inspiring learners to be more environmentally conscious. Taeger (2019) argues that narrative distance or “the cognitive or emotional space afforded

by indirect communication” (p. 2) can facilitate transformative learning experiences (Brothers, 2003). This effect is similar to the experience of being challenged by a piece of literature, movie, or play to make significant changes in one’s life. A central feature of narrative distance is its indirectness; the author (or director, etc.) does not directly ask readers to reconsider their beliefs and behaviors. Rather, the messages and invitations are inherent to the story itself. Since the story is indirect, the listener is less defensive (Warner, 2001) and is free to decide how to incorporate the message of the story into his or her own life (Craddock, 2002).

## Designing for Narrative Distance

To better understand the affordances created by narrative distance, I participated in performing a qualitative study (Taeger & Yanchar, 2019) interviewing six storytelling experts in different fields. This study reveals a variety of principles and practices that help incorporate narrative distance into instruction that is designed to create transformative learning experiences. In this article, I will expand further on the implementation of narrative distance in instructional design by offering practical design principles and fictional examples based on Taeger and Yanchar’s work that are intended to help designers use narrative distance in practice. In addition, most of the examples I discuss illustrate narrative distance in online learning settings. The headings and subheadings below are quoted from the themes and ideas presented in Taeger and Yanchar’s research.

### Cognitive Space

Granting a learner cognitive space allows the student to interpret aspects of the learning material for themselves. As one participant in Taeger and Yanchar’s (2019) study said, “[d]on’t teach me a lesson. Tell me a story, and if there’s a lesson in it, that’ll seep in” (p. 170). This insight mainly applies to learning content meant to create TLEs as opposed to material that students need to learn more directly (e.g., operating heavy machinery or memorizing physics formulas). It should be noted that granting cognitive space is not primarily expressed in learning activities, but in the learning content itself. For example, asking students to answer questions about a case study is not necessarily using cognitive space because the case study may have been written in a way that did not invite much room for interpretation.

### Use Concrete Material Without Abstract Moralizing

One of the ways to maintain cognitive space is to avoid using language that contains abstract morals, values, or principles during the portions of instruction intended to use narrative distance. For example, a corporate sales training would avoid phrases such as, “working your hardest always brings the best results” or “effective salespeople are organized and diligent.” Although these phrases may be helpful on some level, they do not fit well with material designed to create narrative distance because the learner is not given space for interpretation. This principle is based on the assumption that to be inspired to change, one must feel some sort of ownership in that process. Simply offering vivid and compelling concrete examples of salespeople who are diligent, organized, and hardworking in training material without abstract moralizing allows for more depth in interpretation (Allen, 2008) and the cognitive space for the learner to apply the content to themselves. This does not necessarily mean that instruction should contain a series of loosely related anecdotes or images. Rather, concrete material can be strategically placed alongside more traditional instruction.

For example, suppose an online course contains five principles for becoming a better leader in the workplace. These five principles are not simply techniques, but they stretch and challenge learners in potentially transformative ways. In typical instructional fashion, the course contains definitions, examples, opportunities for practice, and assessments. However, at the end of the online course, a video appears of actors depicting all five of the principles just discussed in the training. Instead of the online training indicating that the learner should look for the five principles in the video or that the learner will be tested on how the five principles were manifested in the video (assuming that adequate assessment has already occurred), simply presenting the video at the end of the training invites the listener to discover the principles for himself or herself. A quality feature film does not warn a viewer what he or she should look for in a scene, but it assumes that the viewer can make sense of what is depicted. Since the learner is not told how to interpret

this final scene in the training, the learner is invited to do so. As Craddock (2002) argues, “[t]he hearer is free, and yet the response permitted is a response demanded” (p. 106).

A design pattern for implementing this aspect of narrative distance is to (a) identify ways learners could change; (b) create or find concrete illustrations of those changes; (c) refrain from abstract moralizing during this portion of instruction; and (d) insert these concrete illustrations in strategic places where learners will be able to make intended connections without explicit instructions to do so.

## Use the Behavior of Characters to Communicate Meaning

In the last section, I contended that explicitly stating the message of an illustration or concrete example can limit cognitive space. Presumably, this moralizing would occur before or after an illustration is offered. Incorporating the technique of using the behavior of characters to communicate meaning helps prevent an instructional designer (ID) from creating an illustration that would inherently violate a learner’s cognitive space. In other words, some instructional stories or illustrations so obviously contain a message that the learner is not given the opportunity or motivation to interpret the story.

Suppose a university learning center creates an online training for adjunct professors to introduce them to the various responsibilities associated with working in a higher educational setting. The IDs use direct instruction to explain the university’s learning management system, parking instructions, and grading procedures. However, some of the material is designed to be more transformative in its approach because it is intended to inspire the adjunct professors to act professionally as they interact with students. In order to reach this learning objective, the IDs decide to utilize narrative distance by inserting two stories using the same fictional characters at both the beginning and end of this section in the online training module. The fictional example consists of a meeting between an adjunct professor (Dr. Thompson) and a student (Ashley) to review a recently administered exam. As students watch this fictional example, there are no instructions to look for ways that the adjunct professor could have treated the student more professionally (those principles will be covered during the traditional instruction using different examples). Furthermore, cognitive space is also maintained throughout the example because the IDs have the characters communicate indirectly through their behavior. In other words, rather than having a narrator say, “As Ashley entered Dr. Thompson’s office, she noticed that he didn’t treat her with much respect or kindness.” Rather, the narrator says, “As Ashley entered the office, Dr. Thomas said, ‘Hello, how are you today?’ as he continued to type on his computer.” Later in the example, instead of the narrator saying, “Dr. Thompson was obviously not listening very intently,” the narrator mentions that Dr. Thompson kept glancing at his computer while Ashley was speaking. Since the message is communicated indirectly by showing how Dr. Thompson was acting, the learners have the cognitive space to make sense of this behavior for themselves.

The design pattern for using this aspect of narrative distance consists of (a) asking which attributes, behaviors, or values the learner could acquire; (b) identifying the behaviors that someone with those attributes manifests; (c) finding or creating examples where the characters demonstrate or fail to exhibit those behaviors; and (d) refraining from any material (such as narration, description, etc.) that would describe those attributes in any other way besides behaviorally.

## Use Moral Ambiguity

When a character or portion of instruction contains a mixture of moral viewpoints it is morally ambiguous. For example, an adjunct professor who welcomes a student with a smile into his office, but also keeps glancing at his computer, depicts a complex human being with both admirable and less than commendable characteristics. The previous section emphasized using behavior to communicate meaning to maintain cognitive space. Without using moral ambiguity, however, the behaviors manifested by the character would appear simplistic, and the message would become as obvious as if the narrator said, “Consider how Dr. Thompson treats his student unprofessionally.” Moral ambiguity keeps a learner guessing (Lowry, 2001) and invites him or her to make a potentially transformative decision about their own moral framework.

Suppose an ID creates an online course intended for middle school students. The course includes an immersive narrative learning environment (Dettori & Paiva, 2009) in which students can control an avatar through a typical week at

school. At various points during the week, the learner encounters other students inviting him or her to participate in undesirable behavior (e.g., underage drinking, cheating, bullying, etc.) and then is trained on how to handle such situations. However, throughout the online training module, these fellow students the learner encounters also demonstrate admirable qualities. For example, the peer who invites the learner to participate in underage drinking is a good student, is a loyal friend, and is genuinely funny. In this example, not only are the students taught various techniques and principles for handling difficult situations, they also are given enough cognitive space to make a decision about the behaviors they are invited to participate in. The moral ambiguity demonstrated by the characters in the training prevents the learner from easily deciding if the characters' behaviors are always acceptable.

The design pattern for using moral ambiguity to create narrative distance could be described as (a) identifying the specific ways that learners could change; (b) finding or creating concrete examples that manifest the change; and (c) highlighting or giving characteristics to these characters that are also admirable in the eyes of the learner.

## Emotional Space

Whereas cognitive space allows someone to decide how to make sense of learning material, emotional space is an aspect of narrative distance that gives someone the room to decide how they will experience the material. As opposed to feeling manipulated, the learner feels "respected, valued, safe, and understood" (Taeger & Yanchar, 2019, p. 172). This aspect of narrative distance is important in creating TLEs because learners are less likely to be influenced if they are pressed upon emotionally (Craddock, 2002). As one of the participants in Taeger and Yanchar (2019) said:

*[T]he word that most people use is "manipulative." You're just trying to manipulate me . . . if we try to take shortcuts . . . then it's the same thing as just using a lot of violins in a musical soundtrack. Sweeping violins to create an emotion that's not really being represented. (p. 173)*

## Use Authentic Material

McDonald (2009) states, "[a]uthenticity helps viewers feel empathy for characters, and recognize themselves (their emotions and their reactions) in those characters" (p. 117). Goldsworthy and Honebein (2010) also argue that learners can only connect with instructional stories that seem authentic. Inauthentic stories are less likely to influence learners because they appear manipulative. For example, if a character in a safety training movie acts in ways that do not seem authentic, the student can sense that the creators of the film are trying to get a message across as opposed to offering a compelling story.

Although Taeger and Yanchar (2019) suggest multiple principles related to narrative distance that can help IDs create authentic learning material, only three are emphasized here: (a) "avoid simplifying human conflict"; (b) "avoid expressing emotion through dialogue"; and (c) avoid changing "how a character would act in order to serve the story" (p. 178). This section will further explore these three principles for the purpose of illustrating how to create authentic learning material that allows for emotional space during instruction.

Suppose the training department for a large organization is assigned the responsibility to implement an online training regarding new environmental regulations. The IDs not only want to explain the new environmental policies the company has decided to adopt, they also want to help create a culture of environmental responsibility, and thus they need to construct a training that is transformative. In order to take advantage of the affordances of narrative distance, IDs decide to weave a story consisting of still photos and narration throughout the online training. The story is designed to both illustrate the learning material and inspire the employees to become more environmentally conscious. As the story unfolds, learners are never directly invited to make connections. Instead, they are given the space to make sense of the story for their own situations.

## Avoid Simplifying Human Conflict

In order to maintain narrative distance so that the learners are not emotionally "taken out" of the story by the obviousness of the message, the IDs seek to use principles of authentic storytelling. For example, one of the scenes depicts two employees standing by a copy machine. The narrator says that one of these employees has noticed over a

period of time that the other employee is wasteful in the amount of copies he or she produces. The IDs avoid simplifying the conflict in the story by depicting the nuances involved in asking a coworker to abide by certain work policies. These IDs do not add narration that says something like, “although it was hard for Jessica to ask Miranda to stop making so many copies, she worked up the courage and asked her.” Instead, the narrator describes how Jessica does not want to appear demanding or how she unsuccessfully tried to hint her concern to Miranda in the past. Perhaps the IDs could even have Miranda verbally agree to change, but then fail to reflect that change in her behavior. Regardless of how the IDs eventually show the resolution to this encounter, they should first show some of the difficult facets to human conflict so that the story feels more authentic. As mentioned above, without that authenticity, it is difficult for learners to be emotionally open enough to be influenced by a story.

## Avoid Expressing Emotion Through Dialogue

Continuing with the previous example, it might be difficult for learners to consider the story authentic if Jessica had said, “I become really upset when you make so many copies,” or if Miranda had responded by saying, “I’m so angry because you are telling me what to do.” As argued above, meaning is often communicated most effectively through the behaviors of the characters in a story.

## Do Not Change How a Character Would Act in Order to Serve the Story

When stories are used to teach, instructors might feel a need to have the characters act in ways that express the message of the story. This can lead to characters behaving in ways that do not seem consistent with how they should act, and thus the story appears inauthentic. Parrish (2007) argues that “while plot is primary, plot must arise from character and not merely be imposed on characters” (p. 521). If the scene with Jessica and Miranda ended with Miranda saying something like, “Okay, I’ve learned my lesson. I’ll try to be more environmentally conscious,” the learner probably would not have considered the dialogue realistic. Instead, perhaps Miranda would have complied with Jessica’s suggestion, but only reluctantly after administrative pressure. Of course, characters in instructional stories often need to learn lessons, but it should happen in ways that reflect how the characters in the story would authentically change.

A simple design formula for this kind of authentic character change is to (a) identify which lessons a character needs to learn that reflect learning objectives; (b) consider which types of factors (i.e., logic, experience, social influence, authority, etc.) would invite that character to change; and (c) find ways to naturally include those changes to elements in the story.

## Avoid Unearned Emotion

Some participants in Taeger and Yanchar (2019) spoke of emotional experience in a story as needing to be “earned” (p. 173). Occasionally, stories attempt to create an emotional experience without enough context for the experience to feel natural. IDs can avoid this problem by giving learners enough time and background to invest in a character and the character’s associated struggles (Rollings & Adams, 2003). When attempting to design an instructional story in this way, it is helpful to remember to keep other aspects of narrative distance central to the design process because context itself will not be enough to prevent a potential moment of unearned emotion.

Suppose IDs for a government agency are developing an online training that instructs new employees regarding their responsibilities in helping those in lower socioeconomic situations apply for and receive government housing. The IDs want the training to cover more than just teaching the new employees the process of obtaining the right information and documents from those needing government assistance. The IDs want the training to be a transformative learning experience. In order to do this, they strategically place documentary style video clips throughout the training of an immigrant family who first struggle to find employment and then eventually receive assistance for government housing. The clips follow the same family throughout the module so that learners have time to invest in the family’s struggles and the complexities the family faces by coming to a new country, seeking employment, learning a new language, and so forth. When the training is completed, the learners watch a clip of the family entering into new government housing.

Since the learners know how meaningful this would have been to this particular family, they have the emotional space to experience this event as they watch the family gratefully occupy the new residence for the first time.

To design for this kind of experience, IDs can (a) identify moments during instruction that are intended to create a powerful emotional effect; (b) identify what necessary background information learners need to fully invest in a story or topic; and (c) locate strategic places where to include this kind of information in earlier portions of the instruction.

## Invite Change

For narrative distance to help create transformative learning experiences, cognitive and emotional space should be blended with aspects of instruction that also invite the learner to make changes. In this section, I will continue to draw upon Taeger and Yanchar (2019) to offer three ways to invite learners to change that align with the indirect nature of narrative distance.

### Help Learners Change Vicariously Along with Characters

Kaufman and Libby (2012) demonstrate how readers can change their behavior to match that of a character in a story if the readers have vicarious experiences with a particular narrative. Similarity, as one of the participants said in Taeger and Yanchar's (2019) study, "in a novel, the character is the one who changes and the reader changes vicariously with that character" (p. 175). IDs can tap into this transformative aspect of narrative distance by creating or using stories in which characters move from one set of beliefs or values to new ones. When learners are invited to transform in this way, two aspects of narrative distance are manifested alongside the invitation to change. First, learners are given the cognitive space to decide how they will identify with characters. Second, learners are granted emotional space because the characters (real or fiction) first manifest the beliefs or values of the learners and then come to new discoveries or insights. In other words, learners feel understood as they encounter characters who hold their same beliefs, but learners are also invited to change as those characters shift in values.

For example, suppose a consulting company asks a group of IDs to help update an online time management seminar. They use narrative distance by first inserting a video of a former student of the time management seminar emphasizing how poorly he or she previously managed their time. However, rather than just briefly stating how hard it was to organize time, the former student also takes a few minutes to explain different attempts he or she made to improve their time management skills. Furthermore, the student explains the stress that was associated with always being behind in his or her work, the difficulty of losing track of tasks, and the sense that he or she consistently spent time on things that were not valuable. In addition, the IDs ask the former student to emphasize the details of any personal reservations that he or she may have had prior to planning on a regular basis. These reservations could include believing that planning regularly would stifle individual freedom or that it would waste valuable time that could be used working. After the student describes these previous views, the student also begins to describe the process of coming to believe that planning regularly has positive benefits that outweigh any negatives. As learners listen to this first-person narrative, they are invited to vicariously join the interviewee in shifting their own views on the subject.

A simple design pattern for creating vicarious change is to (a) identify what learners currently believe about a given issue; (b) identify what new beliefs or values the learners could adopt; and (c) create or identify an instructional story where a character shifts from the old viewpoints to the new ones.

### Define the Learner in a Way That Connects Them to a Larger Narrative

Besides using a specific story to invite change in learners, another indirect way to invite change is by naming or defining learners within a larger narrative. By larger narrative I mean a series of connected stories, events, rituals, or myths that grow out of past historical events that inform one's identity. For example, someone indirectly identifies himself or herself within a larger narrative when he or she says "I am American," or "I am an impressionist painter," or "I am a Boston Red Sox fan." Each of these terms can imply a larger set of historical cultural practices, stories, and values. IDs can indirectly invite learners to change by naming learners as members of these larger narratives.



Suppose a corporation asks its training department to create a small online training explaining how members of the company can donate to a local charity. After demonstrating the procedures for donating, the online training includes a section that explains how the company has had a long and unique history of donating to charitable causes in ways that exceed the norm. For example, the training depicts an employee saying, “In company x, we do things differently. One of our first priorities is to use our resources to help those who need it most.” The employee (in this fictional example) used a declarative statement as opposed to an imperative one (Taeger & Yanchar, 2019). She did not say, “You should give to this charity because you are a member of this company.” Instead, she simply described what members of that company have had a history of doing. This is an indirect way of inviting learners to see themselves as participants in this corporation’s larger narrative.

It should be noted that learners should want to identify with these larger narratives. This technique will most likely work when the history and tradition of larger narratives matter in meaningful ways to the learners. For example, it may or may not mean very much to a professor to be identified with the history and culture of the university where she works. A design pattern for using this aspect of narrative distance is to (a) identify which larger narrative learners could be given an opportunity to identify with; (b) decide if that larger narrative is already meaningful to learners; (c) if it is not meaningful, seek to find ways to help the larger narrative become meaningful and attractive to learners; and (d) use declarative statements as opposed to imperative ones in giving learners a chance to identify with a larger narrative.

## Meaningful Content

Meaningful content is learning material that matters significantly to the student. Without this, narrative distance will not lead to a TLE because learners will not interpret indirect invitations to change as something that is connected to their world.

## Create Identification

Identification means that learners see their own thoughts, feelings, and behaviors reflected in the learning material. In addition, identification is connected to the “emotional proximity” one feels towards characters (Dickey, 2006 p. 251). When combined with narrative distance (emotional and cognitive space), identification can occur indirectly (Craddock, 2002).

The following illustration from Warner (1986) about self-deception demonstrates how a story can contain poignant moments of identification which invite students to see themselves in the learning material. The illustration describes the true story of a husband awakened in the middle of the night by his crying baby:

*At that moment, I had a fleeting feeling, a feeling that if I got up quickly I might be able to see what was wrong before my wife would have to wake up. I don't think it was even a thought because it went too fast for me to say it out in my mind. It was a feeling that this was something I really ought to do. But I didn't do it. I didn't go right back to sleep either. It bugged me that my wife wasn't waking up. I kept thinking it was her job. She has her work and I have mine. Mine starts early. She can sleep in. Besides, I was exhausted. Besides that, I never really know how to handle the baby. Maybe she was lying there waiting for me to get up. Why did I have to feel guilty when I'm only trying to get some sleep so I can do well on the job? She was the one who wanted to have this kid in the first place. (p. 39)*

When an illustration genuinely reflects the thoughts, feelings, and behaviors of learners, there is no need to directly point out ways they should connect with the learning material. In order to better echo the thoughts and feelings of learners, IDs can use methods of learner analysis that increase their ability to empathize with the learner (for more on these methods, see Parrish, 2006). A simple design pattern for creating identification that maintains narrative distance is to (a) empathize with how learners genuinely think, feel, and act and (b) find ways to indirectly reflect these thoughts, feelings, and behaviors through stories, anecdotes, characters, descriptions, etc.

## Do Not Change the Characters with Whom Learners Are Intended to Identify

If it is intended that learners identify with learning content, it can be helpful to have them identify with just one character. Of course, it may be effective to use a story that contains multiple lessons to be learned from various characters in the same story. However, focusing mainly on just one character or viewpoint allows learners to become fully invested in that character and thus can produce a more meaningful emotional or experiential pay off later in instruction. As one participant said in Taeger and Yanchar's (2019) study, "A good film story is about one person . . . because if it's only about one person that gets you to identify emotionally, much more intensively" (p. 176).

Suppose administrators at a hospital hire an instructional design team to create an online training about hospital security. Beyond describing basic security procedures, the IDs also want to create a transformative learning experience that will inspire the employees to catch the vision of the importance of hospital security. Therefore, the IDs decide to interview different exemplary employees about their security practices. However, to create meaningful instruction, they decide to follow one employee closely over a period of time to get many interviews and shots of this particular employee at work. Although the training will ultimately contain different video clips from a variety of employees, the training focuses on weaving one central employee throughout the online learning modules. Ideally, this will invite learners to connect to one central character and thus create a more meaningful experience. A simple design pattern to create this effect is to (a) identify characters or people that are compelling enough to be a central focus of instruction and (b) seek to use this one character to illustrate as many of the learning objectives as possible.

## Narrative Distance in a Variety of Settings

Although this article focuses mainly on using narrative distance in online learning settings, it might be helpful to briefly discuss how narrative distance can be used effectively in face to face, synchronous, and blended learning environments. The basic principles for using narrative distance with any delivery method include giving students time to ponder the learning material for themselves and minimizing student opportunities to hear other interpretations of content meant to create narrative distance.

For example, in face to face environments, it might be effective to not have regular classroom discussions on the portions of instruction that contain narrative distance. If students know that other classmates or the teacher will do the hard work of clarifying and applying the learning material, they may feel less motivated to do so themselves (Taeger, 2019). This may be difficult for some IDs because it takes a certain amount of trust that the benefits associated with narrative distance are working. However, if IDs feel that the students should have more time to consider or think deeply about certain portions of instruction containing narrative distance, they can assign individual writing assignments or journal entries. These kinds of activities create some of the benefits of discussion without losing the affordances of narrative distance. In synchronous environments, the use of narrative distance will be very similar to that of face to face settings. Perhaps chat boxes should be turned off during portions of the lesson that contain narrative distance so that students do not prevent one another from interpreting the learning material for themselves through discussion.

Blended learning environments provide unique opportunities for the use of narrative distance. IDs can use moments of narrative distance during in person class time that students can then discuss online. This allows students time to ponder the learning material for themselves and also gives learners the benefits of formal reflection through a writing activity. In addition, if students are not allowed to see each other's comments until their comments are posted, this makes it more likely that the students will interpret the material individually. Moreover, it will also allow students to compare and contrast their thoughts with other students.

## Conclusion

This paper sought to build upon Taeger and Yanchar's (2019) inquiry on designing for narrative distance by further illustrating the use of these principles in instructional design practice. These principles were discussed in order to illustrate how one can better create transformative learning experiences (Wilson & Parrish, 2011). Further research into



the effectiveness of the principles mentioned above could help IDs understand how to better incorporate narrative distance into instruction. Creating instruments that measure student perception of cognitive space, perception of emotional space, the invitation to change, and the level of meaningfulness in instruction would also help IDs know which methods are best creating narrative distance. Simple qualitative longitudinal studies based on the TLE framework offered in Wilson and Parrish could also indicate how transformative the instructional experience was over the long term.

When narrative distance is used for the purpose of creating TLEs, it can mimic the experience of a profound film or inspiring piece of literature (Taeger, 2019). The ideas offered here represent a limited number of ways to design for narrative distance; there are many more potential avenues for creating this effect in instruction. Not all instruction can be transformative, but when learning objectives call for that purpose, narrative distance can help IDs move toward that direction.

## References

- Akkerman, S., Admiraal, W., & Huizenga, J. (2009). Storification in history education: A mobile game in and about medieval Amsterdam. *Computers & Education*, 52, 449-459. <https://doi.org/10.1016/j.compedu.2008.09.014>
- Allen, R. J. (2008). Theology undergirding narrative preaching. In M. Graves & D. J. Schlafer (Eds.), *What's the shape of narrative preaching?* (pp. 27-40). Chalice Press.
- Baldwin, S., & Ching, Y. (2017). Interactive storytelling: Opportunities for online course design. *TechTrends*, 61, 179-186. <http://dx.doi.org/10.1007/s11528-016-0136-2>
- Brothers, M. A. (2003). The role of "distance" in preaching: A critical dialogue with Fred Craddock and postliberal homiletics (Unpublished doctoral dissertation). Princeton Theological Seminary, Princeton, NJ.
- Bruner, J. S. (1990). *Acts of meaning*. Harvard University Press.
- Carter, C. W. (2012). Instructional audio guidelines: Four design principles to consider for every instructional audio design effort. *TechTrends*, 56, 54-58. <https://doi.org/10.1007/s11528-012-0615-z>
- Craddock, F. B. (2002). *Overhearing the gospel*. Chalice Press.
- Dettori, G., & Paiva, A. (2009). Narrative learning in technology-enhanced environments: An introduction to narrative learning environments. In N. Balacheff, S. Ludvigsen, T. de Jong, A. Lazonder, & S. Barnes (Eds.), *Technology-enhanced learning: Principles and products*. Springer. [https://doi.org/10.1007/978-1-4020-9827-7\\_4](https://doi.org/10.1007/978-1-4020-9827-7_4)
- Dickey, M. D. (2006). Game design narrative for learning: Appropriating adventure game design narrative devices and techniques for the design of interactive learning environments. *Educational Technology Research and Development*, 54, 245-263. <https://doi.org/10.1007/s11423-006-8806-y>
- Goldsworthy, R., & Honebein, P. C. (2010). Learner stories and the design of authentic instruction. *Educational Technology*, 50, 27-33.
- Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, 79, 701-721. <https://psycnet.apa.org/doi/10.1037/0022-3514.79.5.701>
- Hirumi, A., Sivo, S., & Pounds, K. (2012). Storytelling to enhance teaching and learning: The systematic design, development, and testing of two online courses. *International Journal on E-Learning*, 11, 125-151. <https://eric.ed.gov/?id=EJ972179>
- Jonassen, D. H., & Hernandez-Serrano, J. (2002). Case-based reasoning and instructional design: Using stories to support problem solving. *Educational Technology Research and Development*, 50, 65-77.

<https://link.springer.com/article/10.1007/BF02504994>

- Kaufman, G. F., & Libby, L. K. (2012). Changing beliefs and behavior through experience- taking. *Journal of Personality and Social Psychology*, 103, 1-19. <http://doi.org/10.1037/a0027525>
- Lindgren, R., & McDaniel, R. (2012). Transforming online learning through narrative and student agency. *Educational Technology & Society*, 15, 344-355. <https://www.jstor.org/stable/jeductechsoci.15.4.344>
- Lowry, E. L. (2001). *The homiletical plot: The sermon as narrative art form*. Westminster John Knox Press.
- McDonald, J. K. (2009). Imaginative instruction: What master storytellers can teach instructional designers. *Educational Media International*, 46, 111-122. <https://doi.org/10.1080/09523980902933318>
- Parrish, P. E. (2006). Design as storytelling. *TechTrends*, 50, 72-82. <https://doi.org/10.1007/s11528-006-0072-7>
- Parrish, P. E. (2007). Aesthetic principles for instructional design. *Educational Technology Research and Development*, 57, 511–528. <http://doi.org/10.1007/s11423-007-9060-7>
- Polkinghorne, D. E. (1988). *Narrative knowing and the human sciences*. SUNY Press.
- Rollings, A., & Adams, E. (2003). *Game design*. New Riders.
- Rowe, J. P., Shores, L. R., Mott, B. W., & Lester, J. C. (2011). Integrating learning, problem solving, and engagement in narrative-centered learning environments. *International Journal of Artificial Intelligence in Education*, 21, 115-133. <http://dx.doi.org.erl.lib.byu.edu/10.3233/JAI-2011-019>
- Taeger, S. D. (2019). Using narrative distance to invite transformative learning experiences. *Journal of Research in Innovative Teaching & Learning*. <https://doi.org/10.1108/JRIT-05-2019-0057>
- Taeger, S. D., & Yanchar, S. C. (2019). Principles and practices of designing narrative distance for transformative learning experiences. *Educational Media International*, 56(2), 164-181. <https://doi.org/10.1080/09523987.2019.1614322>
- Warner, C. T. (1986). What We Are. *BYU Studies Quarterly*, 26(1), 39-63.
- Warner, C. T. (2001). *Bonds that make us free: Healing our relationships, coming to ourselves*. Shadow Mountain.
- Wilson, B. G., & Parrish, P. E. (2011). Transformative learning experience: Aim higher, gain more. *Educational Technology*, 51, 10-15.
- Young, K., & Saver, J. L. (2001). The neurology of narrative. *SubStance*, 30, 72-84. <https://doi.org/10.2307/3685505>





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# Enabling Interactivity through Design: Outcomes from a Gamified Health Insurance Onboarding Course

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Gamification

Understanding by Design Framework

Interactivity

Workplace Learning



*The purpose of this study was to examine new hires' learning outcomes and perceptions of an interactive gamified e-learning course in a health insurance organization. The conceptual framework drew from literature surrounding the Understanding by Design process and the relationship between engagement and interactivity in e-learning. The researchers also explored the role of course design to support interactivity. This article employed a pre-test, post-test, and a survey implemented to 121 new hires to examine learning outcomes and perceptions of a gamified e-learning course. To provide an in-depth understanding of the quantitative data, the authors followed up with 10 semi-structured interviews. Results from this study highlighted that participants experienced high levels of engagement and understanding of foundational insurance information.*

## Introduction

Asynchronous web-based learning is a prevalent workplace learning strategy used by learning and development professionals (Lester et al., 2013) who turn to the modality to adapt to changing technology and a flexible workforce (Akdere & Conceicao, 2006; Long & Smith, 2003). Within this context, gamification has emerged as a popular tool for enhancing learner engagement in both instructor-led and web-based courses (Alsawaier, 2017; Calvo & Reio, 2018; Jabbar & Felicia, 2015). There is limited research, however, on the effect of gamification on engagement and knowledge gains. Additionally, there is limited research on design strategies to enable engagement in asynchronous gamified courses. To add to the body of literature, the authors explored the impact of a gamified course design on engagement and knowledge gained in an asynchronous gamified course delivered in a health insurance organization.

Gamification is the practice of incorporating elements of game design into a course to increase engagement and motivation (Dichev & Dicheva, 2017). Game elements include, but are not limited to, challenges, points, leaderboards,

leveling up, and badges. A course is “gamified” when it incorporates elements of games. For this reason, gamification and gamified courses are hereafter accompanying terms. The authors employed gamification techniques in a course titled Member Journey that was delivered asynchronously to new hires on their first day of functional job-based training. The gamification techniques used included challenges, achievements, leveling up, rules, and goals.

The course covered the customer life cycle from a customer’s perspective. By the end of the course, learners were expected to be able to define terminology, categorize business units, and order steps in the customer experience. In the course, two guides helped the learners through four levels of challenges with increasing complexity. These challenges were presented as destinations in the Member Journey. Learners received stamps in their passports when a new destination was reached. At each destination, the learners completed a challenge. When passed, they were able to “level-up” to the following destination. Each new destination would contain a challenge with prerequisite knowledge from the previous destinations. The learner’s goal was to accumulate all stamps in their passports. To explore the impact of course design on engagement and performance, the authors incorporated features to enable the gamification in the course, such as narrative, plot, rules, increasing complexity, and characters.

The conceptual framework drew from literature addressing the relationship between engagement and game elements in e-learning and how course design promotes greater engagement and understanding of course content in gamified courses. This study is beneficial for field practitioners and scholars who are interested in strategies to enhance gamification approaches.

## **Literature Review**

### **Importance of the Design Process**

Technology-based learning represents an ongoing growing trend in businesses (Ho, 2017), however, critical discussions around the effectiveness of different delivery methods have created several classes of thought (Bell & Federman, 2013). One class of thought identified by Bell and Federman (2013) maintains that the effectiveness of e-learning instruction is dependent upon the vigor of the instructional design process. The perception of this group is that the most appropriate delivery method varies based on the learning context, content, and audience (Bell & Federman, 2013). The authors also believe that pedagogical approaches are an avenue to learning and not learning itself and the success of a learning approach is dependent upon a thorough instructional design process that considers organizational objectives, audience, technology and learning environment.

### **The Relationship Between Engagement and Interactivity in E-Learning**

If e-learning is determined to be an effective approach, it is important to consider participant engagement. Engagement in learning refers to the level of positive emotional response and commitment a learner feels while completing learning tasks (Young, 2010). This is critical because research has indicated that engagement in learning influences critical thinking, determination, and performance (Young, 2010). Performance, in this context, refers to competence in a role or task and determination to complete role responsibilities or tasks.

Research supports increased learner engagement can lead to increased knowledge gains (Bloom, 1956; Nkhoma et al., 2014). For some researchers, learning engagement is seen to have a significant positive effect on knowledge and performance that as a result, the level of engagement influences the breadth and depth of the knowledge gained (Nkhoma et al., 2014). For others, the effects of learning engagement can be captured in a hierarchy of engagement levels and outcomes (Bloom, 1956).

An emergent area of research centers on the need for interactivity to promote engagement in e-learning courses (Zhang & Zhou, 2003). In a comparison of learners in an interactive e-learning environment to those in the traditional classroom environment, Zhang and Zhou (2003) found that interactive courses increased flexibility and engagement and achieved higher levels of knowledge gains and participant satisfaction.

Interactivity in e-learning may refer to any action in which the learner influences the learning program through inputs or actions, such as text entry, clicks, and rollovers. Additionally, interactivity goes beyond physical actions (Hong et al., 2014; Woo et al., 2010). When the definition of interactivity is expanded to include any components of two-way communication, then complex cognitive interactions or online social exchanges can be considered e-learning interactivity (Hong et al., 2014). In fact, intangible interactions such as games, stories, and other strategies were found by Chatterjee (2010) to increase engagement at a greater rate than physical components.

## Interactivity in Gamified Courses

Gamification represents an interactive approach that is used by organizations to engage employees and reduce knowledge gaps (Calvo & Reio, 2018). Underlying game components activate learner engagement through cognitive interactivity, but gamification is distinct in also requiring physical action. For example, physical interactions in an e-learning game would include clicks, drag-and-drop, text entry, and other one-way approaches to influence an e-learning module. Cognitive interactions are reciprocal between the e-learning solution and the learner. Examples of these include problem-solving scenarios and increasingly difficult challenges. By incorporating both mental and physical components of interactivity, gamified e-learning achieves advanced levels of interactivity (Chang et al, 2018).

## Course Design to Support Interactivity Through Gamification

In the Member Journey course, storytelling techniques were used to support the gamification. Storytelling has been shown to increase interactivity and engagement in a course (Baldwin & Ching, 2016) and to promote information storing and comprehension (Novak, 2015). These techniques included a plot and support for the overarching plot through characters, a journey, conflict, and resolution (Baldwin & Ching, 2016). Characters in particular assisted in the development of the story and guided learners through plot points, a technique that has been shown to increase engagement (Smeda et al., 2010). The authors examined the impact of using storytelling to enable the interactivity and engagement of gamification in the Member Journey course.

## Engagement and Learning Achievement with Gamified E-Learning

Game elements such as challenges and awards are powerful tools for promoting motivation and engagement through interactivity (Alsawaier, 2017; Calvo & Reio, 2018; Jabbar & Felicia, 2015) and interactive storytelling can increase engagement and comprehension (Baldwin & Ching, 2016; Novak, 2015). Gamification, however, also directly contributes to knowledge gains by increasing engagement (Calvo & Reio, 2018). Calvo and Reio (2018) found higher levels of engagement linked to higher knowledge gains in a gamified course administered to professionals in the tourism industry. The more engaged learners were in a gamified course, the greater the level of knowledge gains.

Jabbar and Felicia (2015) found similar results in a systematic review of engagement and knowledge gains in gamification. They found that gamified learning increased knowledge attainment. Gamified learning is most effective when components contributing to emotional and cognitive engagement are present in the course design. Combining multiple types of interactivity and using an effective design has the greatest impact on engagement and knowledge gains (Jabbar & Felicia, 2015). The article also examines the effects of an interactive gamified course design on understanding of content.

## Methods

### Purpose of the Study

Limited research is available on design approaches to facilitate engagement in asynchronous gamified courses. This study adds to the body of knowledge for scholars and practitioners by exploring the impact of a gamified course design on engagement and understanding of course content in an asynchronous gamified new hire course titled Member Journey. The course was delivered on the first day of functional job-based training at a health insurance organization.

Through quantitative approaches, this study answers the following research questions:

- Does the gamified course enable learners to reach training goals?
- What are the significant factors (health care experience, narration, course activities and engagement) that predict employee post-test scores?
- What are the employees' perceptions of the course, gamification, interactive elements and interactivity enablers?
- How is the impact of gamification on employee knowledge gains different between lower performers and higher performers?
- How is the time spent on pre- and post-test different between lower performers and higher performers?
- How are the employees' perceptions of the course, gamification, interactive elements and interactivity enablers different between lower performers and higher performers?

## Research Design

The study primarily employed a quantitative driven approaches. The researchers administered a pre- and post-test to consider participants' understanding of course content from the intervention of the gamified course. A survey was used to gain insight into the participants' views and attitudes on the instructional approaches. After collecting and analyzing the quantitative data, the authors conducted semi-structured interviews to delve deeper into the topics and provide rich descriptions on participants' attitudes (Creswell, 2014). Participants were assured of anonymity; in fact, any names used in the article to enhance the narrative are pseudonyms.

## Setting

The United States based health insurance company employs over 23,000 people; more narrowly, the specific division this project focused on includes 9,000 concierge customer service employees. In 2017-2018, leadership of the concierge customer service division determined that many new hires did not have sufficient knowledge of health insurance basics, such as terminology and insurance claim and inquiry processes. To address these knowledge gaps, instructional designers employed the Understanding by Design Framework (UbD) to inform the course design (Wiggins & McTighe, 2011). UbD is an instructional design framework composed of three stages: Stage 1 involves identifying desired results; Stage 2 involves determining assessment evidence; and Stage 3 encompasses planning the learning experience and instruction (McTighe & Wiggins, 2012).

## Identify Desired Results

The desired result of the fundamental onboarding course was for employees to understand foundational elements of the business and the customer experience. Several instructor-led and e-learning learning modalities were considered to address this knowledge gap. To determine the most appropriate learning solution, leadership and instructional designers considered several factors. In 2017 and 2018, the health insurance instructional designers deployed physically interactive techniques, such as clickables, dragging features, text entry, and system simulations in the organization's e-learning courses. The courses were positively received by learners and they supported the evaluation of core competencies. Expanding upon this innovation, the company sought more immersive and cognitively interactive approaches. Additionally, the business wanted to implement a course covering foundational content across multiple lines of business. Stakeholders determined that an instructor-led approach would not be an appropriate fit with available resources, so e-learning solutions were explored.

## Determine Assessment Evidence

It was determined that assessment evidence would be gathered through mixed methods strategies including a knowledge check on core competencies and a survey centered on the learner experience. The knowledge check allowed a timely measurement of knowledge gained in the course and the survey provided an insight into the Member Journey course relative to other courses and modules in the program. Success in the evaluation of learner performance would be achieved when a learner could demonstrate the effective application of the terminology, concepts, and processes learned in a different scenario and context. The scenarios outlined in the pre- and post-assessment focused on unique situations to gauge learner adaptability in new contexts. The UbD framework considers this level of adaptability to be evidence for knowledge transfer (McTighe & Wiggins, 2012). The questions in the pre- and post-assessment included



prerequisite knowledge learners worked through to solve the problem. The result was a holistic assessment approach that considered the comprehension and application of concrete and abstract information and concepts.

## Plan Learning Experiences and Instruction

Within the organization, Member Journey represents a complex e-learning course. The organizational standard of complex e-learning includes: (a) audio (including scripting); (b) video; (c) interactive simulations; (d) high interactivity; (e) multiple animations. The learning solution consisted of a 30-minute Storyline course informed by gamification e-learning principles. Articulate Storyline, an authoring software that promotes interactive and personalized online and mobile courses, was used to develop the course (Articulate Global, 2019). The gamified e-learning course reviewed foundational insurance topics from the member's perspective across major topics: the purpose of insurance, retail and group plan enrollment, benefits terminology and claim submission, and appeals. The learning solution presented content sequentially in the context of the overall customer journey enabling employees to interact and work through a customer's experience with the company.

Learners completed the course in an instructor-led computer lab setting as part of an instructor-led new-hire training program that incorporated a variety of learning approaches such as experiential activities, scenario-based exercises, e-learning courses, and others. The gamified e-learning course on health insurance basics was self-directed and completed on the first day of the program.

At the beginning of the gamified e-learning course, storytelling elements were introduced when the learners were presented with two narrators, Gil and Gidget. The two narrators explained that during the course they would be going on the customer experience journey by visiting four islands. Each island included a game-based challenge focusing on one of the major topics. Once the challenge was completed successfully, the participant received a badge in the form of a stamp on a passport. At the conclusion of the course, the facilitators reviewed and debriefed the content.

In sum, working through the UbD process revealed that a gamified e-learning approach aligned with the audience and the desired results. The approach allowed employees to work through a customer's experience with the company and allowed the business to assess knowledge gains through an interactive process.

## Participants

The researchers collected data between October and December 2018. The researchers administered a pre- and post-test and a survey to 121 employees in eight new-hire classes across the United States on the first day of onboarding. The participants were primarily under the age of 39; 57% percent were under 29 and 22% were between the ages of 30-39. 82% of participants were female. 43% of participants had some college and 27% had a high school degree or equivalent. Only 11% of the participants had more than five years of experience in healthcare; in fact, 60% of participants had less than one year of previous experience. Follow-up interviews were performed to add depth to the discussion. Ten participants of the 121 were randomly selected to engage in semi-structured one-on-one 60-minute interviews to gain a deeper understanding of their perceptions on the gamified course. The interview protocol consisted of six questions (see Appendix B).

## Procedure

The tests and survey were administered in an online format. Participants engaged in the pre-test prior to completing the Member Journey course. Participants responded to the post-test and survey after completing the course. The pre- and post-test were composed of four multifaceted multiple-choice questions. The tests aligned to the topics at the "destinations" including insurance foundations, enrollment, benefits, and claims. The questions were scenario-based and challenged the learners to problem-solve as well as recall knowledge. The pre- and post-test are equivalent tests in number of questions, difficulty, and subject matter. Parallel tests were used to avoid problematic issues inherent with test-retesting.

The survey consisted of nine multiple choice questions and one open-ended question (see Appendix A). The survey questions centered on demographics, course perceptions, and perceptions of course quality and usability. Previous

experience in health care was considered by less than 1 year, 1-3 years, 3-5 years, and more than 5 years. Perceptions on the narration, course activities and engagement were measured on a five-point Likert scale. Narration questions centered on whether the narrators assisted participants in understanding their role. The researchers examined whether the activities (i.e., drag and drop exercise, a tic-tac-toe game, etc.) helped build understanding of concepts.

Participant responses were housed in the organization's learning management system. The day after the pre-test, post-test, and survey were administered, the researchers began the process of accessing, cleaning, and compiling the data.

## Data Analysis

Quantitative data were analyzed using SPSS statistical software. For the first research question, employee pre-test scores and post-test scores were compared using a t-test. To answer the second research question, a multiple linear regression analysis was used. Multiple regression analysis is a statistical technique to explore the relationship between a dependent variable and any one of the independent variables when the other independent variables are held fixed (Hoffmann, 2010). Employee post-test scores were used as a dependent variable and employee healthcare experience, perception on narration, course activities, and engagement were used as independent variables. Residual analysis, multicollinearity with tolerance and VIF (variance inflation factor) values and error term were reviewed to check all required model assumptions to conduct the regression model.

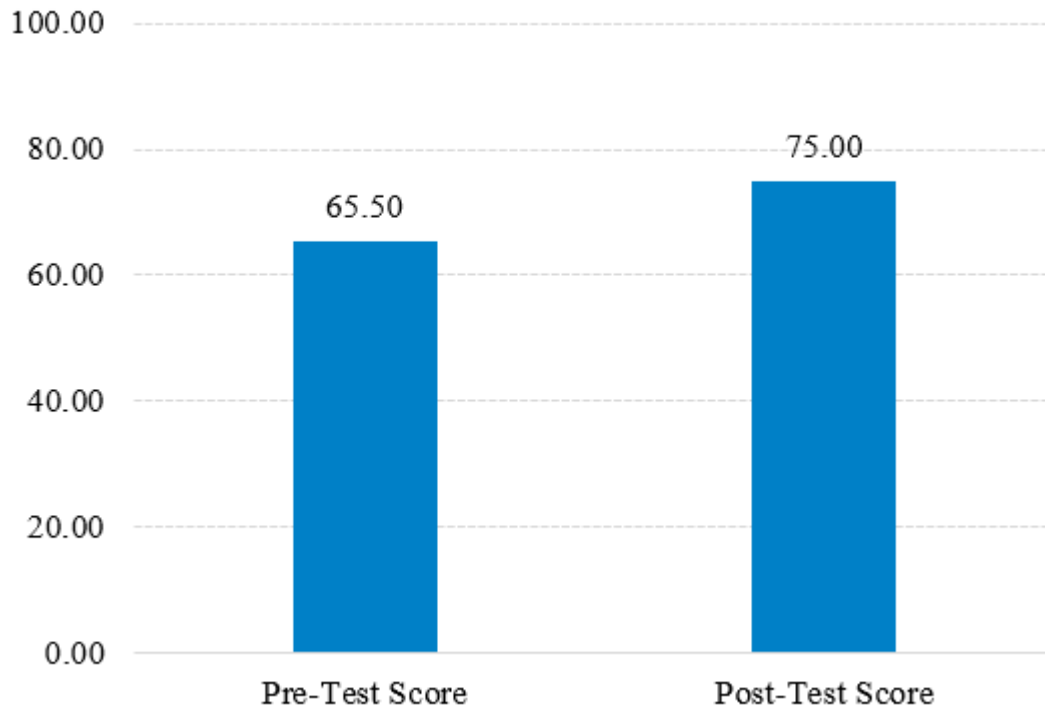
## Results

### Research Question 1. Does the Gamified Course Enable Learners to Reach Training Goals?

The average scores in the pre- and post-test for all employees are displayed in Figure 1. In addressing the first research question, participants demonstrated on average a 9.5-point increase in scores on foundational insurance topics from the pretest to the post-test. The average score in the pre-test was 65.5 (SD=24.42) and the average score in the post-test was 75 (SD=21.65) out of 100. This was a statistically significant difference ( $t(120) = -4.11, p < 0.001$ ) and supported the design team's completion goal.

#### Figure 1

*Knowledge Gains Comparison in Pre-Test and Post-Test*



A Bar Graph Showing a Comparison of Knowledge Gains in Pre-Test and Post-Test Scores

## Research Question 2. What Are the Significant Factors (Healthcare Experience, Narration, Course Activities, and Engagement) That Predict Employee Post-Test Scores?

Answering the second research question, prior to multiple linear regression analysis, Pearson's correlation analysis was conducted (see Table 1). Participants' post-test scores had a positive correlation with health care experience ( $r = .20$ ,  $p < .05$ ), narration ( $r = .25$ ,  $p < .01$ ), course activities ( $r = .22$ ,  $p < .01$ ), and engagement ( $r = .22$ ,  $p < .01$ ). Learning activities had a strong positive correlation with narration ( $r = .69$ ,  $p < .001$ ) and engagement ( $r = .68$ ,  $p < .001$ ). Narration had a strong positive correlation with engagement ( $r = .83$ ,  $p < .01$ ). Multicollinearity with tolerance and VIF values were checked and there were no issues with multicollinearity in this study. Table 2 shows that health care experience ( $\beta = .21$ ,  $p < .05$ ) was a significant factor impacting participants' post-test scores. The regression model was a good fit ( $R^2 = 10.7\%$ ) and the relationships were statistically significant in explaining 10.7% variance in post-test scores using four independent variables.

**Table 1**

### *Correlations Among Variables*

	Post-Test Score	Healthcare Experience	Narration	Course Activities
Post-Test Score	-			
Healthcare Experience	.195*	-		
Narration	.246**	-.044	-	
Course Activities	.217**	-.001	.690***	-
Engagement	.217**	-.058	.830***	.680***

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 2***Predicting Factors for Post-Test Score*

	<b>B</b>	<b>Std. Error</b>	<b><math>\beta</math></b>	<b>t</b>	<b>Sig.</b>
Constant	33.40	14.16		2.36*	.020
Healthcare Experience	4.29	1.84	.21	2.33*	.022
Narration	4.75	4.36	.18	1.09	.278
Course Activities	1.99	3.42	.07	.58	.561
Engagement	.95	5.31	.03	.18	.858
R <sup>2</sup>	.107				
Adjusted R <sup>2</sup>	.076				
F	3.463*				

Note. \*p &lt; .05

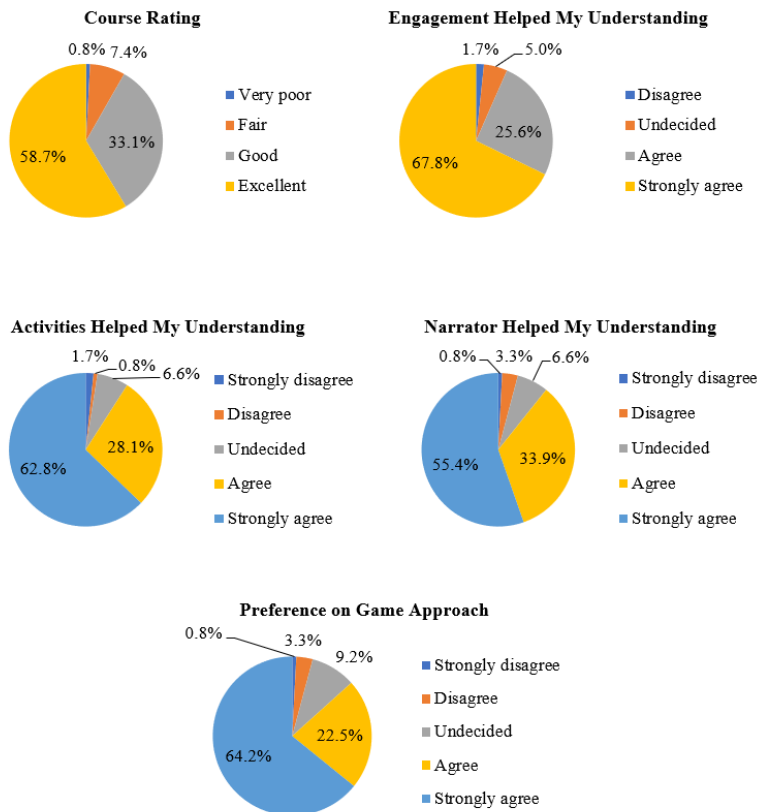
### Research Question 3. What Are the Employees' Perceptions of the Course, Gamification, Interactive Elements, and Interaction Enablers?

Regarding the third research question, participants also expressed positive perceptions of the interactivity and gamification strategies. The employees' perceptions of the course rating are presented in Figure 2. 92% of participants rated the course as excellent or good and 93% of learners expressed that engagement through the course promoted their understanding of course content.

Participants also expressed positive perceptions surrounding the activities and narrators. 91% reported they strongly agreed or agreed that the activities helped their understanding of concepts. 89% of participants shared they strongly agreed or agreed the narrators enhanced their understanding of their role. A majority (87%) of participants strongly agreed or agreed that they preferred to learn content through the learning game approach rather than other approaches (e.g., lecture, instructional videos, assigned reading, etc.).

#### Figure 2

*Employees' Perceptions on the Course and Gamifies Elements*



A Pie Chart Showing Employees' Perceptions of the Gamified Elements in the Course

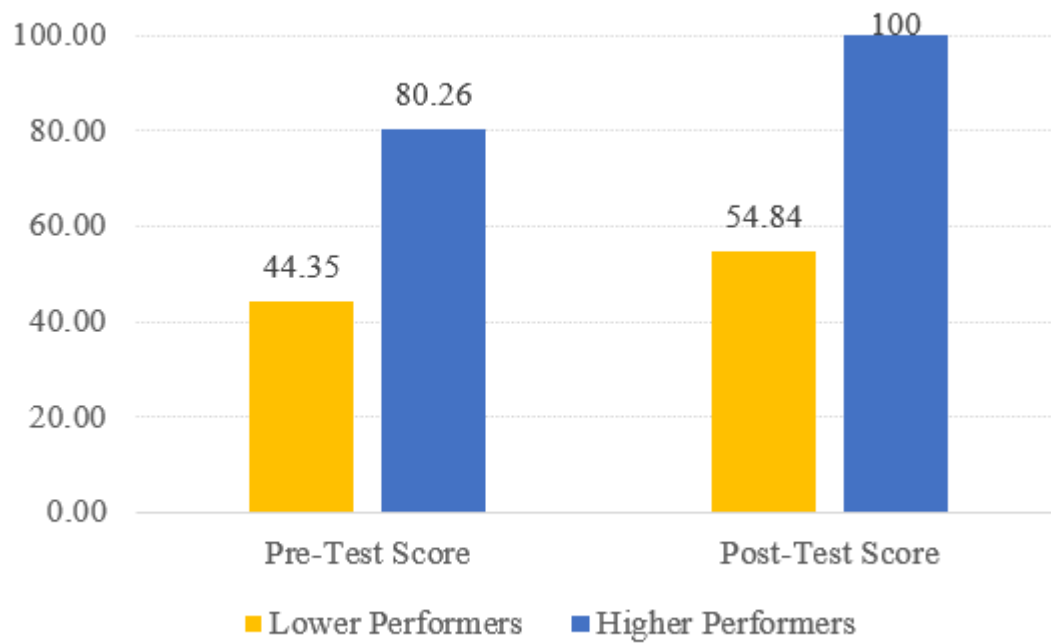
## Research Question 4. How Is the Impact of Gamification on Employee Knowledge Gains Different Between Lower Performers and Higher Performers?

To answer the research question, the difference in knowledge gains from the pre-test to the post-test were compared between the lower performers (post-test score<sub>mean</sub> ≤ 50 out of 100) and the higher performers (post-test score<sub>mean</sub> > 75 out of 100).

The scores in the pre- and post-test between the two groups are presented in Figure 3. Higher performers' average score in the pre-test was 80.26 (SD = 20.27), while lower performers' average score in the pre-test was 44.35 (SD = 10.63). There was a 35.91 gap, a statistically significant difference ( $t(67) = -4.81, p < .001$ ). Higher performers' average score in the post-test was 100.00 (SD = 0.00), while lower performers' average score in the post-test was 54.84 (SD = 23.65). There was a 45.16 gap, again a statistically significant difference ( $t(67) = -32.34, p < .001$ ). Higher performers were closer to training goals than lower performers.

**Figure 3**

*Knowledge Gains Comparison in Pre-Test and Post-Test Between Lower Performers and Higher Performers*



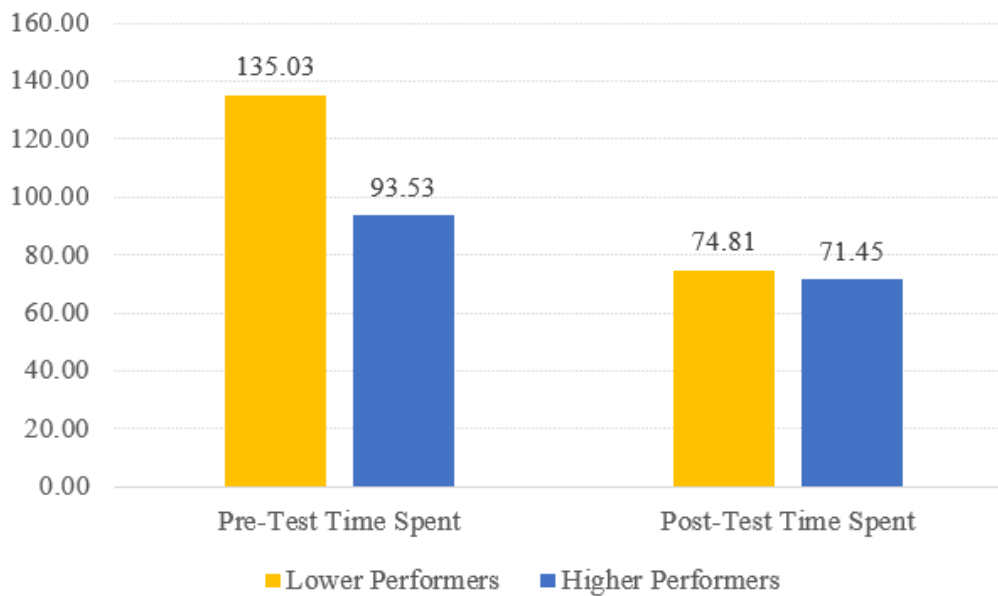
A Bar Graph Showing Differences in Lower and Higher Performers Pre- and Post-Test Performance

### Research Question 5. How Is the Time Spent on Pre- and Post-Test Different Between Lower Performers and Higher Performers?

Time spent in the pre- and post-test between the two groups is displayed in Figure 4. Higher performers' average time spent in the pre-test was 135.03 seconds (SD = 112.94), while lower performers' average time spent in the pre-test was 93.53 seconds (SD = 32.38). There was a 41.50 gap, a statistically significant difference ( $t(67) = 2.16, p < .05$ ). Higher performers' average time spent in the post-test was 74.81 (SD = 34.20), while lower performers' average time spent in the post-test was 71.45 (SD = 43.67). There was a 3.36 gap, but the result was not a statistically significant difference.

**Figure 4**

*Time Spent Comparison Between Lower Performers and Higher Performers*



A Bar Graph Showing Time Spent by Lower and Higher Performers on Testing Activities

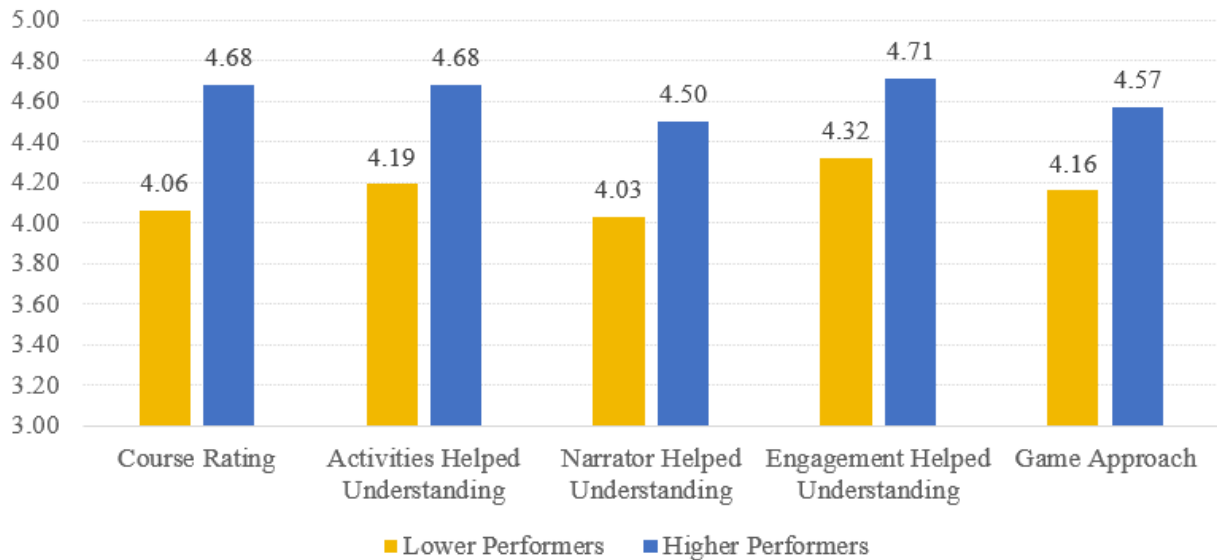
## Research Question 6. How Are the Employees' Perceptions of the Course, Gamification, Interactivity, and Interaction Enablers Different Between Lower Performers and Higher Performers?

The employees' perceptions of the course rating and its components are compared in Figure 5. Overall, the employees' perceptions on the course and the interactive components in the gamified course were statistically significantly different between the lower performers and the higher performers. Higher performers rated higher than lower performers on course rating (higher performers = 4.68 and lower performers = 4.06), how much activities helped their understanding (higher performers = 4.68 and lower performers = 4.19), how much the narrator helped their understanding (higher performers = 4.50 and lower performers = 4.03), how much engagement helped their understanding (higher performers = 4.71 and lower performers = 4.32) and how much the interactive gamified approach helped their understanding (higher performers = 4.57 and lower performers = 4.16).

The gaps between the two groups showed statistically significant differences in course rating ( $t(67) = -3.49, p < .01$ ), activities ( $t(67) = -2.59, p < .05$ ), narrator ( $t(67) = -2.11, p < .05$ ) and engagement ( $t(67) = -2.23, p < .05$ ). The gap in course rating between the two groups was not a statistically significant difference. In sum, for the high performers, the interactive gamified course design facilitated engagement and promoted knowledge gains.

**Figure 5**

*Employees' Perceptions of the Course and Gamification Between Lower Performers and Higher Performers*



A Bar Graph Comparing Lower and Higher Performers' Perceptions of Gamified Activities

## Discussion

The researchers' goal in conducting this study was to examine new hires' learning outcomes and perceptions of an interactive gamified e-learning course in a health insurance organization. The researchers' found that a gamified e-learning course was well received by participants and assisted them in understanding foundational information on insurance terminology, processes, enrollment, benefits, and claims.

The learners' positive perception of the course and understanding of the course content were the effect of several factors. The instructional designers employed the UbD process to uncover whether gamification was a good fit for the audience and appropriate in meeting the organization's goals. Additionally, the gamified elements and engagement enablers, such as characters, increasingly complex challenges, and an overarching narrative, supported high levels of interactivity, which in turn enhanced learner engagement and understanding of content.

McKimm, Jollie and Cantillon (2003) explained that e-learning courses are often incorporated into blended learning programs. Varying learning approaches can enhance learner engagement by challenging learners in different ways, such as through visually applying demonstrations, problem-solving scenarios, or interactive exercises. The Member Journey course mirrors this trend. In the new-hire program, the gamified Member Journey course was a component of a larger program including instructor-led lessons, videos, and e-learning courses with simple to average amounts of interactivity and animation. It is critical to align the best learning solution to the content and larger experience; interestingly, several of the participants were also attuned to this. For example, Emily echoed this sentiment with:

*I don't think it'd be beneficial to do all games during the learning course. So, to change it up. So, some of them are reading. Some of them were typing. Some of them were playing a game keeps . . . you on your toes and keeps it different.*

The results supported the rigor involved in working through an instructional design framework and revealed that the interactive courses resonated with participants. Beyond solely the Member Journey course, nine out of ten learners interviewed found the most interactive e-learning courses the most effective. Lee highlighted "the ones that are interactive, which you have to click on to advance or to try to figure out the scenarios . . . helps me the most." 92% of participants rated the Member Journey course as excellent or good and participants demonstrated on average a 9.5-point increase in scores from the pre-test to the post-test. From the follow-up interviews, nine out of ten learners'



expressed positive impression with the entertaining course structure compared to the informational and knowledge test-based courses. Aiden shared "I had a little more fun with this, it wasn't as stressful as if I go . . . cramming for an exam." In this context, the researchers' findings confirmed that the solution was a good fit based on the thorough consideration of the learning context, audience, and business need.

The learners were perceptive to the importance of considering the learning context. The results revealed game components in the course were beneficial. Participants discussed in the follow-up interviews finding the course layout engaging to interact with, which involved navigating to the new destinations after completing challenges on each island. The challenges involved game-based interactions such as spinning a wheel, flipping over cards and matching content. Emily expressed her reaction to completing the game-wheel challenge noting " . . . it keeps the fun aspect of it like I'm still playing a game. But I mean you're playing the game and you're learning." This result aligns with the literature demonstrating the relationship between gamification and engagement (Alsawaier, 2017; Calvo & Reio, 2018; Jabbar & Felicia, 2015).

This study echoes the position that employing an instructional design model (e.g., the ADDIE, SAM, Competency-Based, UbD, Critical Events Model, or others) rigorously will align a learning modality to desired learners' perceptions and outcomes (Bell & Federman, 2013). Once instructional designers determine the most effective approach for the learning context, content, and audience, they can develop strategies for enhancing engagement (Young, 2010). Similar to Changet al.'s (2018) findings, the instructional designers of the Member Journey course implemented interactivity by employing gamification and course design features that enable interactivity which, in turn, increased engagement. The interplay between the gamification and enabling features is represented by Gil and Gidget navigating participants through the plot and providing participants with the rules of each island challenge.

The underlying stories in the course mirrored recommendations discussed in the literature which provided learners the opportunity to connect to past experiences and apply them to the content (Smeda et al., 2010). During the follow-up interviews, participants recalled specific examples of Gil and Gidget presenting challenging scenarios. Bill excitedly recounted one challenge in the Member Journey course that resonated due to unique storytelling approaches. He compared it to a "Saturday morning cartoon." He recalled that "the circle fellow there . . . he climbed a tree and got hit by a coconut." He further explained " . . . if someone would have told me that was going to be one of the trainings, I would have given them one of the most confused whatever." He further shared that this plot device " . . . prompted the next part of the journey, which was he had to go to the doctor. Because he fell off the coconut tree . . . it was entertaining, and it still made sense in the grand scheme which is impressive." In the Member Journey course, the pairing of digital storytelling with complex interactions including audio, animations, and interactive simulations resonated with the learners and enhanced their positive perception of the course in comparison to other approaches.

As a whole, 89% of participants shared they strongly agreed or agreed the narrators enhanced their understanding of their role. The challenges required participants to click, drag, or enter content while they engaged in problem solving through the scenarios Gil and Gidget presented. The researchers found that 91% of participants reported they strongly agreed or agreed that the activities helped their understanding of concepts. This evidence demonstrates that learner engagement can lead to increased understanding of the course content (Bloom, 1956; Nkhoma et al., 2014).

According to the results, most participants reported that the course was engaging. Although there was a statistically significant group difference, the gamified course was engaging for both lower performers and higher performers. This suggests a positive correlation between engagement and understanding of course content. This is echoed the literature on higher learning outcomes were the result of learners experiencing greater engagement with the games and overall enjoyment in the course (Nkhoma et al., 2014).

After completing the Member Journey course, 93% of the learners expressed that engagement through the course promoted their understanding of course content. The participants found that the interactive gamified components were fun and motivated their learning. Emily explained "Because I'm a hands-on learner, I like to be able to click on things and, you know, type things in, as opposed to just reading and answering questions. It seems to stick better with me that way." These findings add to the understanding of how interactivity promotes engagement in e-learning (Zhang & Zhou,

2003). The findings also add to the dialogue on the strategies that increase learner engagement which will, in turn, increase understanding of the content (Bloom, 1956; Nkhoma et al., 2014).

Time spent in the pre- and post-test revealed that there was a statistically significant gap in time spent on pre-test between higher performers and lower performers while there was no significant gap in post-test. We noticed that higher performers had prior knowledge from their comparatively greater field experience and they needed less time to answer the pre-test questions. After the completion of the course, both groups showed reduced time spent in post-test. These results present the parallel pattern that low prior knowledge learners allocate more time to understand the learning materials and process information (Amadiou et al., 2009).

## Suggestions for Future Research

The results informed learning solutions at the organization where the study took place and the findings drove the adoption of highly interactive gamification approaches as an initiative for 2019. The findings supported the ideas that interactivity supports higher levels of engagement (Zhang & Zhou, 2003) and that higher levels of engagement can lead to better learning outcomes (Bloom, 1956; Nkhoma et al., 2014). Regarding enabling features, participants rated the storytelling elements highly and said they increased their interest in the content, motivation and connection making (Baldwin and Ching, 2016; Smeda et al., 2010). Overall, the study supported the hypothesis that games increase engagement (Alsawaier, 2017; Calvo & Reio, 2018; Jabbar & Felicia, 2015). A limitation of the study is that a single course was administered instead of multiple gamified courses. Further studies examining the impact of highly interactive and engaging gamified e-learning could be beneficial in understanding this type of course design in the workplace. Furthermore, additional exploration is needed of how varied gamification approaches can be supported to identify consistent results regarding the positive effects of gamified courses in corporate settings.

This study examined 121 employees in eight classes. This represents a small portion of the approximately 1,148 concierge customer service new hires brought into the organization each year. The more robust population provides the opportunity for a longitudinal study to holistically examine the new hires' learning outcomes and perceptions of the game-based e-learning course and its course design. The participants in the course have the opportunity to reinforce their knowledge during their daily work. The researchers recommend surveying the participants after six months to assess their perceptions on how the course prepared them for work and the gamification strategies by comparison to other approaches experienced in their first six months of onboarding.

This study took place at a health insurance organization. Even though there is limited research on the impact of gamified learning in this setting, enabling interactivity through course design is not a new phenomenon in workplace e-learning. There is opportunity for further examination of gamified e-learning across the healthcare industry.

## References

- Akdere, M., & Conceicao, S. (2006). Integration of human resource development and adult education theories and practices: Implications for organizational learning. Online Submission. <http://www.ulib.niu.edu:2274/contentdelivery/servlet/ERICServlet?accno=ED492681>
- Alsawaier, R. S. (2018). The effect of gamification on motivation and engagement. *The International Journal of Information and Learning Technology*, 35(1), 56-79. <https://doi.org/10.1108/IJILT-02-2017-0009>
- Amadiou, F., van Gog, T., Paas, F., Tricot, A., & Marine, C. (2009). Effects of prior knowledge and concept-map structure on disorientation, cognitive load, and learning. *Learning and Instruction*, 19, 376–386. <https://doi.org/10.1016/j.learninstruc.2009.02.005>
- Articulate Global. (2019). Storyline 3. <https://articulate.com/>

- Baldwin, S., & Ching, Y. H. (2017). Interactive storytelling: Opportunities for online course design. *Tech Trends*, 61(2), 179-186. <https://doi.org/10.1007/s11528-016-0136-2>
- Bell, B., & Federman, J. (2013). E-Learning in postsecondary education. *The Future of Children*, 23(1), 165-185. <https://doi.org/10.1353/foc.2013.0007>
- Bloom, B. S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. David McKay Co Inc.
- Calvo, L. C., & Reio, T. (2018). The relationship between engagement and knowledge attainment in a computer-based training game and job performance of travel agents. *The Journal of Management Development*, 37(5), 374-384. <https://doi.org/10.1108/JMD-03-2017-0063>
- Chang, C., Warden, C., Liang, C. & Lin, G. (2018). Effects of digital game-based learning on achievement, flow, and overall cognitive load. *Australasian Journal of Educational Technology*, 34(4), 155-167. <https://doi.org/10.14742/ajet.2961>
- Chatterjee, P. (2010). Entertainment, engagement and education in e-learning. *Training & Management Development Methods*, 24(2), 601-621. <https://search-proquest-com.gatekeeper.chipublib.org/abicomplete/docview/202612033/2FB1A87A1B5D49FCPQ/30?accountid=303>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. (4<sup>th</sup> ed.). Sage.
- Dichev, C., Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: a critical review. *International Journal of Educational Technology in Higher Education*, 14(9). <https://doi.org/10.1186/s41239-017-0042-5>
- Hoffmann, J. P., & Shafer, K. (2015). *Linear regression analysis: Assumptions and applications*. NASW Press.
- Ho, M. (2017). Learning investment and hours are on the rise. *TD Magazine*. <https://www.td.org/magazines/td-magazine/learning-investment-and-hours-are-on-the-rise>
- Hong, Y., Clinton, G., & Rieber, L. (2014). Designing creative user interactions for learning. *Educational Technology*, 54(2), 20-25. <http://www.jstor.org.gatekeeper.chipublib.org/stable/44430249>
- Jabbar, A., & Felicia, P. (2015). Gameplay engagement and learning in game-based learning: A systematic review. *Review of Educational Research*, 85(4), 740-779. <https://doi.org/10.3102/0034654315577210>
- Lester, J. C., Ha, E. Y., Lee, S. Y., Mott, B. W., Rowe, J. P., & Sabourin, J. L. (2013). Serious games get smart: Intelligent game-based learning environments. *AI Magazine*, 34(4), 31-45. <https://doi.org/10.1609/aimag.v34i4.2488>
- Long, L. K. & Smith, R. D. (2003). The role of web-based distance learning in HR development. *Journal of Management Development*. 23(3), 270-284. <https://doi.org/10.1108/02621710410524122>
- McTighe, J. & Wiggins, G. (2012). Understanding by design framework. [https://www.ascd.org/ASCD/pdf/siteASCD/publications/UbD\\_WhitePaper0312.pdf](https://www.ascd.org/ASCD/pdf/siteASCD/publications/UbD_WhitePaper0312.pdf)
- Nkhoma, M., Sriratanaviriyakul, N., Cong, H. P., & Lam, T. K. (2014). Examining the mediating role of learning engagement, learning process and learning experience on the learning outcomes through localized real case studies. *Education and training*, 56(4). 287-302. <https://doi.org/10.1108/ET-01-2013-0005>
- Novak, E. (2015). A critical review of digital storyline-enhanced learning. *Educational Technology Research and Development*, 63(3). 431-453. <https://doi.org/10.1007/s11423-015-9372-y>
- Smeda, N., Dakich, E., & Sharda, N. (2010). Developing a framework for advancing e-learning through digital storytelling. *Proceedings from the IADIS International Conference e-learning*. Freiburg, Germany.

- Woo, T., Wohn, K., & Johnson, N. (2011). Categorisation of new classes of digital interaction. *Leonardo*, 44(1), 90-91.  
<http://www.jstor.org/gatekeeper.chipublib.org/stable/20869409>
- Young, M. R. (2010). The art and science of fostering engaged learning. *Academy of Educational Leadership Journal*, 14(1), 1–18.  
[https://www.researchgate.net/publication/266862573\\_The\\_art\\_and\\_science\\_of\\_fostering\\_engaged\\_learning](https://www.researchgate.net/publication/266862573_The_art_and_science_of_fostering_engaged_learning)
- Zhang, D., & Zhou, L. (2003). Enhancing e-learning with interactive multimedia. *Information Resources Management Journal*, 16(4), 1-14. <https://doi.org/10.4018/irmj.2003100101>

## Appendix A: Survey

1. What is your age?

- Less than 20
- 20-29
- 30-39
- 40-49
- 50-59
- Greater than 60
- I would prefer not to answer

2. What is your gender?

- Male
- Female
- I would prefer not to answer

3. What is the level of school you have completed? If currently enrolled, please select your highest degree received.

- Less than high school degree
- High school degree or equivalent (e.g. GED)
- Some college but no degree
- Associate degree
- Bachelor degree
- Graduate degree

4. How long have you worked in health care?

- Less than 1 year
- 1 year to less than 3 years
- 3 years to less than 5 years
- 5 years to less than 10 years
- 10 years or more

5. Overall, I would rate this Member Journey course as . . .

- Excellent
- Good
- Fair
- Poor
- Very poor

6. Please rate how much you agree or disagree with the following statement: The activities (e.g. drag and drop, tic-tac-toe, etc.) in the Member Journey course helped build my understanding of foundational concepts.

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

7. Please rate how much you agree or disagree with the following statement: Gil and Gidget enhanced my understanding of my role in the customer experience.

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

8. Please rate how much you agree or disagree with the following statement: This Member Journey course made me engaged in learning.

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

9. Please rate how much you agree or disagree with the following statement: I'd prefer to learn this content through the learning game approach than other approaches (e.g. lecture, instructional videos, assigned reading, etc.)

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

10. Do you have any suggestion(s) for improving the Member Journey course?

## Appendix B: Interview Protocol

1. Tell me about your understanding of health insurance prior to attending the first day of training.
2. Describe the learning activities in the training program that stood out to you.
3. Discuss your perceptions of the Member Journey course in terms of understanding how your role facilitates the member experience. (Show image of course.)
4. Talk to me about your impressions of the Member Journey course in comparison to other e-learning courses, such as the scenario-based courses. (Show images of different courses, such as a piece of the introduction section and/ or a key topic section.)
5. In the Member Journey course, you completed a pre-test, games/exercises and a bonus around; how did you feel when you reached the bonus round?
6. Do you have any suggestions to improve the Member Journey course?



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# Chefs in Training! Engaging Pharmacy Students through Course Gamification

Melissa J. Ruble, Jaclyn D. Cole, & Beth E. Jordan

DOI:10.51869/102/mr

Gamification

ADDIE

Design Case

Game Elements

Pharmacy Education



*Gamification is defined as the “use of game design elements in non-game contexts” (Deterding et al., 2011, p.10) with the goal of promoting user engagement. Didactic courses that incorporate game elements such as rulebooks, elements of surprise, levels, challenges, and rewards provide intrinsic motivation through immediate feedback, goal setting, opportunity for mastery, and autonomy. In this design case, course coordinators use a modified ADDIE process in collaboration with an instructional designer (ID) to effectively integrate gamification into an elective course to challenge students while providing activities that promote engagement and retention of information.*

## Introduction

Gamification has been applied to instruction in both didactic and experiential training to enhance learner engagement and motivation (Sera & Wheeler, 2017). As noted by Sardi et al. (2017) in their systematic review, there are a number of related terms being used to refer to the application of game design concepts, including game-based learning, gamification, educational gaming, and serious gaming. As education and the integration of technology continues to evolve, so do the definitions of such terms. Certainly, more terms will be coined in the coming years. Consensus on the use and definition of terms to guide both researchers and practitioners as they share their work publicly would be helpful; however, it is not the intent of this article. Instead, we use a widely accepted, broad definition that gamification is the “use of game design elements in non-game contexts” (Deterding et al., 2011, p. 10).

## Gamification in Healthcare Education

Across disciplines within healthcare education, students report positive perceptions of gamification in some form or another. Nursing programs have reported the incorporation of gamification in education through digital badges (White & Shellenbarger, 2018), and nursing orientation gamification has been used to improve both productivity and retention of knowledge (Brull et al., 2017). Medical education has incorporated gamification within residency training to support

credentialing, examination scores, surgical technique, and clinical decision-making skills. Gamification of online study tools that supplement traditional classroom education for exam preparation had a positive impact on otolaryngology training examination scores for otolaryngology residents (Alexander et al., 2018). Time spent gaming resulted in significant improvement in performance on a laparoscopic simulator compared to residents who practiced with the simulator alone (Adams et al., 2012). In addition to surgical technique, surgeons must have excellent decision-making skills. Lin et al. (2015) found evidence to support the validity of a web-based gaming platform for training and assessment of surgical decision-making. These studies and many others over the past decade have shown a positive impact of gamification on learning experiences and assessments across many programs in healthcare education.

## Gamification in Pharmacy Education

Similarly, pharmacy education has noted positive outcomes from the use of gamification within the pharmacy curriculum. The American Association of Colleges of Pharmacy (AACP) introduced charges to its 2013-2014 Academic Affairs Committee in order to explore the role of gamification in pharmacy education, explore how colleges can support implementation, and identify areas where the impact would be most promising. Based on their research, the Committee recommended that colleges of pharmacy integrate serious games into their core curriculum for learning and professional development. Given the importance of student learning, the Committee also recommended that AACP, as an organization, develop serious games for institutions to utilize despite the cost and complexity. The Committee recommended that faculty collaborate with experts in the field of instructional design to facilitate quality game development (Cain et al., 2014). Since AACP's Academic Affairs Committee's report in 2014, there has been effort underway by various colleges of pharmacy to leverage the benefits of gamification within both the didactic and experiential curriculum. Some benefits include increased student knowledge in topics covered, enhanced empathy towards patients, and increased student engagement (Aburahma & Mohamed, 2015). For example, the University of Pittsburgh School of Pharmacy developed a mock investment game to educate students on important aspects of the pharmacy industry. Students showed significant improvement in 19 domains assessed in the study (Wolf et al., 2018). After a faculty development workshop at one university, pharmacy faculty reported eagerness to implement a variety of active learning strategies featuring gamification (Barone et al., 2018). In response to dwindling applicant pools, several colleges collaborated to design and implement new components (e.g., educational games, guest speakers, team-based learning) into the admissions process. This resulted in an increase in applications (Salazar et al., 2018). In this article we explore a slightly different scenario—gamification of a graduate level pharmacy course using a gameshow format with guidance from the college's instructional designer (ID).

## Gamification Integration into College of Pharmacy

Faculty profiles collected by the Office of Faculty Affairs have identified that faculty in the Taneja College of Pharmacy (TCOP) have doctoral degrees in pharmacy and related fields and not in education; thus, the college chose to incorporate a Technology, Instruction, Evaluation, Design (TIED) team within the Office of Academic Affairs (OAA). The TIED team's role is to provide faculty with guidance and support in developing pedagogical skills, implementing educational innovations, and evaluating implementation of innovations. Additionally, the TIED team partners with faculty in scholarly endeavors associated with these collaborations. The TIED team is made up of one ID and one Learning and Development Manager. The ID on the team has experience and training in design and development of online educational games. The positive results the ID has seen from effective game design within reading software motivated the ID to incorporate such game elements into other instructional areas. Faculty development and educational sessions by the ID have allowed faculty to successfully integrate gaming elements including escape rooms, Kahoot, rap battles, competitions, and more into their courses. When preparing to attend the 41<sup>st</sup> annual meeting for Association for Educational Communications & Technology (AECT) 2018, the ID enrolled in a workshop on gamifying courses. As part of the pre-workshop, the ID presented an innovative idea to the pharmacy faculty to solicit volunteers to embark on the endeavor together. Two eager faculty members agreed to pilot the gamification of a course; a strategy which is not commonly used in pharmacy education. The faculty members shared their syllabi and current course outlines with the ID. During the workshop, "Redesign Courses into a Competition-Based Game-Show Format" by Kiran Budhrani (2018), the ID gathered resources and planning tools in preparations for gamifying the PHA6603C Internal Medicine Elective to be offered for the first time in the following academic year. The workshop facilitator used Deterding's (2011) definition

of gamification in describing the ID's efforts at gamifying a course in multimedia instructional design. In this article, we describe the systematic process used to analyze the course, and to design, develop, implement, and evaluate gamification using a gameshow format. We include the selection of game elements and how we applied them to the non-game context of a graduate level pharmacy course.

## Methods

Although designers in various fields (e.g., engineering, software development, education) set about their assigned tasks along different pathways, these pathways share several common elements. Some kind of analysis of the problem, need, or situation takes place. The analysis reveals what needs should be addressed. The needs drive the design plan which is developed and implemented. Evaluating the product, of course, must also occur to ensure the outcome meets the need. When appropriate, the analysis of the evaluation results may drive another iteration of the design process to improve the product. These design components make up the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation (Branch & Kopcha, 2014; Clark, 2015; Kurt, 2017).

The ADDIE instructional design model was developed in the 1970s for designing military training. In its purist sense, the ID moves through the phases linearly with no modifications to the product until after the evaluation phase is completed. While the seemingly strict parameters served their purpose for the military's needs, the ADDIE model without modification is not a perfect fit for all training development (Clark, 2015; Kurt, 2017). An alternative Instructional Systems Design (ISD) is the agile model. Agile models focus on speed, flexibility, collaboration, and efficiency. It typically implements minimally viable products that are developed in a perpetual beta, or a constant state of design and redesign. Both ISD models have a range of modified approaches. Variations on the agile model include Successive Approximation Model (SAM) and more (Instructional Design Central, n.d.). Instructional designers typically modify ADDIE by incorporating mini-iterations in various stages of the process (Clark, 2015; Kurt, 2017).

## Modified ADDIE: ADDIE in the Real World

Effective educators in a classroom scan the students' body language, ask questions to informally assess understanding, and engage students in learning experiences. Then they adjust their teaching to meet the students' needs. After a final evaluation, they may reflect on their results and make changes for the next semester. They have executed all phases of ADDIE even without awareness of any process model. They repeat these phases in each class, at the module level, and again at the end of the course for an overall analysis driving modifications for the next term. Action research is a more formal method than simply following one's intuition as an educator. It involves the same tasks just described with deliberate data collection and analyses. Action researchers typically conduct their study within their own classrooms and may not share results beyond the colleagues in their own institutions. Design-based research, on the other hand, elicits additional stakeholders in the instructional design process. A noted benefit of design-based research, or formative experiments, is the collaboration in authentic settings (Bradley et al., 2012; Reinking & Bradley, 2008). Of course, design cases can be conducted using an array of ISD models and their modifications. For this design case, the team chose a modified ADDIE model.

## Rationale for ADDIE

In reviewing the history of instructional design, Reiser (2001) points out that "most of the models include design, development, implementation and evaluation of instructional procedures and materials intended to solve those problems" (p. 58). Branch and Kopcha (2014) also state "all instructional design processes consist of at least five major activities" (p. 80) which they list as analysis, design, development, implementation, and evaluation. As is evident in most, if not all instructional design models, the TIED team at TCOP uses the ADDIE model as a basic framework for instructional design process. In fact, the steps of ADDIE are part of the ID's job description. The ADDIE model is often criticized as inflexible, linear, complex, and inefficient; these valid critiques revolve around the purist, original implementations of the process model (Clark, 2015; Kurt, 2017). Within our college, the model is used more as guidance to ensure all appropriate input is considered in designing an array of outcomes to include program curriculum, course

design, assessments, and learning experiences within a course. In the case of designing learning experiences within an Internal Medicine Elective, there was no need for speed or rapid prototyping. The instructors were effective educators who intuitively reflect and seek to improve their course regularly. Adding the college's ID and following a modified ADDIE model afforded the instructors the opportunity for more effective course changes. Collaboration in authentic settings was both a benefit and a challenge. Given that the ADDIE model was commonly used in the college already, using it as a guide in this design case provided both the instructors and ID with shared vocabulary to increase effective communication throughout the process. Below we describe the actions taken in each phase of ADDIE, recognizing that some portions of each phase may overlap other phases.

## Analysis

In the analysis phase of ADDIE, the ID analyzes data to determine the problem to solve, gap to fill, or need to be met. For instructional design, this stage often involves analyzing available resources, the particular classroom setting, demographics of the students, learning objectives, and pedagogical goals (Instructional Design Central, n.d.; Kurt, 2017). In this design case, the team began with the pedagogical goal of increasing motivation within an elective course. Then they conducted an analysis of the context and needs associated with this case.

## Context Analysis

Colleges of Pharmacy are accredited by the Accreditation Council for Pharmacy Education (ACPE), which provides standards and guidance documents (ACPE, 2015) to ensure pharmacy students are "practice ready" and can contribute as a valuable member of the healthcare team (Beatty et al., 2014). Successful matriculation throughout the didactic curriculum sets the stage for the foundational knowledge and skills necessary for clinical application. Courses are developed to support these standards and are mapped to competencies with topics that follow both horizontal and vertical alignment. Gaps in competencies and subject matter are assessed, then topics are placed accordingly into the didactic and experiential curriculum.

The PHA6603C Internal Medicine Elective course was created after the curriculum was built with the goal to further prepare third-year pharmacy students (PY3) for the rigors and expectations of their Advanced Pharmacy Practice Experience (APPE) clinical rotations. This face-to-face, three-hour lecture and lab course would aim to support enhanced student learning and emphasize critical thinking and clinical application. Students taking this elective course would have foundational knowledge of the topics with limited individualized application and assessment in a clinical setting. A maximum of twenty students could enroll in the three-credit elective course which ran during the PY3 Spring semester (the students' last didactic semester) for a total of 16 weeks. The maximum number of students was set to allow for individualized assessment and opportunities for one-on-one clinical simulations. Students were randomized to select their elective courses based upon their last name on a first come first serve basis. Historically, students had selected electives based on the area of practice, degree of difficulty, and faculty participating in the course. Electives are two to three credit hours, and classes take place once per week. Student workload for their PY3 ranges between 18 to 20 credit hours per semester.

## Needs Analysis

### Content-Gaps

National and college decreasing trends in student performance on the North American Pharmacist Licensure Examination (NAPLEX) and the increase in student expectations for practice-readiness upon graduation created the need for an internal assessment to better prepare our students for success in these areas. The TCOP Curriculum Committee, along with the TIED team, reviewed the current curriculum including the progressive mapping of professional competencies. Discussions on self-assessment of the curriculum through enhanced simulations and course design occurred at the same time as course coordinators were petitioning to start an Internal Medicine Elective as part of the pharmacy curriculum. Creation of the course would need to focus on individualized application of knowledge and assessment of critical thinking and clinical reasoning. Establishing a means for evaluating critical

thinking and providing scenarios where students felt comfortable being uncomfortable in both low and high stakes environments was essential to the success of the course.

## Learning-Gaps

Core courses (not electives) occupy the majority of the students' time, leaving coordinators of electives continually searching for ways to motivate and encourage student participation and attention during and after class. Incorporating gamification principles aimed to help elevate student engagement for efficient learning and build intrinsic motivation.

## Faculty Workload

Integrating activities with individualized assessment and detailed feedback can be time intensive and overwhelming for faculty to incorporate. The necessity for immediate feedback adds to the stress and time intensive nature of such activities. Creating assessments that limit faculty workload while at the same time aligning with course and activity objectives with timely feedback is essential.

## Design

The design phase of ADDIE involves brainstorming and making decisions regarding the delivery method, learning objectives, lesson planning, and determining the resources (Instructional Design Central LLC, n.d.; Kurt, 2017). The collaborators in this case determined the goal of gamifying the elective course, selected appropriate game elements, created the rulebook, selected the assignments to be gamified, and created the rubric to assess the assignments.

## Goal Setting

Course coordinators enlisted the help of the TIED team once the course was pre-approved by the College's Curriculum Committee. The coordinators and TIED team met for a total of 10 hours to design and develop the overall course platform. During their first meeting, coordinators described their vision and goals of the course to the ID with further discussion on course design and implementation. During this design phase, the vision and recommendations of the ID were shared with the pharmacy faculty to align with the gamification workshop the ID was attending. The coordinators quickly decided to take advantage of this opportunity as this method directly aligned with the needs addressed above (Budhrani, 2018).

## Game Elements

After attending Budhrani's workshop at 41st Annual Meeting of the Association for Educational (2018), TCOP's ID met with the course coordinators to review guidance materials provided including a document on game elements. Course coordinators reviewed the proposed elements and the elements of the television (TV) show and discussed ideas for purposeful integration. Elements were chosen based upon the course needs and applicability in this setting. A consensus was made to mimic the course after the competitive cooking reality TV Show, Master Chef. Competitors in the show have various key elements that encourage intrinsic motivation and challenge the participants to be creative and innovative as they prepare their dish. Surprise ingredients introduced throughout the competition also allow for "on the spot" thinking and an opportunity for enhanced critical thinking.

Through applying a gameshow format, the Internal Medicine Elective course hoped to encourage friendly competition with activities related to several key internal medicine topics. When reviewing similarities between the show and the course, the course coordinators were able to link "cooking" and "healthcare" in that chefs (pharmacists) must use the correct ingredients (medications) to create the best meal (patient care) possible. Chef terminology (i.e., layered learning or scaffolded learning) offered a direct correlation with student expectations and accreditation standards. Introducing these concepts to the students provided them with clear expectations and encouraged life-long learning as required by "Standard 9" (ACPE, 2015). Course coordinators created a rulebook as part of their syllabus to set the stage for expectations and to tie in the Master Chef theme.

## Assignment Selection

There were three main assignments in the course where the coordinators worked with the ID to implement gamification principles and ensure alignment with the Master Chef theme. Assignments were chosen based on complexity and workload encompassing 80% of the total course grade. Assignments included a topic presentation (individual assessment), journal club debate (student pairs), and case simulation (6 total individual assessments). Activities were created to evaluate higher levels of learning that correlated with the expectations of students as they prepare for clinical practice. Assignments were scaffolded and encouraged friendly competition and autonomy of the learner.

## Assessment Instrument

Course coordinators also incorporated entrustable professional activities (EPAs) into course assessments to ensure professional education expectations to transition from learner to clinician were not overshadowed by game theme elements (see Table 1). The purposeful integration of both EPAs and various chef roles into course rubrics supported course gamification without minimizing the significance of patient care. An example of an assignment rubric is provided in Appendix A. "Secret ingredients" in the form of new lab values or diagnoses were incorporated into the case simulations to provide a quick assessment and utilize clinical reasoning as they adjusted their recommendations. Students were encouraged to also utilize gaming principles as they created their own active learning activities during their topic presentations. This allowed for autonomy and creativity for enhanced motivation and retention of information.

The team reviewed each of the assignments to make sure they aligned with the objectives, assessment followed the gamification principles, and also encouraged motivation, participation, and higher level of thinking. All activities allowed students to assess their progress and enhance reflection and goal setting. Assignments were created to limit faculty workload and provide an efficient way for assessment and feedback.

**Table 1**

*Entrustable Professional Activity (EPA) Milestone Level Descriptions*

Level of Entrustment	Description	Pharmacy Practice Modified Description
Level 1	I trust the student, with specific direction and direct supervision, to initiate a preliminary assessment of common conditions seen within the practice setting. The student requires significant correction for performance improvement.	Observe only, even with direct supervision
Level 2	I trust the student, with direct supervision and frequent correction, to assess common chronic conditions seen within the practice setting. The student accepts feedback for performance improvement.	Perform with direct, proactive supervision
Level 3	I trust the student, with limited correction, to assess common chronic conditions seen within the practice setting. The student is self-directed and seeks guidance as necessary.	Perform with reactive supervision (i.e. on request and quickly available)
Level 4	I trust the student to completely and accurately assess common chronic conditions seen within the practice setting as an independent practitioner (upon licensure).	Supervise at a distance and/or post hoc
Level 5	I trust that the student has mastered the ability to completely and accurately assess common conditions seen within the practice setting as an independent practitioner (upon licensure). The student is qualified to give meaningful feedback to other learners.	Supervise more junior colleagues

## Development

The development phase includes production and testing of the content planned in the previous stages. In this phase the ID puts the plan into action through three steps: drafting, production, and evaluation (Instructional Design Central LLC, n.d.; Kurt, 2017).

Coordinators met on a weekly basis to draft and produce course content including lecture slides and outlines, clinical cases, rubrics, knowledge checks, and active learning scenarios. Since the course was an elective, and most—if not all—material had been previously taught, emphasis was made on key topics of patient safety and complexity when creating assignments and cases. Assignments mimicked those expected during student experiences on clinical rotations to scaffold expectations and provide additional opportunities for didactic application before experiential learning. A prototype was created in the learning management system Canvas, and coordinators used this prototype to develop and update their course prior to implementation. Coordinators worked closely with the ID on a biweekly basis to apply best practices and purposeful integration of techniques into the course in preparation for the inaugural offering. Coordinators enlisted the help of five current fourth year pharmacy students who were already on rotations to ensure learners could identify the purpose and application of gamification. Rotation students also helped to provide areas of confusion and topics of interest based on current experiences. Coordinators used Canvas to post all assignment details, rubrics, and the leaderboard prior to the start of class. Additional gamification was provided real-time through cases, verbal defenses, and an escape room activity.

## Implementation

In an iterative design process, the implementation phase is where course materials are shared with students through a learning management system and delivery of instruction takes place. Course design elements are implemented along with assessment of student learning (Instructional Design Central LLC, n.d.; Kurt, 2017). The ID is actively working to ensure the course is running efficiently and gathers real time feedback for immediate redesign when necessary.

The first iteration of this gamified Internal Medicine Elective course received overwhelming interest from the PY3 students. The class enrollment was maxed out quickly (N = 20), and students continued to ask if the coordinators were able to add students to the course. Students enrolled in the course varied as far as scholastic ranking with grade point averages ranging from the lowest 10% up to the top performers. Students were excited about the ability to prepare for their clinical rotations and to enhance their clinical skills.

The course itself ran smoothly, and the coordinators provided clear expectations for students regarding deadlines, assignments, and grading rubrics that aligned with gamification principles. On the first day of class, the coordinators explained the different performance levels used for the “Topic Presentation and Patient Case Simulation” activities regarding performance and expectations and how they aligned with the theme of the course:

- “Unsatisfactory: Line Cook” (i.e., first-year level);
- “Below Expectations: Fish/Vegetable/Meat Cook” (i.e., second-year level);
- “Meets Expectations: Station Chef” (i.e., third-year level/current level);
- and “Exceeds Expectations: Sous Chef” (i.e., fourth-year level).

Coordinators also emphasized that although these rubrics were built on a scale of 60 total possible points, students would be graded out of 45 or 50 points in order to align with their level of training in the program (third-year). The theme of the course was carried forward with food-themed badges (cupcake and corn necklaces), which were awarded to the winners of activities and assignments such as our journal club debate. Students were incredibly enthusiastic about the honor of wearing the necklaces as a point of pride in their work until the next competition took place. Finally, a Master Chef escape room was used to provide insight on how to interpret and apply patient information for appropriate therapy assessment and management.

## Evaluation

Evaluation within the ADDIE process includes both formative (i.e., throughout the whole process) and summative evaluation after the implementation phase (Instructional Design Central LLC, n.d.; Kurt, 2017). For this particular design case, the focus during the evaluation phase was not on formal evaluation of the intervention itself. Instead, the ID worked with the coordinators to determine if the course and programmatic objectives were met and to further review if



identified gaps were filled. Gaming elements that were added to the course hoped to increase motivation of the students with a main emphasis on retention of information given the complexity and importance of effective application.

In the first iteration of the course, coordinators relied on course evaluations to evaluate interventions. In such evaluations, student comments were also utilized to provide further details into overall critique of gamification elements of the course. Informal verbal student feedback was overwhelmingly positive regarding the gamification of the course and the content of information provided to their pharmaceutical education. For the formal course evaluations through the college, all 20 students reported a score of 5 out of 5 regarding the statements, "I understand how this course will benefit me as a pharmacist" and "The course helped increase my knowledge and competence." High average scores were also received regarding clearly stated learning outcomes (4.9); content aligned with stated objectives (4.9); expectations were clear (4.8); and the required assignment and activities enhanced my learning experience (4.8). Free responses indicated that students felt this course would benefit all students and that it promoted their learning in a way that could translate into clinical practice during their fourth-year pharmacy rotations. Some representative comments from course evaluations included, "The structure of this course is great!," "Every single assignment that is done in this course helps you refresh what you have learned so far in other pharmacotherapeutics courses," and "All of the activities felt like they enhanced my learning, and I thought the overall course format was very conducive to reinforcing knowledge we have already come across." Course coordinators and the ID met to review student evaluations of the course and to brainstorm ideas for future offerings. There were some comments about harsh grading, but this was not in relation to the gamification of the course and instead the expectations for patient care as compared with previous courses. Unfortunately, due to the fact that this was the inaugural class for the course, the coordinators did not have prior course grades to compare.

## Performance and Future Plans

While there were no quantifiable comparison data to drive decision making, our team decided to include self-reflections of the faculty, the ID, and the students as performance indicators of the course. Discussion with the ID lead to ideas for future evaluation through a pre- and post-perception analysis of the EPAs (see Table 2), analysis of clinical rotation graded performance overall, and review of specific grading for the Internal Medicine APPE clinical rotation. This would allow both the coordinators and the ID to quantify immediate and longitudinal improvements in student knowledge and retention. Additionally, course coordinators will continue to work with the ID to add in opportunities for students to level up through advancing through the food pyramid and gaining access to additional assessments for added points towards their final grade.

## Conclusion

The positive feedback from the learners who participated in the gamified Internal Medicine Elective course support the use of gamification for professional health education. It can be inferred that the use of gamification for educational purposes does not seem to reduce credibility of the information presented, but instead supports learner engagement, retention, and application of skills. Incorporating gamification into the classroom was time intensive and increased faculty workload at first. This was in opposition to what the overall goal of this structure was originally. Most of the time was spent creating the activities and rubrics to assess student performance while aligning with the overall theme of the game show. Several hours were spent discussing course design with the ID and meeting prior to each activity to ensure alignment with the objectives and appropriate execution. The coordinators are hopeful that this will decrease with each offering. In the future, the coordinators plan to enhance clinical case simulations to align with the course theme and encourage individualized assessment. With the feedback provided from students, aspects of the course design have been added to core skills-based courses to continue to build upon intrinsic motivation and provide avenues for individualized clinical reasoning and application for all PY3 students.

Using student feedback, coordinators have incorporated additional concepts including a written consult with game design elements into the elective to allow for individualized assessment of both verbal and written communication



methods. With the second offering, students were provided examples of ways to incorporate gamification into their topic presentations and this has been added to the assignment description. As the TCOP develops an updated modified block curriculum, future and continuous involvement of the TIED team will be essential to follow pedagogical advances while at the same time providing efficient and effective assessment methods for faculty with respect to workload.

## Implications

Student engagement and self-directed learning is vital for higher education, especially in medical education. Faculty continue to struggle with a balance of creating options for individualized student assessment and engagement and the workload associated with such endeavors. Gamification has proven to be an effective means to challenge students with autonomy and opportunities for mastery while at the same time limiting faculty workload and time spent on such assessments (Barone et al., 2018). While incorporating such elements into a course can be time consuming and overwhelming, teaming up with an ID can alleviate the stress and allow for well-implemented gamification.

## References

- Aburahma, M. H., & Mohamed, H. M. (2015). Educational games as a teaching tool in pharmacy curriculum. *American Journal of Pharmaceutical Education*, 79(4) 59; <http://dx.doi.org/10.5688/ajpe79459>
- Accreditation Council for Pharmacy Education (ACPE). (2015). Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree. Accreditation Council for Pharmacy Education. <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>
- Adams, B. J., Margaron, F., & Kaplan, B. J. (2012). Comparing video games and laparoscopic simulators in the development of laparoscopic skills in surgical residents. *Journal of Surgical Education*, 69(6), 714-717. <http://doi.org.ezproxy.hsc.usf.edu/10.1016/j.jsurg.2012.06.006>
- Alexander, D., Thrasher, M., Hughley, B., Woodworth, B. A., Carroll, W., Willig, J. H., & Cho, D. Y. (2018). Gamification as a tool for resident education in otolaryngology: A pilot study. *Laryngoscope*, 129(2), 358-361. <https://doi.org.ezproxy.hsc.usf.edu/10.1002/lary.27286>
- Barone, J. A., Aleksunes L, & Hermes-DeSantis E. R. (2018, July). An interactive and integrated pharmacotherapy and skills-based curriculum: Bridging basic and clinical science. [School Poster]. 119<sup>th</sup> Annual Meeting of the American Association of Colleges of Pharmacy, Boston, Massachusetts, United States.
- Beatty, S. J., Kelley, K. A., Ha, J., & Matsunami, M. (2014). Measuring pre-advanced practice experience outcomes as part of a PharmD capstone experience. <http://dx.doi.org/10.5688/ajpe788152>
- Bradley, B. A., Reinking, D., Colwell, J., Hall, L. A., Fisher, D., Frey, N., & Baumann, J. F. (2012). Clarifying formative experiments in literacy research. In P. J. Dunston, S. K. Fullerton, C. C. Bates, K. Headley, & P. M. Stecker (Eds.), *Sixty-first yearbook of the Literacy Research Association* (pp. 410– 420). National Reading Conference.
- Branch, R. M., & Kopcha, T. J. (2014). Instructional design models. In J. Spector, M. Merrill, J. Elen, & M. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 77-87). Springer.
- Brull, S., Finlayson, S., Kostelec, T., MacDonald, R., & Krenzischek, D. (2017). Using gamification to improve Productivity and increase knowledge retention during orientation. *Journal of Nursing Administration*, 47(9), 448-453. <https://doi.org.ezproxy.hsc.usf.edu/10.1097/nnn.0000000000000512>
- Budhrani, K. (2018, October). Redesign courses into a competition-based game-show format. [Conference workshop]. 41st Annual Meeting of the Association for Educational Communications & Technology, Kansas City, MO, United States.

- Cain, J., Conway, J. M., DiVall, M. V., Erstad, B. L., Lockman, P. R., Ressler, J. C., Schwartz, A. H., Stolte, S., & Nemire, R. E. (2014). Report of the 2013-2014 Academic Affairs Committee. *American Journal of Pharmaceutical Education*, 78(10), S23. <https://doi.org/10.5688/ajpe7810S23>
- Clark, D. R. (2015). ADDIE Model. The Performance Juxtaposition Site. [http://knowledgejump.com/history\\_isd/addie.html](http://knowledgejump.com/history_isd/addie.html)
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining "gamification." *MindTrek*, 9-15. <https://doi.org/10.1145/2181037.2181040>
- Instructional Design Central, LLC (n.d.). Instructional Design Models. Instructional Design Central. <https://www.instructionaldesigncentral.com/instructionaldesignmodels>
- Kurt, S. (2017). ADDIE Model: Instructional Design. *Educational Technology*. <https://educationaltechnology.net/the-addie-model-instructional-design/>
- Lin, D. T., Park, J., Liebert, C. A., & Lau, J. N. (2015). Validity evidence for surgical improvement of clinical knowledge ops: A novel gaming platform to assess surgical decision making. *The American Journal of Surgery*, 209(1), 79-85. <https://doi.org.ezproxy.hsc.usf.edu/10.1016/j.amjsurg.2014.08.033>
- Reinking, D., & Bradley, B. A. (2008). *On formative and design experiments: Approaches to language and literacy research*. Teachers College Press.
- Reiser, R. A. (2001). A history of instructional design and technology: Part II: A history of instructional design. *Educational Technology Research and Development*, 49, 57-67. <https://doi.org/10.1007/BF02504928>
- Salazar, M., Pattipati, S. N., Havard, P., Ofstad, W., Duncan, W., Hussain, D., Fuentes, D. G., & Hughes, J. (2018, July). Collaboration across departments and university stakeholders reduces impact of the decreasing PharmD applicant pool. [School Poster]. 119<sup>th</sup> Annual Meeting of the American Association of Colleges of Pharmacy, Boston, Massachusetts, United States.
- Sardi, L., Idri, A., & Fernandez-Aleman, J. L. (2017). A systematic review of gamification in e-health. *Journal of Biomedical Informatics*, 31. <https://doi.org/10.1016/j.jbi.2017.05.011>
- Sera, L. & Wheeler, E. (2017). Game on: The gamification of the pharmacy classroom. *Currents in Pharmacy Teaching and Learning*, 9(1), 155-159. <https://doi.org.ezproxy.hsc.usf.edu/10.1016/j.cptl.2016.08.046>
- White, M., & Shellenbarger, T. (2018). Gamification of nursing education with digital badges. *Nurse Educator*, 43(2), 78-82. <https://doi.org.ezproxy.hsc.usf.edu/10.1097/nne.0000000000000434>
- Wolf, C., Bott, S., Hernandez, I., & Grieve, L. (2018, July). Teaching about the healthcare industry through gamification. [School Poster]. 119<sup>th</sup> Annual Meeting of the American Association of Colleges of Pharmacy, Boston, Massachusetts, United States.

## Appendix: Internal Medicine Elective Simulation Rubric

	Line Cook(EPA Level 1)	Fish/Vegetable/Meat Cook(EPA Level 2)	Station Chef(EPA Level 3)	Sous Chef(EPA Level 4)	Points Earned
	Significant Harm Done (Major)0 points	Not Yet Competent(Minor Harm Done)10 points	Competent15 points	Best Practice(New Practitioner/Residency Level)20 points	
Patient Presentation(Accurately reviews patient's status [CC, HPI, PMH, ROS, PE, vitals, home medications, allergies, and pertinent labs/tests]. Details chronological course effectively. Discusses relevant signs and symptoms and pertinent sequelae for the disease or clinical issue. Provides data needed for accurate assessment.)	Missing important components of patient review and assessment.Missing information or misinterprets information in a manner that would cause significant patient harm or death.	Missing or inappropriate assessment of less than three components of patient review. Missing or inappropriate assessment causes minor harm to the patient and/or does not significantly change recommendations.	Missing less than two components of patient review. Missing assessment does not significantly change recommendations and is not detrimental to the patient's health.	Accurately identifies all key elements from a patient's assessment with supporting data.	___/20
Knowledge(Discusses appropriate drug therapy management for the disease state based on current practice guidelines or standards of care. Recommendations are patient specific. Effectively summarizes and applies information from primary literature as it relates to patient case. Discusses patient's current drug therapy, including appropriateness, potential ADRs, dosing with pharmacokinetic and pharmacodynamic parameters, and duration of therapy. Uses appropriate parameters to assess endpoints of therapy including drug efficacy and/or toxicity. Provides important counseling points for the patient where appropriate. Provides details on monitoring and follow-up.)	Missing key concepts related to patient care. Inappropriate or missing recommendations that result in significant patient harm or death.Problems not accurately prioritized.	Missing key concepts related to patient care. Inappropriate or missing recommendations that would not result in significant patient harm or death but could cause minor harm to the patient. Problems not accurately prioritized.	Missing few concepts related to patient care. Provides relevant and appropriate recommendations based on current practice guidelines for most problems. Accurately prioritizes problems.	Identifies all concepts related to patient care. Provides relevant and appropriate recommendations based on current practice guidelines for all problems. Accurate prioritizes problems.	___/20
Communication Skills(Identifies self. Follows required format. Voice is clear and audible with appropriate pace. Provides recommendations in a confident manner. Uses open-ended questions.	Unable to communicate recommendations effectively. Miscommunication results in significant patient harm/death.Unable to	Unable to communicate recommendations effectively. Miscommunication may result in minor patient harm but does not result in significant	Communicates effectively and provides recommendations mostly in a confident manner. Answers all questions	Communicates effectively and provides recommendations in a confident manner. Answers all questions accurately and completely. Limited use	___/20

	<b>Line Cook(EPA Level 1)</b>	<b>Fish/Vegetable/Meat Cook(EPA Level 2)</b>	<b>Station Chef(EPA Level 3)</b>	<b>Sous Chef(EPA Level 4)</b>	<b>Points Earned</b>
Answers questions accurately, completely, and confidently. Interacts in a professional manner)	answer questions or questions are answered incorrectly causing significant patient harm or death.	patient harm/death. Unable to answer questions or questions are answered incorrectly and causes minor harm to the patient. Heavily reliant on notes with limited eye contact.	accurately and mostly complete. References notes but has appropriate eye contact.	of notes with excellent eye contact.	
Total					___/45 (Expectation of student at this time)

Note - The above table is adapted from MWU Chicago College of Pharmacy IPPE Case Presentation Evaluation Form.



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# A Study of Instructional Design Master's Programs and Their Responsiveness to Evolving Professional Expectations and Employer Demand

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Instructional Design

Competencies

Employer demand



*As world and job market trends continue to evolve, so does our definition of the instructional design field. Recent study definitions, professional standards, and employer demand suggest that beyond designing and developing instructional solutions, other competency domains from needs assessment to evaluation are essential for improving learning and performance in a variety of educational and workplace settings. This study sought to elucidate the competencies that instructional design master's programs consider essential as illustrated by their core curriculum. Findings suggest that while there is strong alignment in some competency areas, there is insufficient evidence of alignment in others.*

## Evolving Definition of Instructional Design

As the world and job market continue to evolve, the instructional design field has had its share of transition. One indication of its evolution has been the various adaptations of its definition over the years that have underscored a shift from instructional media (Ely, 1963) to a focus on solving instructional problems in educational settings (Cassidy, 1982; Silber, 1970; Gentry, 1995). While some of these definitions referred to some variation of systemic and/or systematic, the focus was typically on instructional systems and in some cases (e.g., AECT, 1994) included stages of a systematic process such as design, development, utilization, management, and evaluation of instruction. In his definition, Silber (1970) offered a more concrete system orientation suggesting elements such as research followed by design, production, evaluation, support-supply, and utilization, and also including the management of system components such as messages, people, materials, devices, techniques, and settings. Over the years, others have written on the essential expansion of our professional lens to the whole performance system and outcomes (Clark & Estes, 2008; Guerra-López, 2008; Guerra-López & Hicks, 2017; Kaufman, 1996; 2019; Rummler, 2007). More recently, Reiser and Dempsey (2018) have offered the following definition:

*The field of instructional design and technology (also known as instructional technology) encompasses the analysis of learning and performance problems, and the design, development, implementation, evaluation and management of instructional and non-instructional processes and resources intended to improve learning and performance in a variety of settings, particularly educational institutions and workplace. (p. 4)*

This recent definition suggests recognition that the scope of instructional design professionals extends beyond designing and developing instructional solutions, and that there is an expectation that they incorporate a variety of processes from diagnosis to evaluation, in order to measurably improve learning and performance in a variety of performance settings.

## **The Evolving Role of Instructional Designer**

The interdisciplinary roots of instructional design have contributed to the diversity of our epistemologies and allowed us to draw from a variety of theories, empirical evidence, and models. It has also contributed to professionals in the field working across a wide range of job titles, roles, and responsibilities. Instructional design professionals work under a variety of job titles including instructional designer or technologist, curriculum developer, training manager, learning and development specialist, and performance improvement consultant to name a few. Klein and Kelly (2018) noted the difficulty in identifying professionals in the field due to its changing nature and in their review of 393 job announcements for instructional design jobs, found 35 different job titles across 28 industries. Evidence of this wide array of job titles can also be found in earlier studies. Furst-Bowe (1996) included 147 instructional design practitioners and found that 40 different job titles were used to describe those professionals. Adding another dimension of variability, Larson and Lockee (2008) observed that instructional design professionals work in a range of work environments such as, corporate, higher education, K-12, government, military, non-profit, and healthcare. Work settings, job roles, and varied functions contribute to the wide range of job titles used for instructional design professionals (Liu et al., 2002).

The diverse and multifaceted nature of work performed by instructional designers across job roles, contexts, areas of specialization, and career trajectories represent a particular challenge for university programs, which are trusted to effectively prepare instructional design graduates to meet evolving professional expectations and employer needs. Thus, this mixed-methods study seeks to elucidate the foundational competencies prioritized by instructional design master's programs. While instructional design programs vary in the range of core and elective courses they offer their students to prepare for the workforce, for the purposes of this study, core courses are used as an indication of the competencies programs consider as essential and will consider electives as optional competencies. This study will therefore focus on an analysis of core cores.

## **Professional Expectations and Standards**

A professional organization supports a particular profession and works to advance the quality, skill level, and interests of professionals working in that specific field. A variety of professional organizations have used professional standards as a framework for guiding professional practice and judging the competence of professionals across key areas. The International Society for Performance Improvement (ISPI) (2016) has proposed the following ten professional standards: (a) focusing on results or outcomes, (b) taking a systemic view, (c) adding value, (d) working in partnership with clients and stakeholders, (e) determining the need or opportunity, (f) determining the cause, (g) designing the solution (including implementation and evaluation), (h) ensuring solutions' conformity and feasibility, (i) implementing solutions, (j) Evaluating the results and impact.

Others have sought to propose professional competencies as a way to characterize the work of instructional designers. Competencies can be defined as a set of observable knowledge, skills, attitudes, and behaviors (McLagan, 1997; Gupta, Sleezer & Russ-Eft, 2007) that enable one to effectively perform the activities of a given occupation or function to the standards expected in employment (Koszalka, Russ-Eft, & Reiser, 2013; Richey, Fields, & Foxon, 2001). Similarly, the



International Board of Standards for Training, Performance and Instruction (IBSTPI, 2016) defines a competency as “a knowledge, skill, or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment.” The identification of key competencies is particularly useful for educational institutions because they provide guidelines for curriculum development, program revision, and accreditation (Byun, 2000; Klein & Jun, 2004).

In 2012, IBSTPI described the work of instructional designers through 22 competencies categorized into following domains: professional foundations, planning and analysis, design and development, evaluation and implementation, and management. Meanwhile, the Association for Talent Development (ATD) has defined a set of foundational competencies that include business skills such as global mindset, industry knowledge, interpersonal skills, personal skills, and technology literacy. Areas of technical expertise include instructional design, learning technologies, performance improvement, evaluation, training delivery, managing learning programs, coaching, knowledge management, and change management (ATD, 2016). Additionally, the Canadian Society for Training and Development (CSTD) (2011) has proposed five competency areas: assessing performance needs, designing training, facilitating training, supporting the transfer of learning, and evaluating training.

Finally, while the above competency frameworks have been focused on the skills of instructional design professionals and closely related roles, in 2012 the Association for Educational Communications and Technology (AECT) adopted six key standards directed at education programs and provided them with a framework by which programs could determine student competence across six key dimensions: (a) Content knowledge, where students demonstrate the knowledge necessary to create, use, assess, and manage theoretical and practical applications of educational technologies and processes; (b) Content pedagogy, where students develop as reflective practitioners able to demonstrate effective implementation of educational technologies and processes based on contemporary content and pedagogy; (c) Learning environments, where students facilitate learning by creating, using, evaluating, and managing effective learning environments; (d) Professional Knowledge and Skills, where students design, develop, implement, and evaluate technology-rich learning environments within a supportive community of practice; and (e) Research, where students explore, evaluate, synthesize, and apply methods of inquiry to enhance learning and improve performance.

Prior research has looked at the alignment between instructional design program curriculum and what professionals, including faculty consider to be important skills. Fox and Klein (2003) surveyed 24 instructional design faculty members in 11 U.S. universities as well as 45 ISPI and ATD members and asked participants to rate the importance of having human performance technology (HPT) competencies for graduates of instructional systems/design/technology programs. The competencies listed in the survey instrument used by the authors were based on the Handbook of Human Performance Technology (Stolovitch & Keeps, 1999) and HPT courses offered by instructional design programs. Respondents indicated that instructional design graduates should have a broad knowledge of HPT and performance improvement process with training needs assessment rated as one of the top competencies. Fox and Klein (2003) also noted that most of the highly rated competencies do not receive extensive coverage in most ID programs. Specifically, they pointed out that many instructional design programs do not include human performance as a core course, and that there are numerous other discrepancies between the instructional design program curricula and the competencies their respondents considered important.

## Employer Expectations

Prior research has also sought to improve our understanding of employers' expectations (Byun, 2000; Fox & Klein, 2003; Klein & Fox, 2004; Klein & Jun, 2014; Klein & Kelly, 2018; Larson & Lockee, 2007, 2008; Richey, Fields, & Foxon, 2001; Sugar et al., 2012). Job announcement analysis has been one of the common methods for identifying competencies expected from professionals of a field (Kang & Ritzhaupt, 2015; Ritzhaupt, Martin & Daniels, 2010; Moallem, 1995; Ritzhaupt & Martin, 2013; Sugar et al., 2012). An advantage of using job announcements is first-hand information on which competencies are in demand in the market (Klein & Kelly, 2018) which are of benefit not only to university programs but also to human resource consultants and recruiters who want to find out what skills employers are seeking (Sodhi & Son, 2009).

Ritzhaupt, Martin and Daniels (2010) studied 205 job postings and 231 survey responses by instructional design professionals and found the top 4 instructional design-related competencies included ability to create effective instructional products (72%), apply sound instructional design principles (34%), conduct needs assessment (33%) and conduct evaluation (32%). Sugar et al. (2012) analyzed 615 job postings for Instructional Design and Technology and identified skills expected of instructional design program graduates. The most sought-after competency areas were knowledge of instructional design and ADDIE which appeared in more than 90% of the listings. The research identified evaluating effectiveness of training programs and conducting needs analysis as a priority for more than 50% of employers. When disaggregated into Corporate and Higher Education sectors, researchers found that while more than 61% corporate jobs require assessment skills, the number was far lower for higher education jobs at 33%. E-learning, evaluation, and project management were some other competencies highlighted by the study.

Carliner et al. (2015) explored the competencies needed by Performance Consultants. By studying 56 anonymized job descriptions for the position of a Performance Consultant in Canada, they used qualitative content analysis techniques to create a profile of the performance consultant position. In doing so, they also compared the profile to the Training and Development Professionals competency model from the CSTD. They observed that project management competencies were in demand by employers but missing in the CSTD model.

Along with being included in the Competencies for Training and Development Professionals framework, 42 out of 56 (or 75%) job descriptions have needs assessment as a priority area, making it a core area of responsibility. Design and development of programs, and managing client relationships were other competencies prioritized in the job listings. Kang and Ritzhaupt (2015) analyzed 400 job postings for 43 related job titles in the instructional design field and found that along with knowledge of instructional design models and principles (55%), the top competency areas included learning management systems (33.75%) and assessment methods (27.5%).

Most recently, Klein and Kelly (2018) analyzed 393 job announcements and interviewed 20 instructional design managers to identify instructional designer competencies expected by employers. The required competencies varied according to the job sector (e.g., corporate, higher education, healthcare, and consulting). Effective collaboration (75%) and application of learning theory and principles (60%) showed up in all sectors. Additionally, ADDIE (67%), e-learning (64%), and needs assessment (53%) were also prominent competencies across the sectors. From these employer demand studies, we can see a pattern that typically, and not surprisingly, places instructional design, needs assessment, evaluation, and technology-related competencies as top competency domains.

## Methodology

The study sought to answer: What foundational competencies are prioritized by instructional design master's programs? Content analysis techniques were used to systematically review and code existing information available through instructional design program websites (Boettger & Palmer, 2010). Frequency counts were used to estimate the occurrence of particular instances and themes. This study used core courses as an indication of essential or prioritized program competencies because of the expectation that all students take these courses as part of their preparation. Competencies met through electives are optional and students are not guaranteed to walk away with the competencies developed through those courses. The researchers reviewed core courses offered by 40 instructional design (or comparable name) master's programs across 34 universities in the United States (U.S.). Given that universities offer programs in educational technology related fields under different program titles based on their program emphasis and course structure (Almaden & Ku, 2017), an instructional design or comparable master's programs was defined as one having some variation of the following titles: "Learning Design and Technology", "Educational Technology", "Instructional Design and Technology", "Instructional Systems Design", "Curriculum Development and Technology", "Organizational Performance and Workplace Learning" etc. This study did not include programs from related fields such as human resource development or organizational development because while there may be overlap in courses, those programs are rooted in different disciplinary and theoretical perspectives. Programs in our sample were selected from the information found on the list for Best Masters in Educational Technology Program on [besteducationdegrees.com](http://besteducationdegrees.com) and by using online search engines like Google and searching for Instructional Design programs offered in the U.S.

The researchers reviewed all core courses across the 40 programs (a total of 249 courses) using content published in program websites. In most cases, core courses formed half of the total credits required to graduate. For each program, the researchers gathered data about the degree offered, name of the program, total credits, core courses, course requirements, mode of study (online or on campus), and the course objectives. Researchers also captured additional requirements for course completion such as thesis, internship, portfolio, etc.

The researchers analyzed published program descriptions in order to provide context for the analysis of courses. We noted total credits and their breakdown into core, electives and specialization for each program as part of our study database. We used a grounded theory approach to guide the process of coding of initial themes, clustering related themes into subcategories, and finally building research consensus through in-depth discussions. We developed a high-level map with identified priority competency areas in order to facilitate comparisons (Miles, Huberman & Saldana, 2014). The research team collectively reviewed and finalized the codes to be used.

## Findings

### Program Profiles

Various types of master's degrees are offered. Our sample included 15 Master of Science (MS), 10 Master of Education (M.Ed.), four Master of Arts (MA), three Master of Science in Education (MSEd), two Master of Arts in Education (MAEd), two Master of Educational Technology (MET), two Master of Science in Educational Technology (MSET), one Master of Arts in Educational Technology (MAET), and one Master of Learning Technology (MLT).

While program names varied, they included terms such as instructional, technology, design, systems, learning and educational. As Figure 1 illustrates, Technology/technologies were the most commonly used terms in program names (used in 33 of 40 program names). "Instructional", "design", and "learning" were also frequently used terms, followed by systems and education. Less frequently used terms included curriculum, performance, training, improvement, development, innovation, psychology, sciences, library media, and entrepreneurship.

**Figure 1**

*Frequency of Terms found in Program Names*

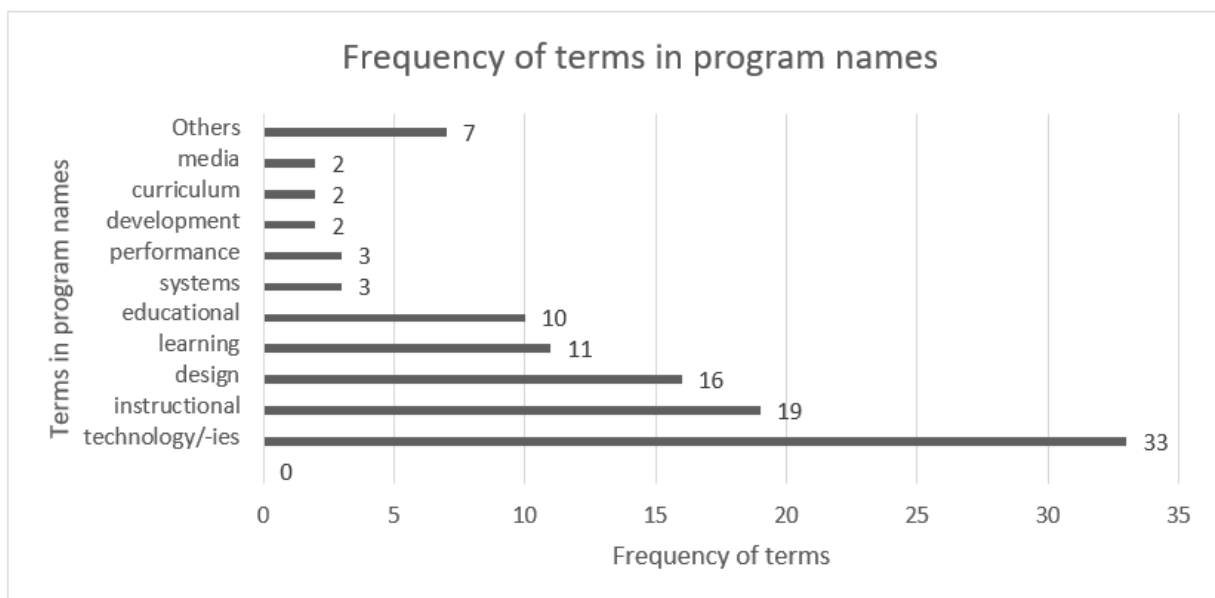


Chart showing frequency of terms found in program names

As Table 1 illustrates, 30 of the programs indicated preparing students to develop effective instruction (including design, development, and implementation) as their focus. Other commonly cited focus areas included preparing students to apply skills in a corporate environment (26 programs) and technology integration (24 programs), followed closely by application of skills in academic environments (22). Other focus areas included evaluation of effective instruction (17), improved performance (10), development of learning environments/systems (8), leadership (6), improved learning processes (4), and specific emphasis on K-12 environments (4).

**Table 1**

*Focus Area Based on Published Descriptions*

Program purpose as stated in program descriptions	Count
1. Effective instruction development (Design, Develop, Implement)	30
2. Apply skills in corporate environment	26
3. Technology integration	24
4. Apply skills in academic environment	22
5. Evaluate effectiveness of instruction	17
6. Performance Improvement	10
7. Development of learning environments/systems	8
8. Leadership	6
9. Learning processes	5
10. K-12	3

In terms of competency areas, six overarching themes emerged from the content analysis of the 249 courses consisting of (a) Foundations of Instructional Design, Design and Development, (b) Research and Evaluation, (c) Technology, (d) Teaching and Learning, (e) Management and Performance, and (f) Needs Assessment. These overarching domains in turn consisted of a number of more specific subdomains as illustrated in Table 2.

**Table 2**

*Program Requirements – Core Courses*

Competency Domain	Sub-Domain (Topics) with frequency	Sample Course Titles	Total number of courses
Foundations of ID, Design and Development	• Overview of instructional design field (21)• Design Instructional Interventions (20)• Introduction to instructional design & development process and skills (13)• Current issues and trends (8)• Advanced ID (5)• Design Thinking (3)• Curriculum Development (1)• Text-based instruction (1)	• Introduction to ID• Trends and Issues in Instructional Design• Current Trends in Instructional Technology• Instructional Design• Design Thinking and Knowledge• Advanced Instructional Design Theory• Message Design and Display	72
Research and Evaluation	• Evaluations (24)• Educational Research (17)• Research Methodology (14)• Learner Assessments (4)• Inquiry and Measurement (5)• Learning Analytics (3)	• Measurement and Evaluation in Education• Inquiry and Measurement• Data-Driven Decision-Making for Instruction• Evaluation of Learning and Performance• Research Methods in Education• Research in Instructional Technology	67
Technology	• Integration of technology (21)• E-learning (13)• Emerging Technologies (8)• Social, ethical, legal issues in technology (4)• Library and Database, Digital Information (3)• Computers- hardware (1)• Multimedia in K-12 (1)	• Emerging Technologies• Technology and Design• Introduction to E-learning• Learning Management Systems• Interactive Course Design• Library and Digital Information Management• Foundations of Distance Education• Selection and Integration of Multimedia for K12 Schools	51

Competency Domain	Sub-Domain (Topics) with frequency	Sample Course Titles	Total number of courses
Teaching and Learning	• Learning Theories (23)• Adult Learner (3)• Educational Psychology (2)• Roles of teachers (2)	• The Adult as Learner• Learning theory	30
Management and Performance	• Performance Improvement (6)• Project Management (5)• Human Performance Technology (4)• Communication (2)• Diversity (2)• Organizational learning (1)• Financial Impact of Training and Performance Improvement (1)• Leadership (1)	• Foundations of Project Management• Leadership and Education• Social/Cultural Issues in Educational Technology• Intro to HPT• Foundations of Performance Improvement• Return on Investment in Training and Performance Improvement	22
Needs Assessment	• Needs Assessment (5)• Strategic Assessment (2)	• Instructional Needs Assessment and Analysis• Strategic Assessment in Education	7

The strongest theme to emerge from core courses was Foundations of Instructional Design, Design and Development (72 courses), followed by Research and Evaluation (67 courses), and Technology (51 courses), while Needs Assessment (seven courses) was at the bottom of the list. Among the sub-domains (i.e. specific course topics) evaluation was the most common, with 24 programs including it as core courses along with learning theories which was included by 23 courses. They were closely followed by Overview of ID and technology integration with 21 programs each.

## Foundations of Instructional Design, Design and Development

The Foundations of Instructional Design, Design and Development theme includes an overview of the field of Instructional Design and Technology emphasizing history and guiding principles, knowledge, skills, and abilities, and ethical foundations of the field, as well as current trends and future implications. This category also includes design and development courses offering an overview of the instructional design process along with topics such as design thinking, curriculum development and learning strategies. Core courses, required by 33 programs, covered at least one of the topics in this domain. Our sample contained 72 courses covering topics under this domain with some programs covering more than one topic. The most commonly offered course titles were Introduction to instructional design, Trends and Issues in Instructional Design, Current Trends in Instructional Technology, Instructional Design, Advanced Instructional Design Theory, and Message Design and Display.

## Research and Evaluation

Courses covering evaluation of instructional interventions and building skills for making data-based decisions related to learning and human performance, as well as courses related to research methodology and educational research are included under the Research and Evaluation domain. It is a widely covered competency domain with 33 university programs requiring at least one course from this domain. The term evaluation appeared in 24 required courses with titles such as Measurement and Evaluation in Education and Evaluation of Learning and Performance. Research courses like Research Methods in Education and Research in Instructional Technology were also included. Overall, 67 required courses fell under this domain.

## Technology

Technology-focused courses had diverse titles. Integration of technology in instructional design, e-learning, emerging technologies and their potential impact on classrooms, technology applications as an effective tool in teaching and learning, learning management systems are some of the topics that make up the Technology domain. Technology was the focus of 51 required courses across twenty-eight programs and included course titles such as Emerging Technologies, Technology and Design, and Introduction to E-learning.

## Teaching and Learning

This domain includes course topics related to learning theory and application to the instructional design process, adult learners, role of teachers, and an introduction to theories emerging from research on educational psychology. A total of

30 courses in our sample are captured in this domain with learning theories being the most common course – required as a core course by 23 programs.

## Management and Performance

This theme includes courses that address a variety of environmental variables that affect behavior and/or performance and covers courses like Project Management, Human Performance Technology (HPT), and Performance Improvement. A total of 22 required courses fell under this domain with course titles such as Foundations of Project Management Intro to HPT, and Foundations of Performance Improvement.

## Needs Assessment

This domain consists of courses that focus a variety of front-end or needs assessment processes with some variation of strategic assessment, needs assessment models, validating programs and assessing continuing validity of ongoing programs based on needs. A total of seven required courses fell under this category with course titles such as Instructional Needs Assessment and Analysis and Strategic Assessment in Education.

## Discussion

### A Primary Focus on Designing Instruction?

While our review of the research literature suggests that professional standards and employer demand continue to evolve, the extent to which the current core courses of instructional design programs are aligned to these expectations are variable. As suggested by Reiser and Dempsey (2018), the role of instructional design professionals includes the resolution of learning and performance problems in a variety of settings. Yet, the majority of the program descriptions in our sample (75%) indicated their focus was to prepare students to develop effective instruction with an additional five programs indicating their focus was on improving the learning process. Design was the strongest theme to emerge, with 72 (29%) core courses across the 40 programs in our sample. This is perhaps not surprising given our core identity as an instructional design field, and moreover, it would be sensible to continue to find design as a core competency domain for instructional design professionals in the future. The question is whether we are preparing instructional design professionals with a complimentary set of foundational skills to enable them to address learning and performance problems effectively and sustainably. Instruction may or may not address performance problems, and if we define our goal as developing instruction, we neglect to develop and apply other skills that are essential for effectively addressing performance problem(s).

In contrast, one-fourth (25%) of program descriptions alluded to performance improvement as part of their focus. Fox and Klein (2003) previously observed that due to the traditional focus on training solutions, instructional design programs may be struggling with the extent to which they should incorporate performance improvement or human performance technology in their curricula. By studying the responses of instructional design faculty members and members of local chapters of ISPI and ATD to their survey, they noted that instructional design graduates should have a broad knowledge of performance and performance improvement processes. The authors went on to assert that most instructional design programs do not require performance improvement courses, indicating discrepancies between the curricula offered by the programs and the competencies that professionals working in the field consider important.

### A Systemic Approach Is Vital to Assessing Needs and Improving Performance

Properly preparing students to address performance issues requires more than a program description page or introductory courses to performance improvement. If we are serious about addressing learning and performance problems, or leveraging opportunities, we must begin with a real diagnosis or needs assessment. A needs assessment has the greatest utility and impact when we take a systems approach because it provides us with a holistic view of reality, helps us distinguish assumptions from facts, validates evidenced-based needs, and reduces the risk of wasting



precious resources on designing solutions (particularly instruction) that will not address underlying issues or get us much closer to expected outcomes.

Identifying learning and performance issues requires us to understand the system, which is made up of interrelated factors and dynamics that create and sustain those recurring issues. A systems approach to needs assessment allows us to clearly define the outcomes that the system should deliver, the root causes or barriers that are getting in the way of achieving those outcomes, and the requirements that must be met by the solution(s)—this, in turn, gives us a strong foundation with which to judge the appropriateness of proposed solutions. (Kaufman & Guerra-López, 2013; Guerra-López, 2018; Guerra-López & Hicks, 2017). Based on this description of a systems approach to needs assessment, one might reasonably see the importance of this competency on enabling ID professionals to address learning and performance problems as stated in Reiser and Dempsey's 2018 definition, and adding the type of measurable value that employers expect.

Interestingly, needs assessment represents the weakest area of instructional design professionals' preparation as indicated by seven (3%) core courses on some variation of needs assessment across 40 masters' programs. Yet across many professional organizational competency frameworks and standards (i.e., ISPI, IBSTPI, CSTD, ATD) and employer demand research (Carliner et al., 2015; Klein & Kelly, 2018; Sugar et al., 2012), needs assessment has repeatedly ranks as a priority competency. Richey, Morrison, and Foxon (2007) used the Occupational Information Network (O\*NET), an online database containing hundreds of occupational definitions and work demand trends in the U.S., and found that conducting needs assessments and strategic learning assessments showed up as one of the most important tasks for the instructional technologist. This seems to suggest that it would behoove ID programs to reflect on where and how in their curriculum, they are preparing students to meet the demands of employers as it pertains to essential needs assessment approaches and skills.

## Setting

Consistent with earlier definitions of the field which placed boundaries around educational settings, 22 program descriptions indicated their students are prepared to work in academic environments and another 4 programs in our sample indicated having a specific emphasis on K-12 environments. Yet, the research literature suggests that instructional design professionals work primarily in business and industry (Byun, 2000; Klein & Kelly, 2018; Heideman, 1991; Larson & Lockee, 2008; Moallem, 1995; Richey et al., 2007). Our findings suggest that there may be some moderate alignment to this target setting, with 26 of 40 (65%) programs indicating they prepare students to work in corporate environments. Setting is important because it influences our view of the system, and in turn, how we define the conditions and objectives of interest. While instructional design professionals use principles, evidence, models, and tools that can be useful across a variety of settings, the solutions we design, the stakeholders we work with, the approach to implementation and management, and many other important details must also be contextualized to the realities and dynamics of specific settings.

## Technology

Not surprisingly, technology also emerged as a strong theme with 24 (60%) of the program descriptions indicating their focus included technology integration and 51 (20%) core courses in the sample fitting into a technology dimension. Berge, de Verneil, Berge, Davis, and Smith (2002) forecasted that instructional design professionals will continue to be expected to increase their competence with technology given the technological transformation that our society is undergoing. Digital disruption is already a reality. Klaus Schwab (2016), the Founder and Executive Chairman of the World Economic Forum argues that we are undergoing a fourth industrial revolution driven by technology and it is evolving at an exponential rather than a linear pace disrupting practically every industry. This has significant implications for the workplace and education. Jobs are changing with some becoming obsolete, others changing in fundamental ways, and entirely new types of jobs emerging. This has significant implications for the evolution of workplace learning and performance as well as how we educate learners in educational settings at every level.

Technology has the potential to significantly strengthen the ability of educational institutions to deliver on their core educational mission with greater quality, efficiency, and effectiveness. However, digital tools have been used largely

under traditional models of teaching and learning (e.g., drill-and-skill instruction, information transmission) and not surprisingly, we have not seen significant improvement of results (Fishman & Dede, 2016). Instructional design professionals can provide leadership in instructional strategies and approaches informed by advances in learning science and technology innovations, coupled with a system's approach and a clear focus on improving results. Thirty (12%) core courses in our sample fell under the teaching or learning theme suggesting that perhaps there is an opportunity to better balance student preparation on technology innovations with advances in learning science. Certainly, without taking a closer look at the actual course syllabi, it is difficult to say with certainty that learning science is not already being incorporated into other courses such as instructional design and technology. But given the variety of disciplines from which instructional design programs draw students, our stated intent to improve learning, and the ongoing advances in learning sciences, it would seem logical to expect a stronger prevalence of courses in learning sciences.

## Research and Evaluation

Evaluation emerged as the second strongest theme with 67 (27%) of core courses offered in some variation of research and evaluation skills. This gives us a positive outlook on the contributions that instructional design professionals can make and says something about our strong tradition in the application of research and evidence in our field. As a continuous improvement tool evaluation can help instructional design professionals and those they work with focus on well-defined needs and priorities so that learning and performance improvement solutions are clearly aligned to desired results at the individual, team, institution, and external impact levels (Guerra-López, 2008). It can help us learn how, when, why, and for whom learning and performance improvement solutions work as intended. If clearly aligned to key decision-making needs, evaluation can serve as a source of timely feedback allowing us to promptly adapt learning and performance improvement solutions, ensuring alignment to targeted results (Guerra-López, 2018).

Based on the emphasis on research and evaluation in instructional design programs, it would seem that instructional design professionals tend to be well prepared in evaluation and research skills. As previously mentioned the lens we use to frame our scope can significantly impact the value we add. Applying these research and evaluation skills in the context of a system perspective can influence our understanding of desired outcomes and whether we are merely making short-term improvements without meaningful contribution to long-term results (Clark & Estes, 2008; Guerra, 2008).

## Conclusion

While there seems to be some alignment between professional expectations and the aggregate instructional design masters curriculum, particularly around instructional design, research and evaluation, and technology, this study's findings suggest there may still be gaps to further validate and address when it comes to needs assessment and systemic approaches. This is particularly important given our stated role in addressing learning and performance problems. Without fully defining what problem should be addressed and understanding the system variables, recurring loops, and dynamics sustaining that problem, we run the risk of applying our design skills to inadequately defined problems. These problem definition issues in the front-end, provide a flawed frame for the subsequent improvement efforts and ultimately lead to poorly focused evaluations that draw flawed conclusions about the effectiveness of solutions, generating a false sense of accomplishment and value. In an ever-increasingly interconnected world, the demand for system thinking and systemic approaches that involve interdisciplinary and multi-stakeholder methods to solve complex societal problems will continue to grow. This represents an important opportunity to raise the profile and value of instructional design professionals.

## References

- Almaden, A., & Ku, H. (2017). Analyzing the curricula of Doctor of Philosophy in educational technology-related programs in the United States. *Educational Media International*, 54(2), 112-128.



<https://doi.org/10.1080/09523987.2017.1364210>

- Berge, Z., de Verneil, M., Berge, N., Davis, L., & Smith, D. (2002). The increasing scope of training and development competency. *Benchmarking: An International Journal*, 9(1), 43–61.
- Boettger, R. K. & Palmer, L. A. (2010, December). Quantitative content analysis: Its use in technical communication. *IEEE Transactions on Professional Communication*, 53(4), 346-357. <https://doi.org/10.1109/TPC.2010.2077450>
- Byun, H. (2000). Identifying job types and competencies for instructional technologists: A five year analysis [Doctoral dissertation, Indiana University] *Dissertation Abstracts International*, 61, 4346. <https://doi.org/10.17232/KSET.17.1.57>
- Carliner, S., Castonguay, C., Sheepy, E., Ribeiro, O., Sabri, H., Saylor, C., & Valle, A. (2015). The job of a performance consultant: A qualitative content analysis of job descriptions. *European Journal of Training and Development*, 39(6), 458-483. <https://doi.org/10.1108/ejtd-01-2015-0006>
- Cassidy, M. F. (1982). Toward integration: Education, instructional technology, and semiotics. *Educational Communications and Technology Journal*, 20(2), 75–89.
- Clark, R. E., & Estes, F. (2008). Turning research into results: A guide to selecting the right performance solutions. Information Age.
- Ely, D. P., ed. (1963). The changing role of the audiovisual process in education: A definition and a glossary of related terms. TCP Monograph No. 1. AV Communication Review, 11(1), Supplement No. 6. {Google Scholar}
- Fishman, B., & Dede, C. (2016). Teaching and technology: New tools for new times. In D. H. Gitomer & C. A. Bell (Eds.), *Handbook of Research on Teaching* (5<sup>th</sup> ed., pp. 1269 - 1334 ). American Education and Research Association.
- Fox, E. J., & Klein, J. D. (2003). What should instructional designers and technologists know about human performance technology? *Performance Improvement Quarterly*, 16(3), 87–98.
- Furst-Bowe, J. A. (Ed.) (1996). Competencies needed to design and deliver training using instructional technology. In proceedings of selected research and development presentations at the 1996 national convention of the Association for Educational Communications and Technology. (ERIC Document Reproduction Service No. ED397795) Retrieved April 24, 2021 from <https://www.learntechlib.org/p/80106/>
- Gentry, C. G. (1995). Educational technology: A question of meaning. In G. Anglin (Ed.), *Instructional technology: Past, present, and future*. Libraries Unlimited.
- Guerra, I. (2008). Outcome-based vocational rehabilitation: Measuring valuable results. *Performance Improvement Quarterly*, 18(3), 65-75. <https://doi.org/10.1111/j.1937-8327.2005.tb00342.x>
- Guerra-López, I. (2018). Ensuring measurable strategic alignment to external clients and society. *Performance Improvement*, 57(6), 33-40.
- Guerra-López, I., & Hicks, K. (2017). Partner for performance: Strategically aligning learning and development. ATD Press.
- Gupta, K., Sleezer, C. M., & Russ-Eft, D. F. (2007). A practical guide to needs assessment (2<sup>nd</sup> ed.). Pfeiffer/John Wiley & Sons.
- Heideman, J. G. (1991). A forecast of the competencies required for effective performance by instructional technology practitioners in the year 2000 (Order No. 9127229). Available from ProQuest Dissertations & Theses Global. (303934240). <https://proxy.lib.wayne.edu/login?url=https://www-proquest-com.proxy.lib.wayne.edu/dissertations-theses/forecast-competencies-required-effective/docview/303934240/se-2?accountid=14925>

- IBSTPI. (2016). Instructional Design Competencies. <https://ibstpi.org/instructional-design-competencies/>
- Kang, Y., & Ritzhaupt, A. D. (2015). A job announcement analysis of educational technology professional positions. *Journal of Educational Technology Systems*, 43(3), 231-256. <https://doi.org/10.1177/0047239515570572>
- Kaufman, R. (1996). Visions, Strategic Planning, and Quality—More Than Hype. *Educational Technology*, 36(5), 60-62. Retrieved April 24, 2021, <http://www.jstor.org/stable/44428366>
- Kaufman, R. (2019). Revisiting mega as the central focus for defining and delivering worthy results. *Performance Improvement*, 58(7), 20-23. <https://doi.org/10.1002/pfi.21885>
- Kaufman, R., & Guerra- López, I. (2013). Needs assessment for organizational success. ASTD Press.
- Klein, J. D., & Fox, E. J. (2004). Performance improvement competencies for instructional technologists. *TechTrends*, 48(2), 22-25. <https://doi.org/10.1007/bf02762539>
- Klein, J. D. & Jun, S. (2014). Skills for Instructional Design Professionals. *Performance Improvement*, 53:41-46. <https://doi-org.proxy.lib.wayne.edu/10.1002/pfi.21397>
- Klein, J. D., & Kelly, W. Q. (2018). Competencies for instructional designers: A view from employers. *Performance Improvement Quarterly*, 31(3), 225-247. <https://doi.org/10.1002/piq.21257>
- Koszalka, T., Russ-Eft, D., & Reiser, R. (2013) *Instructional design competencies: The standards* (4<sup>th</sup> ed.). Information Age Publishing.
- Larson, M. B., & Lockee, B. B. (2007). Preparing instructional designers for different career environments: A case study. *Educational Technology Research and Development*, 57(1), 1-24. <https://doi.org/10.1007/s11423-006-9031-4>
- Larson, M. B., & Lockee, B. B. (2008). Instructional design practice: Career environments, job roles, and a climate of change. *Performance Improvement Quarterly*, 17(1), 22-40. <https://doi.org/10.1111/j.1937-8327.2004.tb00300.x>
- Liu, M., Gibby, S., Quiros, O., & Demps, E. (2002). Challenges of being an instructional designer for new media development: A view from the practitioners. *Journal of Educational Multimedia and Hypermedia*, 11(3), 195-219. Retrieved April 24, 2021 from <https://www.learntechlib.org/primary/p/9266/>
- McLagan, P. (1996, January). Great ideas revisited. *Training & Development*, 50(1), pp. 60-66.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE.
- Moallem, M. (1995). Analysis of job announcements and the required competencies for instructional technology professionals [Paper presentation] The Annual Meeting of the American Educational Research Association, San Francisco, CA, United States.
- Reiser, R. A., & Dempsey, J. V. (2018). *Trends and issues in instructional design and technology*. Pearson Education.
- Richey, R. C., Fields, D. C., & Foxon, M. (2001). *Instructional design competencies: The standards* (3<sup>rd</sup> ed.). Eric Clearing-House on Information Technology.
- Richey, R. C., Morrison, G., & Foxon, M. (2007). Instructional design in business and industry. In R.A. Reiser, & J.V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (2<sup>nd</sup> ed., pp. 174–184). Prentice Hall.
- Ritzhaupt, A. D., & Martin, F. (2013). Development and validation of the educational technologist multimedia competency survey. *Educational Technology Research and Development*, 62(1), 13-33. <https://doi.org/10.1007/s11423-013-9325-2>
- Ritzhaupt, A., Martin, F., & Daniels, K. (2010). Multimedia competencies for an educational technologist: A survey of professionals and job announcement analysis. *Journal of Educational Multimedia and Hypermedia*, 19(4), 421-

Rummler, G. A. (2007). Serious performance consulting according to Rummler. John Wiley & Sons.

Silber, K. H. (1970). What Field Are We In, Anyhow? Audiovisual Instr, 15(5), 21-4.

Stolovitch, H. L. & Keeps, E. J. (1999). Handbook of Human Performance Technology (2<sup>nd</sup> ed.). Jossey-Bass.

Sugar, W., Hoard, B., Brown, A., & Daniels, L. (2012). Identifying multimedia production competencies and skills of instructional design and technology professionals: An analysis of recent job postings. Journal of Educational Technology Systems, 40(3), 227-249. <https://doi.org/10.2190/et.40.3.b>



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# Ladders and Escalators: Examining Advancement Obstacles for Women in Instructional Design

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Instructional Design

Female Predominance

Gender

Glass Escalator



*Careful analysis of survey data from Bond and Dirkin (2018) indicate the possible presence of a phenomenon known as the glass escalator, first put forth by Williams (1992; 2013), in instructional design. The glass escalator effect surfaced in female-majority professions, indicating that advantages are experienced by males due in part to their tokenism and social standing. The degree to which these factors are present varies from study to study and is impacted by the continuing evolution within the professions selected for investigation. The findings in this study note more significant experiences in leadership and more frequent involvement in functions extending beyond a traditional instructional design scope among male instructional designers, despite their minority status in the field. Though some factors that could account for the disparity are present, in other cases, conditions are contradictory or inconclusive. This analysis presents an area of research thus far absent relative to instructional design but a more common investigation into other similarly female-dominated fields. As the importance of instructional design increases, the need to more fully understand the field and areas affecting its practice likewise increase in importance.*

## Introduction

Instructional design is recognized simply as “the systematic process of translating principles of learning and instruction into plans for instructional materials and activities” (Smith & Ragan, 2005, p. 2). The Cambridge Business English Dictionary (n.d.) defined instructional design as “the design of systems, computer programs, etc. to help people learn more effectively.” Particularly in a higher education environment, they have served a foundational role in the shift away from brick and mortar institutions to blended and online delivery. Despite these relatively simple definitions, practitioners – the instructional designers – are often called upon to serve in additional capacities, from media designers to faculty developers, faculty themselves, and very often as project managers and team leads (Sharif & Cho, 2015). In fact, considerable literature from the field of instructional design indicates that practitioners should be prepared to serve as leaders in their organizations (Ashbaugh, 2013; Bean, 2014), perhaps even at the executive level in

specific settings, such as community colleges (Boyle, 2011). In addition, pertinent studies also commonly find that instructional designers are called upon to function in a variety of other ways, in and beyond the scope of their traditional role (Bond & Dirkin, 2018; Gibby et al., 2002; Intentional Futures, 2016; Sharif & Cho, 2015). So prevalent is the diversification of the instructional designer's role, it is often only a small minority of professionals who are actually investing a majority portion of their time in actual instructional design work (Bond & Dirkin, 2018; Gibby et al., 2002; Sharif & Cho, 2015). This leads to instructional designers being known for working in a "meta" field, making it incredibly cumbersome to define and place their work in a particular box (Bodily et al., 2019; Wingfield, 2009). These themes of role diversification and leadership responsibilities indicate potential opportunities within instructional design for career growth, variety, and advancement.

The demand and diversification of roles for instructional designers within higher education institutions have steadily increased, with universities, such as Utah State University (USU) completely rebranding their Instructional Technology Department to include the learning sciences, "a change so dramatic that it warranted an article explaining the rationale" (West et al., 2017, p. 870). USU is not the only university to undergo such a dramatic change to their instructional technology department, creating new departments ultimately to provide space for instructional designers to work (West et al., 2017). The field at large is projected to grow at a rate of seven percent well into the next decade (U.S. Bureau of Labor and Statistics, 2019). Presumably, with these notions in mind, Bond and Dirkin (2018) conducted an in-depth investigation of the current state of instructional design practice. The research included inquiry related to leadership functions and role diversification occurring among instructional designers.

In January of 2018, Bond and Dirkin distributed a survey (see Appendix) soliciting responses from instructional designers. Recipients of the invitation to participate included a state-by-state reference of individuals serving in teaching and learning/e-learning/instructional design leadership roles, as well as subscribers to the email lists of the Michigan Blackboard Users Group (MiBUG), University Professional and Continuing Education Association (UPCEA), Arizona State University Blackboard Users Group, and the Professional and Organizational Development (POD) Network. Though Bond and Dirkin (2018) initially explored the prevalence of work beyond traditionally accepted definitions of instructional design, the gender of respondents was also solicited in the original survey. The investigation of gender's role relative to certain aspects of the subject pool's experience yielded potentially notable and certainly interesting results. What follows is a concise overview of instructional design's evolution into a female-dominated field, an introduction to a gender-related phenomenon known as the glass escalator (Williams, 2013), and data analysis surfacing differences between males and females in the instructional design role and practice. Discussion and implications of the data analysis findings and recommendations for necessary future research are also included.

## **Literature Review**

### **Instructional Design's Female Predominance**

Instructional design originated in the 1940s and established itself as a separate field independent from those from which it emerged by the 1960s (Reiser, 2001). Though instructional design is predominately female today, this was not always the case. When instructional design emerged from the field of psychology, female predominance was not a hallmark of instructional design or many other fields of the time. While documented cases of women representing a minority stake in instructional design are severely limited, some vignettes are beginning to emerge in books and journals. In her chapter, "Mentoring and the Role of Women in Instructional Design and Technology" in *Women's Voices in the Field of Educational Technology*, Richey (2016) detailed her career as a woman within the instructional design field, starting in 1971, and her experiences as a minority among men. After graduation, Dr. Richey was the only female faculty member within the instructional technology program in the 1980s (Richey, 2016). Throughout her career, she searched for other female practitioners with limited success. While this is only one individual's experience, it helps paint a picture of how scarce women were in the field only a few decades ago.

Today, however, a clear female majority exists in the field. Depending upon the source of data one consults, instructional design is approximately 70 percent female, 30 percent male. Bond and Dirkin (2018) found among 254

subjects, 67 percent of practitioners are female, 30 percent male, with the remaining three percent indicating either non-binary gender or abstaining. These gender demographics fundamentally align with Intentional Futures (2016) findings and the U.S. Bureau of Labor and Statistics (2019). The Intentional Futures study of higher education found that “instructional designers are 67% female and their average age is 45” (Intentional Futures, 2016 p. 6). If one looks at the U.S. Bureau of Labor and Statistics, the closest categories are related to the larger field of training and development specialists or managers. They reported a minor discrepancy. Other predominantly female occupations similarly evolved over varying arcs of time with respect to gender composition to become female majority.

Before the U.S. Civil War, for example, men were more likely to be employed as teachers than were women (Hodson & Sullivan, 1990). A number of historical events served as pivots impacting the gender balance of the workforce. The 1870 United States Census was the first to record female engagement in employment, finding at the time that women made up 15 percent of the total workforce. The first and second World Wars likewise created more opportunities for women in the workforce, further transitioning many females into occupations beyond the home (Green, 2000). Despite a relative balance in males and females in the employable populace, instructional design is among several fields known to be gender-segregated. Gender segregation in the workforce was identified decades ago as “one of the most perplexing and tenacious problems in our society” (Williams, 1992, p. 253) but nevertheless persisted. Impacts arising based upon the gender composition within a field may be unexpected and concerning. The following section provides an overview of one such phenomenon related to gender, tokenism, social status, and the collective potential relationship of these factors to affect advancement and opportunity.

## The Glass Escalator

In groundbreaking research, Williams (1992) concluded that males generally encounter structural advantages when employed in predominantly female professions. Borrowing some terminology from an occurrence better-known at the time, the glass ceiling, Williams (1992) referred to the advantages experienced by males working in female-majority fields as the glass escalator. Whereas the glass ceiling posits the existence of an invisible barrier that prevents women from reaching top positions in organizations (Hymowitz & Schellhardt, 1986), the glass escalator indicates there exist “subtle mechanisms [that] seem to enhance men’s position in [female-majority] professions” (Williams, 1992, p. 263). The theory indicates that part of the advantage comes from tokenism, which is the relative numeric rarity of a particular group or representative of a group within a larger context (Kanter, 2008). The second component is the token group members; even more so than a numeric rarity, social status “determines whether the token encounters a ‘glass ceiling’ or a ‘glass escalator’” (Williams, 1992, p. 263). In other words, the glass escalator idea suggests that the higher social status of males over females affords them an advantage even when they are a minority in a given profession: “While women climb the ladder in female-dominated professions, their male peers glide past them on an invisible escalator, shooting straight to the top” (Goudreau, 2012, para. 3).

Williams’ (1992) work is qualitative and involved interviews with 99 subjects (76 men and 23 women) between 1985 and 1991. At the time of the study, the subjects were employed in one of four fields: nursing, elementary school teaching, librarianship, and social work. Authors described these professions as “. . . pink-collar occupations because of their higher likelihood of [males] being promoted . . .” (Dill et al., 2016). These four professional arenas, the female semi professions, occupations that require advanced knowledge and skills but are not widely regarded as a true profession (Hodson & Sullivan, 1990), ranged in their gender composition from just five and a half percent male in nursing to a high of 32 percent males found in social work. The research revealed several thought-provoking findings. Among them, and at the core of the glass escalator phenomenon, were male subjects reporting the belief that being male had made a primarily positive difference in the opportunities they received.

Furthermore, male subjects were cognizant of their tokenism, often indicating their own knowledge of there being relatively few men in their fields. Even in those cases when subjects reported what was initially perceived as internal discrimination against them, later events left them in increasingly advantageous positions, with more authority and increased status (Dill et al., 2016). One subject, when asked if he had considered suing over being transferred out of a job due to how he had been received as a male, responded in part, “I’ve got a whole lot more authority here. I’m also in charge . . . and I’ve recently been promoted” (Williams, 1992, p. 263). Even in pre-service contexts, Williams found



advantageous circumstances emerging for men as they prepared to enter female-majority fields. Subjects reported what was perceived as extra encouragement from professors and administrators because they were male and studying in female-dominated disciplines. The glass escalator is presented in hiring practices as well. In neither the case of pre-service experiences nor in the hiring phase were advantages extended to males only by other males.

On the contrary, females were also noted as advancing males in female-dominated fields. Williams (1992) indicated that women were enthusiastic about men entering their fields. Subjects noted their career success having been facilitated in a multitude of ways by women. One subject reportedly recognized being “extremely marketable because I am a man” (Williams, 1992, p. 256); another indicated being told by a hiring manager, “it’s nice to have a man because it’s such a female-dominated field” (p. 256). Simultaneously, female subjects were noted showing some resentment for the perceived ease in advancement men in higher positions experienced. Also of interest were other ways, in each of the fields explored, men were sometimes treated differently. This was not in the way one might expect, as Williams (1992) suggested, experiencing a “poisoned work environment” (p. 260) as women sometimes do when entering male-dominated fields.

Conversely, male subjects in the study reported no instances of sexual harassment. The differences noted were more closely related to what was asked of them on the job. Specifically, male nurses were more likely to be asked to assist with male patients’ procedures or lift heavy patients. Similarly, male librarians believed they were called upon more often when boxes of books needed lifting. Within the teaching field, however, something beyond the scope of the job was noted as one subject indicated “. . . teaching with all women, and that can be hard sometimes” and went on to share “if somebody gets a flat tire, they come and get me . . . there are just a lot of stereotypes” (p. 260). Some subjects, in each profession, shared being bothered by the various forms of special treatment; others indicated that no distress was caused by it. A third group felt more valued by what they saw as appreciation and an opportunity to contribute to the profession in other ways with “special traits and abilities (such as strength)” (p. 261). Williams concluded that more work would be needed to integrate men and women into the labor force. From this early work, several other related studies have sprung, some of which brought the work up to date, built upon it, or both.

In a study that both expanded upon and updated William’s (1992) research, Budig (2002) examined three different populations to determine whether male advantage is the same in differently composed settings: female-dominated, gender-balanced, and male-dominated. The research focused on wage levels and wage growth, and found males, with respect to wage growth, had an advantage across all three groups. Though wage growth advantage was maximized in male-dominated fields, it was also present in female-dominated fields. In the latter case, the difference is interpreted as a systemic devaluation of a field due to its female majority (England, 1992; Kilbourne et al., 1994 as cited in Budig, 2002). Overall, males experienced wage growth three percent faster than females, though this research does not necessarily support the existence of the glass escalator in the way posited by Williams (1992). Instead, though the advantage was noted in female-majority fields, the most significant advantage was not found there for men but in male majority fields.

Further, more recent quantitative tests of the glass escalator have produced varying results, supporting the glass escalator hypothesis, introducing mitigating factors, and other research offering evidence to the contrary (Smith, 2012). Huffman (2004) illuminated an additional nuance, concluding that the effect of gender composition on wage inequality increases with job rank. In other words, as males move up in a female-majority field or organization, so does the magnitude of their advantage. In a related, earlier study Hultin (2003) investigated advancement opportunity in a longitudinal investigation and found men who work in fields typically viewed as female occupations have much greater opportunities for internal promotion than female counterparts. Hultin controlled for possible differences in gender-specific preferences and ambitions (e.g., premarket career preference, attitudes toward upward movement). In this way, men and women included by Hultin were even more equivalently compared. Ultimately, results were found, which further indicate the disadvantage to women is a gender-specific effect, thereby offering additional support for the glass escalator concept.

Smith (2012) introduced employer-sponsored benefits as an area for exploration and found additional support for the glass escalator, concluding it is both “gendered and racialized” (p. 168). Additionally, Smith (2012) found that “white



men experience a double advantage based on the fact that they possess two socially valued statuses” (p. 168), being white and male, faring better in terms of career advancement and when compared with female colleagues at similar levels. These findings further support William's (1992) claim that the social status of the token's group, their rarity alone, creates conditions for the glass escalator.

Snyder and Green (2008) conducted a qualitative investigation into glass escalator phenomena among registered nurses and found contrary evidence. Specifically, while gender segregation or concentrations in certain horizontal specializations existed, males were not disproportionately represented in higher-level administrative positions. However, it may be worth noting that male representation in the nursing field also grew considerably over the period encompassing the work of Williams (1992) and Snyder and Green (2008). The proportion of male registered nurses more than tripled from just 2.7 percent in 1970 to 9.6 percent in 2011 (Landivar, 2013). This growth may signal factors that served to level the playing field in the profession. Nevertheless, and despite some mixed findings, the literature overall tends to support the existence of a glass escalator and collectively supports the notion of male advantage in various settings, particularly those that are predominantly female (Alegria, 2019; Snyder & Green, 2008; Williams, 1992).

Alegria (2019) built upon the original concept of the glass escalator but looked more closely at how women, particularly white women, are given slightly more advantages in technology-based industries over women of color. During the 1990s, the role of women within the technology field had reached a peak and has since declined as it has returned to a primarily male-dominated occupation (Alegria, 2019). More specifically, “women of color remain numerical minorities,” which makes the study of tokenism within technology-based occupations fruitful for those looking to better understand the concept of the glass escalator (Alegria, 2019, p. 2). During her study and literature review, Alegria (2019) found that women tend to move into technical roles, and of those who do, white women more regularly move into managerial level positions, similar to their male counterparts. Is it possible that the tokenism experience among males within instructional design, and other fields, is similar to tokenism that white women may experience in relation to their non-white female counterparts? Alegria's research draws attention to the notion there are many levels of the glass escalator that move beyond gender and include race. King et al. (2017) focused heavily on this intersectionality within the glass escalator through literature review and analysis. The effect of this intersectionality within the glass escalator varies by industry, but race appears to be the most prominent in its effects following gender. While the work conducted by Bond and Dirkin (2018) does not focus on intersectionality within the glass escalator, it is essential to be cognizant that there are many layers related to identity groups that can be affected and should be further researched.

## Instructional Designers and the Glass Escalator

As noted earlier, multiple sources align instructional design with other gender-segregated fields. Specifically, its characteristic female majority of about 70 percent (Bond & Dirkin 2018; U.S. Bureau of Labor and Statistics, 2019; Intentional Futures, 2016) makes it similar in that regard to nursing, social work, librarianship, elementary and special education. Among the fields addressed thus far, instructional design aligns most closely with social work (Williams, 1992), wherein males account for approximately 30 percent of individuals in the field. While considerable research exists investigating the varying impact of instructional design products among learners of different genders, very limited study of gender's role in instructional design practice has occurred. Though questions have been asked in the literature with regard to instructional design over the past few decades (Gray et al., 2015), lack of understanding persists (Smith & Boling, 2009). Particularly concerning gender impact, the analysis offered by Bond and Dirkin (2018) addressed an arena ripe for additional research and exploration.

In her autoethnography, Campbell (2015) shared her personal experiences as an individual who identifies as a woman and an instructional designer and intertwines those experiences with literature review and academic research through a feminist lens. She stated that instructional design, which is currently categorized as a “science,” causes unintended gender-based stereotyping, a theme common in STEM-related fields (Campbell, 2015). Campbell's feminist approach to instructional design is that it is “process-based, relational, and transformative,” similar to the same feminist approaches in other forms of design-based fields such as architecture (Campbell, 2015, p. 233). Campbell claimed that one of the barriers to female instructional designers is that the field itself has “long been masculinized by language, by discourse, by metaphor,” and by “the tools [we] have chosen to use” (Campbell, 2015, p. 233). To illustrate this point, Campbell

highlighted the frequency in which instructional design created/based workshops utilize language that focuses more on the act of “doing” rather than the act of “thinking,” which can be interpreted as masculine (Campbell, 2015). This use of masculine language could be a clue to why and possibly how the glass escalator exists within the field of instructional design. While Campbell shed light on language and feminism within instructional design, her work does not fully illuminate how this lens can be focused on higher education, but rather, the field as a whole. Bond and Dirkin (2018) use Campbell’s experiences and study to be more cognizant of the feminist lens while focusing on instructional design within higher education and its potential relationship to the glass escalator.

Similar to Campbell (2015), Romero-Hall et al. (2018) used a critical autoethnographic approach to examine the female experience within the field of instructional design. Many of the stories within the article featured women who have faced discrimination while in their roles as instructional designers for issues related to the demands of being a mother (Romero-Hall et al., 2018). Another issue identified within Romero-Hall et al.’s (2018) research was that several of the women interviewed experienced isolation and depression due to an identity crisis caused by perceived sexism. These feelings could also impact instructional designers who identify as women view themselves and their own success in the field, affecting whether the glass escalator is present. While the number of women in instructional design has grown significantly, the feelings of being alienated or dismissed appear to still be present in the field, even within traditionally liberal environments, such as universities (Romero-Hall et al., 2018).

Educational institutions focus on growth in online course and program offerings, student retention, and effective teaching and learning practices. These factors increase instructional designers’ importance as they are charged with preserving and improving the integrity and quality of instruction (Ross & Morrison, 2012). Recent research consistently situates instructional designers’ contributions as critical factors in the success of higher education (Tate, 2019; Ross & Morrison, 2012; Campbell et al., 2009). The consideration Bond and Dirkin (2018) gave the question of gender in instructional designers’ role is unique. Exploring gender with respect to designers’ potential areas of specialization, perceptions of design process ownership, autonomy, and other aspects of instructional design practice is likewise novel.

## Methods

In January of 2018, Bond and Dirkin distributed a national survey (see Appendix) soliciting responses from instructional designers regarding perceptions of their roles. This paper examines the same dataset obtained by way of the original survey. The web-based survey, created with and hosted on Qualtrics®, was adapted with permission from surveys conducted previously by Intentional Futures (2016) and Sharif and Cho (2015). Themes were also adapted from the previous work of Miller (2007) and Gibby et al. (2002). The authors examined the data for general trends in role diversification and leadership among instructional designers and connections between these and gender.

## Participants and Procedures

In January of 2018, Bond and Dirkin distributed a survey (see Appendix) soliciting responses from instructional designers. Recipients of the invitation to participate served in various capacities related to teaching and learning/e-learning/instructional design leadership roles. However, all participants were asked if they worked in an instructional designer capacity before beginning the survey. Participants were recruited to participate through listservs of professional organizations, including Michigan Blackboard Users Group (MiBUG), University Professional and Continuing Education Association (UPCEA), Arizona State University Blackboard Users Group, and the Professional and Organizational Development (POD) Network. These listservs cater to instructional designers in public and non-public institutions. Prior to distribution to the target population, the survey was piloted among the instructional design management and staff of a Midwestern university’s teaching and learning center, a cohort of doctoral students and faculty. After implementing a series of suggested edits, the link was distributed to subscribers of various email lists, including the Michigan Blackboard Users Group (MiBUG), University Professional and Continuing Education Association (UPCEA), Arizona State University Blackboard Users Group, Professional and Organizational Development (POD) Network, and another list which included a state-by-state reference of teaching and learning/e-learning/instructional

design leaders. The survey instrument consisted of four question blocks and used conditional branching to assure that individuals who met specific criteria were exposed to a particular set of questions.

## Data Analysis: Gender and Instructional Design Practice

For data analysis, to effectively address the role of gender relative to various aspects of instructional design practice, Bond and Dirkin (2018) limited gender to binary inputs of male or female-only (n = 248). Data gathered via the aforementioned survey (Appendix A) were used to generate a new variable, leadership score, calculated, as shown in Table 1.

**Table 1**

### *Leadership Score Calculation*

Item Number	Summary	Value/Notes
10	Do you manage others?	+1 for yes, informally; +2 for yes, formally; +3 for yes, informally and formally; +0 for no
11	How many employees do you manage?	+1 for 1-2 +2 for 3-4 +3 for 5-6 +4 for more than 6
14	Functions served in addition to Instructional Design	+1 for committee work +1 for personnel management +1 for project management
17	Design model ownership/autonomy	+1 for creating the model(s) in use +1 for authority to change the model
Max		12
Min		0

Once a leadership score was calculated, t-tests and descriptive statistics were conducted to determine the significance of the various dimensions of leadership related to their position. Specifically, descriptive statistics were used to determine the number of males and females involved in committee work, personnel management, and project management. Additionally, descriptive statistics such as cross-tabulations were used to identify, relative to gender, the size of teams they managed, and areas of specialization. Independent samples t-tests were conducted using leadership scores, team size supervision, education level, and years of experience to determine whether differences between the two groups were statistically significant.

Considering further one's involvement in additional functions as a potential area of significant difference between genders, Bond and Dirkin (2018) created another variable from subject responses to survey item 14 (functions other than instructional design). The new variable, Diversification Score, represents a total based upon one point for each of the ten additional functions a respondent selected in item 14. A minimum value of 0 and a maximum of 10 were possible. While the initial purpose of the diversification score was to assist in quantifying typical additional duties of an instructional designer, grouping scores served as a final look into gender's relationship with other aspects of instructional design practice. An independent samples t-test was used to determine if there was a significant difference between genders regarding the diversification score.

## Results

The data analysis looked at multiple areas of leadership within the role of an instructional designer. These include leadership functions such as committee work, personnel management, and project management. In addition, researchers examined other leadership responsibilities such as team management and job diversification. T-tests were

conducted to determine whether a significant difference existed between the groups to understand mediating factors such as education and experience level.

## Education and Experience

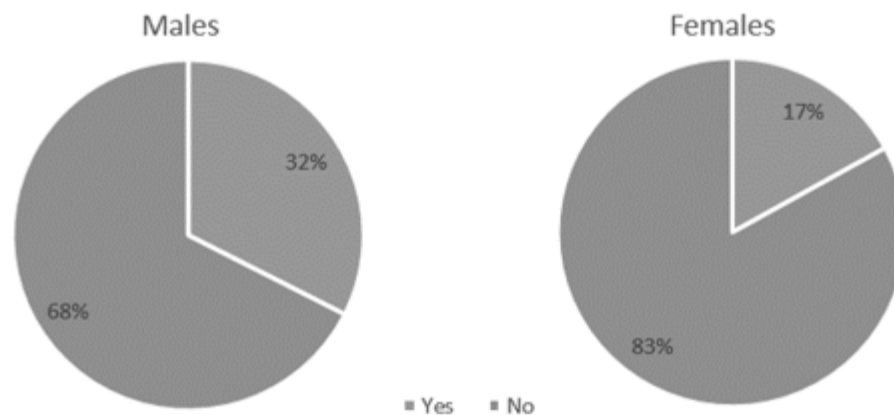
An additional independent-samples t-test was calculated to compare the mean level of education between males and females to examine the disparity between genders. Here again, values were assigned to each level of the ordinal variable, level of completed education. This test found no significant difference ( $t(245) = -1.889, p > .05$ ), though it was noted that females, on average, possessed more education than males, education level across both groups was comparable. The mean education level of females ( $M = 4.38, sd = .644$ ) was not significantly different from the mean among males ( $M = 4.21, sd = .732$ ). Another test was calculated comparing mean years of experience between males and females ( $t(245) = 1.998, p < .05$ ) to assess whether time in the field may have played a role. Statistically, a significant difference was found in the mean years of males' experience level ( $M = 2.83, sd = 1.271$ ), which was higher than among females ( $M = 2.44, sd = 1.483$ ). It should be noted that these means were calculated based on the selection of an option associated with a range (e.g., less than five years, six to ten years). Consequently, the difference between the means (0.39) equates to approximately 1.95 years of additional experience, on average, among men.

## Leadership Functions

Male subjects more frequently indicated involvement than female counterparts in committee work (68 percent, vs. 58 percent), personnel management (39 percent, vs. 27 percent), and project management (78 percent, vs. 68 percent). Additionally, males were nearly twice as likely to indicate involvement in all three leadership functions (Figure 1).

**Figure 1**

*Involvement in Committee Work, Personnel Management, and Project Management*



A Pie Chart Comparing Males' and Females' Involvement in Committee Work, Personnel Management, and Project Management

An independent-samples t-test was calculated comparing the mean Leadership Score of males and females to investigate the overall role of gender in leadership. A significant difference was found between the means of the two groups: ( $t(246) = 2.361, p < .05$ ). The mean among males was significantly higher ( $M = 6.2208, sd = 2.0623$ ) than that of females ( $M = 5.5731, sd = 1.9701$ ). To unpack this finding, additional testing was done on a key component of the Leadership Score, the size of the respondent's team.

## Team Management

Subject responses to survey item 11, the approximate number of employees managed,  $n = 248$ , were grouped by gender. A cross-tabulation of this data appears in Table 2.

**Table 2**

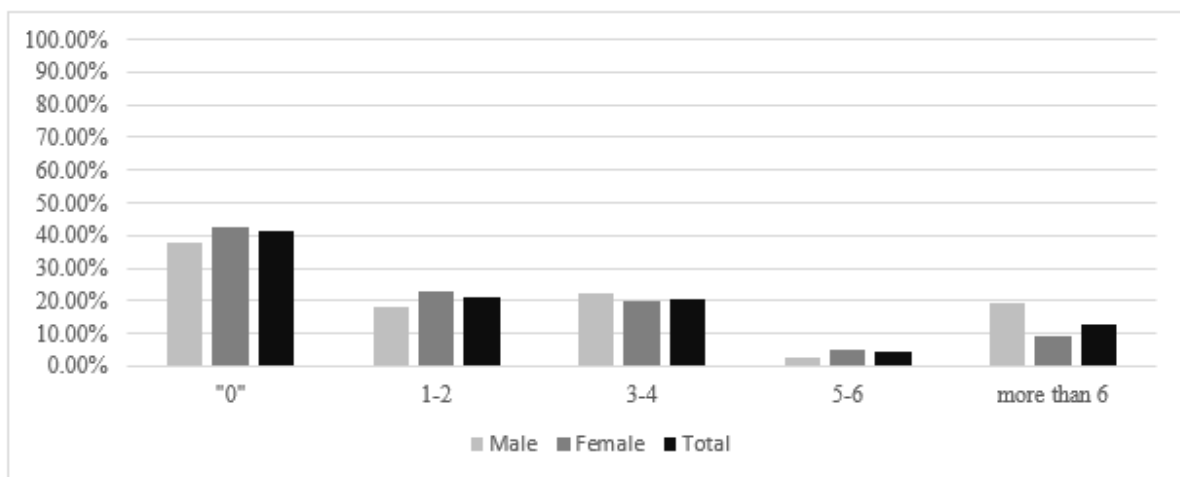
*Number of Employees Managed by Gender*

		Approximately how many other employees do you manage, formally and informally?					
		0	1-2	3-4	5-6	More than 6	Total
Male	Count	29	14	17	2	15	77
	%	37.7%	18.2%	22.1%	2.6%	19.5%	100.0%
Female	Count	73	39	34	9	16	171
	%	42.7%	22.8%	19.9%	5.3%	9.4%	100.0%
Total	Count	102	53	51	11	31	248
	%	41.1%	21.4%	20.6%	4.4%	12.5%	100.0%

Figure 2 displays team size by gender. Each of these representations demonstrates that male subjects are considerably more likely to be managing large teams of six or more persons.

**Figure 2**

*How Many Managed Versus Team Size*



A Bar Graph Comparing How Many Managed Versus Team Size

As the size of one's team indicates a progression with a true zero point and a meaningful order between levels, team size was treated as an ordinal variable (Cronk, 2017), with numeric values assigned for each level for analysis comparing the genders. An independent samples t-test found ( $t(246) = 1.731, p > .05$ ). While the mean value for males on item 11 ( $M = 1.48$ ) indicated the supervision of larger teams among males, the difference between males and females ( $M = 1.16$ ) was not statistically significant.

## Specialization of Practice

As growth in demand for online learning design and expanding technology toolsets are often connected to the expansion of instructional design (Allen & Seaman, 2016; Kim et al., 2007), gender was also explored relative to

specialization. Cross-tabulation was generated based upon an indicated area of practice (item 15) and gender (Table 3).

**Table 3**

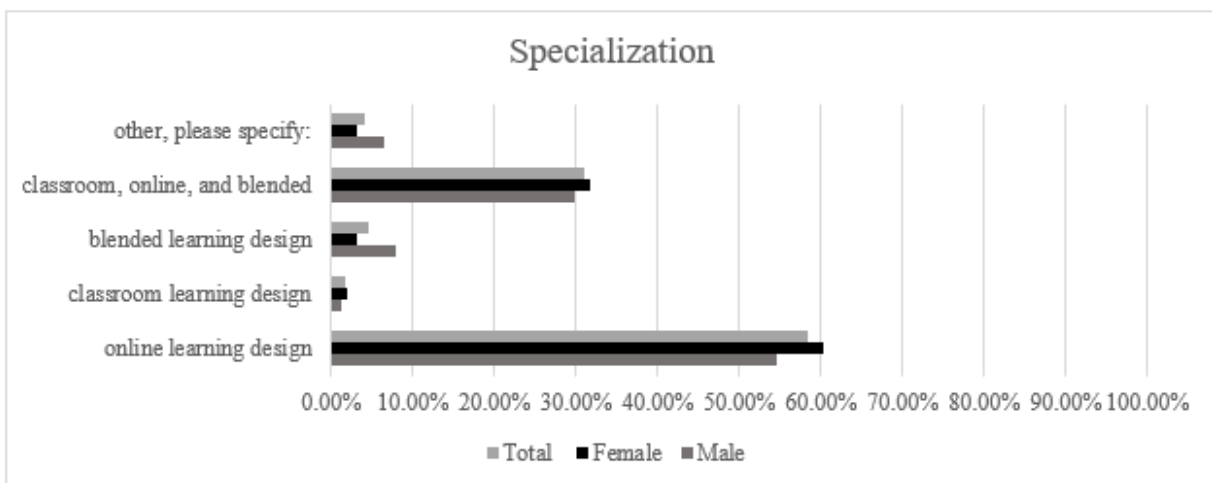
*Crosstabulation of Areas of Practice*

Which of the following best describes your area of specialization in your current instructional design role?						
		Online learning design	Classroom learning design	Blended learning design	Classroom online and blended	Other, please specify
Male	Count	42	1	6	23	5
	%	54.5%	1.3%	7.8%	29.9%	6.5%
Female	Count	97	3	5	51	5
	%	60.2%	1.9%	3.1%	31.7%	3.1%
Total	Count	139	4	11	74	10
	%	58.4%	1.7%	4.6%	31.1%	4.2%

Further analysis (e.g., Chi-Square) was not possible, as more than 20 percent of cells have expected counts less than five. Despite this finding, one can observe in the cross-tabulation relative equity in areas of specialization between genders. The cross-tabulation in Table 3 and Figure 3 demonstrate that gender difference in an area of specialization is prevalent only among those in blended learning design. Additionally, the largest area of specialization is, not surprisingly, in online learning design. Six respondents did not respond to the specialization question; four others indicated other/please specify, but did elaborate further or offered an unusable reply and were therefore excluded from the data reflected in Table 3.

**Figure 3**

*Areas of Specialization*



A Bar Graph Comparing Males' and Females' Areas of Specialization

An independent-samples t-test was calculated to compare the mean diversification score between males and females. The test found significant differences ( $t(245) = 3.391, p < .005$ ), with a mean value among males (5.2632,  $sd = 2.119$ ) significantly higher than that among females (4.2749,  $sd = 2.112$ ).

## Discussion and Implications

It is relatively clear that instructional design bears similarities to other predominantly female professions (Milner et al., 2018; Shen-Miller & Smiler, 2015; Ridgeway & Kricheli-Katz, 2013; Williams, 1992; 2013). For example, the female majority emerged over time out of an era wherein practice was generally dominated by males (Yellen, 2020). As a female majority field and, therefore, a gender-segregated field, instructional design is a logical context for gender-specific research (Alegria, 2019). However, as noted earlier, limited research on gender and professional practice exists outside of a minimal collection of articles. Instead, research involving gender tends to focus on the instructional design process results as applied to learners of different genders. In other words, while the study of learning differences between the genders, relative to different instructional approaches, is available in the literature, investigation regarding gender's role within instructional design in the higher education profession is lacking. This gap in research serves to create a lack of understanding within instructional design practice. For example, knowledge of whether instructional design is subject to phenomena such as the glass ceiling or escalator, more specifically, what is causing it and how such a situation might be improved upon, is difficult to ascertain (Alegria, 2019; Williams, 2013). Therefore, despite the clarity with which instructional design's gender composition aligns with other fields, related questions are not so quickly answered. Suppose more research was done and knowledge gained by answering these questions. In that case, results may lead to possible action steps that could be taken to ensure more equal opportunity sharing for all instructional designers, regardless of their identified gender (Dewan & Gebeloff, 2012).

The data analysis certainly suggests that male instructional designers are positioned differently than female counterparts and, perhaps, the way males are situated is advantageous relative to function. However, one cannot conclude from this alone that the structural advantages noted by Williams (1992) in some fields, such as elementary school teaching, nursing, and social work, also exist in instructional design. Nevertheless, the results of this analysis do point to elements of the glass escalator phenomenon as males consistently fared better in some of the areas investigated (Alegria, 2019; Friedman, 2015). Specifically, significant differences between male and female instructional designers were identified by analyzing aggregate data surfaced by the leadership and diversification scores and years of experience. Had the former two variables not been created from the data, these significant and potentially essential differences would not have been identified. Despite what the data collected shows, it is still best practice when conducting these types of studies to remember that correlation does not necessarily equate to causation, and data found by Bond and Dirkin (2018) is no exception. More statistical analysis may still be necessary, however, as the sample sizes were unequal and therefore increases the likelihood of type I errors.

Considering management functions collectively, based on calculated leadership scores, male designers were significantly more involved in oversight activities ranging from the supervision of others to committee membership, project management, and autonomy over process. As specialization was also investigated, it was found that involvement in practice more broadly encompassing a spectrum of learning design, rather than specific areas such as online or classroom learning design only, did not appear to occur along gender lines. A more comprehensive look at diversification of roles did, however, yield significant results. Based on the diversification score analysis, male subjects engage in instructional design practice, which is significantly more diverse than their female peers. What may be causing this imbalance between male and female instructional designers is still unclear, and further investigation will be needed.

The conditions under which all of the advantages noted above occur are worth noting here. Comparison on demographic characteristics, specifically which one might associate with expected differences (e.g., level of education) in their experience and opportunities as practitioners, actually yielded counter-intuitive results. The level of education between males and females was not found to be significantly different, and female subjects had on average somewhat more education than males. Male respondents were found to have more experience in the field than females, an interesting finding, but one that did prove to be statistically significant. Further quantitative and qualitative research would need to be done to better illuminate the possible causes for these differences related to on-the-job experience and education levels.



Males exercising supervision among these survey respondents were outnumbered by females, more than two to one. This finding hints further at the presence of the glass escalator, as it is often the case even in those fields where a female majority is present, in management, the token male experiences certain advantages. Nevertheless, the absence of additional information in this data presents challenges to aligning outcomes with other research. As wage and rank were not included, nor were pre-employment preferences and attitudes regarding advancement assessed, the findings herein neither confirm nor refute those of earlier studies, including Budig (2002), Huffman (2004), and Hultin (2003). In contrast, certain fundamental elements present in this data or instructional design at large – a significant female majority and the resulting possible tokenism of males in the field, do indicate some consistency with elements of Williams (1992) and Kanter (2008). In summary, the data present in Bond and Dirkin (2018) posited an observably advantageous positioning for male instructional designers, despite male subjects not necessarily being better qualified. Overall, male designers indicated exercising more supervision authority and report more diverse roles than female counterparts. However, no strong correlation pointing to causation was revealed during this study, which emphasizes the need for future investigation in this topic as the field continues to expand and educational technology continues to rise in higher education.

## Recommendations for Future Research

As alluded to earlier, further research is necessary to determine or refute whether instructional design may be among those fields subject to a glass escalator effect. These additional studies would be well-advised to collect more data than earlier investigations of instructional design, which, while focusing on role and aspects of practice, did not address gender (Bond & Dirkin, 2018; Intentional Futures, 2016; Sharif & Cho, 2015). For future quantitative approaches, soliciting information regarding income, rank, and perspectives, and attitudes on advancement opportunities would be tremendously valuable. Insights gained from these data points would not only enable additional analysis but also position the research to be compared more effectively with prior quantitative glass escalator research, including Huffman (2004) and Smith (2012). Moreover, it may also be advisable to repeat this research with a mixed-methods approach or an exclusively qualitative model as this could illuminate factors that would facilitate comparison with William's (1992) original study. The higher average leadership and diversification scores among males, which essentially translates into their possibly being asked to engage more frequently in management and involved in more widely varying functions, could be a function of more experience in the field. More research into this aspect is also needed to make such a determination.

Interviews with male and female instructional designers alike could be the only approach that yields insight into whether males are the recipients of subtle mechanisms advancing their careers, not on merit, but rather potentially on privileges associated with maleness. Here too, one might discover, as Williams (1992) did, that men were cognizant of their advantage. Additional study in this direction could also explore the existence of industry-specific stereotypes discovered in other fields. For example, are there instructional design practice equivalents to the male nurse being asked to assist with lifting a heavy patient or a male elementary school teacher being called upon when a tire needs changing? Conversely, the discovery of counter-evidence could occur. Research may find that something else, besides tokenism, social standing, and structural mechanisms, accounts for male advantage.

Tightening the scope on why males may experience privileges associated with their gender within the field of instructional design may require additional research and study on the language used both in on-the-job situations as well as in the recruitment and hiring processes. As mentioned earlier, some academics argue that much of the language associated with this field is masculine in nature, which can have unintentional or intentional effects on the perceptions and performance of female instructional designers (Campbell, 2015). Can the language used to describe expectations, and thus define success within the role, create barriers for women to have equitable opportunities for success in relation to their male-identifying counterparts? This type of study would require a broad literature review on the nature of language and gender in addition to research on a large sample size of both hiring literature and performance evaluations with regard to instructional design for various higher education institutions. A study of this nature could



prove valuable in better understanding how language can be intertwined with the glass escalator within instructional design and how it can be utilized to create equitable opportunities for all designers regardless of self-identified gender.

To further deepen the understanding of how gender plays a role in instructional design and whether or not the glass escalator exists therein, it may be necessary to also look at how race may cause different responses among women. Intersectionality appears to play a role in workplace advantages and disadvantages, as shown in various research (King et al., 2017). Such layers of identity could assist in further understanding the effects of tokenism as it relates to those who identify as female, in addition to male tokenism explored in this study. Is it possible that a white instructional designer that identifies as a woman experiences a sort of tokenism compared to women of color who are in similar roles? Do those women recognize this possible tokenism, and if so, how do they feel about it? To seek out this type of data, a much larger participant pool will be needed to decrease the occurrence of data collection-related errors and ensure equal representation. The data collected on a study of this nature could be used to find gaps in support for those who identify with groups that may be experiencing the effects of a glass escalator and allow for possible solutions and increased advocacy to come forward.

Regardless of the outcome, the increasing importance of instructional design, as indicated by Ashbaugh (2013), Bean (2014), Boyle (2011), and many others, is impetus enough for continued investigation. Even as gender equality and equity remain at the forefront of workplace issues, instructional design's own shroud of obscurity (Sharif & Cho, 2015) may contribute to a lack of investigation in this area. While the focus has been understandably placed on research pointed at online learning growth and technology, learning science, and organizational impacts, to understand instructional design practice fully, it should be investigated in a more holistic manner, consistent with that found in other fields. Whether doing so surfaces the presence or lack of challenges similar to those found in other professional arenas, valuable insight will likely be gained.

## References

- Alegria, S. (2019). Escalator or step stool? Gendered labor and token processes in tech work. *Gender & Society*, 33(5), 722-745. <https://doi.org/10.1177/0891243219835737>
- Allen, I. E., & Seaman, J. (2016). Online report card: Tracking online education in the United States. <https://onlinelearningsurvey.com/reports/onlinelearningreportcard.pdf>
- Ashbaugh, M. (2013). Expert instructional designer voices: Leadership competencies critical global practice and quality online learning designs. *Quarterly Review of Distance Education*, 14(2), 97-118.
- Bean, C. (2014). The accidental instructional designer: Learning design for the digital age. *American Society for Training and Development (ASTD)*.
- Bodily, R., Leary, H., & West, R. E. (2019). Research trends in instructional design and technology journals. *British Journal of Educational Technology*, 50(1), 64-79. <https://doi.org/10.1111/bjet.12712>
- Bond, J., & Dirkin, K. (2018). Instructional design: Study of a widening scope of practice. *Online Journal of Distance Learning Administration*, 21(4).
- Boyle, K. M. (2011). Instructional designers as potential leaders in community colleges. *The Community College Enterprise*, 17(2), 7-18. <https://doi.org/10.1002/cc.119>
- Budig, M. J. (2002). Male advantage and the gender composition of jobs: Who rides the glass escalator? *Social Problems*, 49(2), 258-277. <https://doi.org/10.1525/sp.2002.49.2.258>
- Cambridge Business English Dictionary. (n.d.). Instructional design. <https://dictionary.cambridge.org/us/dictionary/english/instructional-design>

- Campbell, K. (2015). The feminist instructional designer: An autoethnography. In B. Hokanson & M. W. Tracey (Eds.), *The Design of Learning Experience*, 231-249. <https://doi.org/10.1007/978-3-319-16504-2>
- Campbell, K., Schwier, R. A., & Kenny, R. F. (2009). The critical, relational practice of instructional design in higher education: An emerging model of change agency. *Educational Technology Research and Development*, 57(5), 645-663. <https://doi.org/10.1007/s11423-007-9061-6>
- Cronk, B. C. (2017). *How to use SPSS: A step-by-step guide to analysis and interpretation*. Routledge.
- Dewan, S., & Gebeloff, R. (2012). More men enter fields dominated by women. CNBC. <https://www.cnn.com/id/47500189>
- Dill, J. S., Price-Glynn, K., & Rakovski, C. (2016). Does the “glass escalator” compensate for the devaluation of care work occupations? The careers of men in low- and middle-skill health care jobs. *Gender & Society*, 30(2), 334–360. <https://doi.org/10.1177/0891243215624656>
- England, P. (1992). *Comparable worth: Theories and evidence*. Aldine de Gruyter.
- Friedman, S. (2015). Still a ‘stalled revolution’? Work/family experiences, hegemonic masculinity, and moving toward gender equality. *Sociology Compass*, 9(2), 140-155. <https://doi.org/10.1111/soc4.12238>
- Gibby, S., Quiros, O., Demps, E., & Liu, M. (2002). Challenges of being an instructional designer for new media development: A view from the practitioners. *Journal of Educational Multimedia and Hypermedia*, 11(3), 195-219.
- Goudreau, J. (2012, May). A new obstacle for professional women: The glass escalator. *Forbes*. <https://www.forbes.com/sites/jennagoudreau/2012/05/21/a-new-obstacle-for-professional-women-the-glass-escalator/?sh=5441f5d9159d>
- Gray, C. M., Dagli, C., Demiral-Uzan, M., Ergulec, F., Tan, V., Altuwaijri, A. A., Gyabak, K., Hilligoss, M., Kizilboga, R., Tomita, K., & Boling, E. (2015). Judgment and instructional design: How ID practitioners work in practice. *Performance Improvement Quarterly*, 28(3), 25-49. <https://doi.org/10.1002/piq.21198>
- Green, H. (2000). *The uncertainty of everyday life, 1915-1945*. University of Arkansas Press.
- Hodson, R., & Sullivan, T. A. (1990). *The social organization of work*. Wadsworth Publishing.
- Huffman, M. L. (2004). Gender inequality across local wage hierarchies. *Work and Occupations*, 31(3), 323-344. <https://doi.org/10.1177/0730888404266384>
- Hultin, M. (2003). Some take the glass escalator, some hit the glass ceiling? Career consequences of occupational sex segregation. *Work and Occupations*, 30(1), 30-61. <https://doi.org/10.1177/0730888402239326>
- Hymowitz, C., & Schellhardt, T. D. (1986). The glass ceiling: Why women can't seem to break the invisible barrier that blocks them from the top jobs. *The Wall Street Journal*, 24(1), 1573-1592.
- Intentional Futures. (2016). *Instructional design in higher education: A report on the role, workflow, and experience of instructional designers*. <https://intentionalfutures.com/static/instructional-design-in-higher-education-report-5129d9d1e6c988c254567f91f3ab0d2c.pdf>
- Kanter, R. M. (2008). *Men and women of the corporation: New edition*. Basic Books.
- Kim, M. C., Hannafin, M. J., & Bryan, L. A. (2007). Technology-enhanced inquiry tools in science education: An emerging pedagogical framework for classroom practice. *Science Education*, 91(6), 1010-1030. <https://doi.org/10.1002/sce.20219>

- King, J., Maniam, B., & Leavell, H. (2017). Shattered glass and creaky steps: Remodeling the glass ceiling and glass escalator theories using an intersectional toolbox. *Southern Journal of Business and Ethics*, 9, 194-203.
- Landivar, L. C. (2013). Men in nursing occupations: American community survey highlight report. US Census Bureau. [https://www.census.gov/library/working-papers/2013/acs/2013\\_Landivar\\_02.html](https://www.census.gov/library/working-papers/2013/acs/2013_Landivar_02.html)
- Miller, J. L. (2007). The new education professionals: The emerging specialties of instructional designer and learning manager. *International Journal of Public Administration*, 30(5), 483-498. <https://doi.org/10.1080/01900690701205970>
- Milner, A., King, T., LaMontagne, A. D., Bentley, R., & Kavanagh, A. (2018). Men's work, women's work, and mental health: A longitudinal investigation of the relationship between the gender composition of occupations and mental health. *Social Science & Medicine*, 204, 16-22. <https://doi.org/10.1016/j.socscimed.2018.03.020>
- Reiser, R. A. (2001). A history of instructional design and technology: Part II: A history of instructional design. *Educational Technology Research and Development*, 49(2), 57-67. <https://doi.org/10.1007/BF02504928>
- Richey R. C. (2016) Mentoring and the role of women in instructional design and technology. In: J. Donaldson (Ed.), *Women's voices in the field of educational technology* (pp.193-197). Springer, Cham. [https://doi.org/10.1007/978-3-319-33452-3\\_27](https://doi.org/10.1007/978-3-319-33452-3_27)
- Ridgeway, C. L., & Kricheli-Katz, T. (2013). Intersecting cultural beliefs in social relations: Gender, race, and class binds and freedoms. *Gender & Society*, 27(3), 294–318. <https://doi.org/10.1177/0891243213479445>
- Romero-Hall, E., Aldemir, T., Colorado-Resa, J., Dickson-Deane, C., Watson, G. S., & Sadaf. A. (2018). Undisclosed stories of instructional design female scholars in academia. *Women's Studies International Forum*, 71, 19-28. <https://doi.org/10.1016/j.wsif.2018.09.004>
- Ross, S. M., & Morrison, G. R. (2012). Constructing a deconstructed campus: Instructional design as vital bricks and mortar. *Journal of Computing in Higher Education*, 24(2), 119-131. <https://doi.org/10.1007/s12528-012-9056-0>
- Sharif, A., & Cho, S. (2015). 21st-century instructional designers: Bridging the perceptual gaps between identity, practice, impact and professional development. *International Journal of Educational Technology in Higher Education*, 12(3), 72-85. <http://dx.doi.org/10.7238/rusc.v12i3.2176>
- Shen-Miller, D., & Smiler, A. P. (2015). Men in female-dominated vocations: a rationale for academic student and introduction to the special issue. *Sex Roles*, 72, 269-276. <https://doi.org/10.1007/s11199-015-0471-3>
- Smith, K. M., & Boling, E. (2009). What do we make of design? Design as a concept in educational technology. *Educational Technology*, 49(4). Retrieved from <https://www.jstor.org/stable/44429817>
- Smith, P. L., & Ragan, T. J. (2005). *Instructional design* (3<sup>rd</sup> ed.). John Wiley & Sons.
- Smith, R. A. (2012). Money, benefits, and power: A test of the glass ceiling and glass escalator hypotheses. *The Annals of the American Academy of Political and Social Science*, 639(1), 149-172. <https://doi.org/10.1177/0002716211422038>
- Snyder, K. A., & Green, I. A. (2008). Revisiting the glass escalator: The case of gender segregation in a female dominated occupation. *Social Problems*, 55(2), 271-299. <https://doi.org/10.1525/sp.2008.55.2.271>
- Tate, E. (2019). Instructing instructional designers. *Inside Higher Ed*. <https://www.insidehighered.com/digital-learning/article/2017/04/12/training-evolving-instructional-designers>
- U.S. Bureau of Labor Statistics. (2019). Instructional coordinators. In *Occupational outlook handbook*. <https://www.bls.gov/ooh/education-training-and-library/instructional-coordinators.htm>

- West, R. E., Thomas, R. A., Bodily, R., Wright, C., & Borup, J. (2017). An analysis of instructional design and technology departments. *Educational Technology Research and Development*, 65(4), 869-888.
- Williams, C. L. (1992). The glass escalator: Hidden advantages for men in the 'female' professions. *Social Problems*, 39(3), 253-267. <https://doi.org/10.2307/3096961>
- Williams, C. L. (2013). The glass escalator, revisited: Gender inequality in neoliberal times, SWS feminist lecturer. *Gender & Society*, 27(5), 609-629. <https://doi.org/10.1177/0891243213490232>
- Wingfield, A. H. (2009). Racializing the glass escalator: Reconsidering men's experiences with women's work. *Gender & Society*, 23(1), 5-26. <https://doi.org/10.1177/0891243208323054>
- Yellen, J. L. (2020). The history of women's work and wages and how it has created success for us all. Brookings. <https://www.brookings.edu/essay/the-history-of-womens-work-and-wages-and-how-it-has-created-success-for-us-all/>

## Appendix: Instructional Designer Survey

Q1 By continuing, you grant consent for your responses to be included in reporting and data analysis. Any identifiable information provided will be removed prior to compiling results. Do you wish to continue?

- ☐ Yes (1)
- ☐ No (2)

Skip To: Q2 If By continuing, you grant consent for your responses to be included in reporting and data analysis . . . = Yes

Skip To: End of Survey If By continuing, you grant consent for your responses to be included in reporting and data analysis . . . = No

Q2 Are you currently working in an instructional design role (including management of instructional design staff)?

- ☐ Yes (1)
- ☐ No (2)

Skip To: End of Survey If Are you currently working in an instructional design role (including management of instructional . . . = No

Skip To: Q3 If Are you currently working in an instructional design role (including management of instructional . . . = Yes Page 2 of 8

Q3 Please indicate your current level of employment

- ☐ Full-time (40 hours/week, 10 months or more per year) (1)
- ☐ Three-quarter time (30 hours/week, 10 months or more per year) (2)
- ☐ Half-time (20 hours/week, 10 months or more per year) (3)
- ☐ Less than half-time (4)
- ☐ Other, please specify: (5) \_\_\_\_\_

Q4 Please indicate your gender:

- ☐ Male (1)
- ☐ Female (2)
- ☐ Non-binary/third gender (3)
- ☐ Prefer not to say (4)
- ☐ Prefer to self-describe: (5) \_\_\_\_\_

Q5 Do you have formal instructional design education (e.g., a degree in instructional design or a closely related field)?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Other, please specify: (3) \_\_\_\_\_

Skip To: Q7 If Do you have formal instructional design education (e.g., a degree in instructional design or a clo . . . = Yes

Skip To: Q6 If Do you have formal instructional design education (e.g., a degree in instructional design or a clo . . . = No Page 3 of 8

Q6 My formal education prepared me for work in the field of instructional design in:

- ☐ All aspects
- ☐ Most aspects
- ☐ Some aspects
- ☐ Only a few aspects
- ☐ Other, please specify: \_\_\_\_\_

Q7 Approximately how long ago did you complete your formal education in instructional design?

- ☐ <5 years (1)
- ☐ 5-10 years (2)
- ☐ 11-15 years (3)
- ☐ 16-20 years (4)
- ☐ 21-25 years (5)
- ☐ >25 years (6)

Q8 Please indicate your highest level of completed education:

- ☐ High School
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctoral Degree
- ☐ Other, please specify: \_\_\_\_\_

Q9 Please select the option which best indicates your years of experience in instructional design:

- ☐ <5 years (1)
- ☐ 5-10 years (2)
- ☐ 11-15 years (3)
- ☐ 16-20 years (4)
- ☐ 21-25 years (5)
- ☐ >25 years (6)

Q109 Do you manage other employees?

- ☐ Yes, formally. (1)
- ☐ Yes, informally (the other employee(s) do not report to me, but I assign work to them) (2)
- ☐ No (3)

Skip To: Q11 If Do you manage other employees? = Yes, formally.

Skip To: Q11 If Do you manage other employees? = Yes, informally (the other employee(s) do not report to me, but I assign work to them)

Skip To: Q13 If Do you manage other employees? = No

Q11 Approximately how many other employees do you manage?

- o 1-2 (1)
- o 3-4 (2)
- o 5-6 (3)
- o more than 6 (4)

Q12 Which of the following best describes the function(s) of the employees you manage (select all that apply)?

- ☐ Instructional Design
- ☐ Audio/Video/Graphic Production
- ☐ Coding/Programming
- ☐ Technical Support
- ☐ Administrative/Clerical
- ☐ Project Management
- ☐ Other, please specify:

Q13 About how much of your time at work is invested in instructional design activities, not including management of other instructional designers?

- o (1)
- o 21 percent-40 percent (2)
- o 41 percent-60 percent (3)
- o 61 percent-80 percent (4)
- o >80 percent (5)

Q14 In addition to instructional design work, which of the following functions do you also perform (select all that apply)?

- ☐ Audio/Video authoring/editing or Graphic design (1)
- ☐ Coding/Programming (including HTML) (2)
- ☐ Committee work (e.g., assessment/accreditation councils, oversight groups, etc.) (3)
- ☐ Faculty development (e.g., designing and/or conducting workshops/training) (4)
- ☐ Instructor (e.g., teaching one or more courses on a regular basis) (5)
- ☐ Personnel management (e.g., hiring, performance review, etc.) (6)
- ☐ Scholarly activity (e.g., research, publishing) (7)
- ☐ Server administration (e.g., LMS, database, web server) (8)
- ☐ Technical Support (9)
- ☐ Other, please explain: (10) \_\_\_\_\_

Q15 Which of the following best describes your area of specialization in your current instructional design role?

- o online learning design (1)
- o classroom learning design (2)
- o blended learning design (3)
- o general learning design, including classroom, online, and blended (4)
- o other, please specify: (5) \_\_\_\_\_

Q16 Which of the following best describes the design model in use in your current setting?

- o The same design model is applied to each project (i.e. a template is used) (1)
- o The design model varies slightly, project by project, based on needs (2)
- o The design model varies greatly, project by project, based on needs (3)
- o No formal design model is used (4)
- o Other, please specify: (5) \_\_\_\_\_

Q17 Which of the following describes ownership of the design model in your current setting (select all that apply)?

- ☐ I created the model/models my team and I use (1)
- ☐ I was given the model/models I/my team use(s) (2)
- ☐ I do not have authority to change the design model(s) (3)
- ☐ I have authority to make changes to the design model(s) (4)
- ☐ I and others have authority to make changes to the design model(s) (5)
- ☐ Other, please specify: (6) \_\_\_\_\_

Q18 Please indicate which theoretical framework(s) or model(s) from the literature underpin your instructional design practice:

\_\_\_\_\_

Q19 Would you be interested in being interviewed to further discuss your answers to this survey?

- o Yes, my email address is: (1) \_\_\_\_\_
- o No (2)







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# "I Can Do Things Because I Feel Valuable": Authentic Project Experiences and How They Matter to Instructional Design Students

Jason K. McDonald & Amy A. Rogers

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Instructional Design

Case Study

Authentic Learning

Instructional Design Education

Authentic projects



*This paper examines how authentic project experiences matter to instructional design students. We explored this through a single case study of an instructional design student (referred to as Abby) who participated as a member of an educational simulation design team at a university in the western United States. Our data consisted of interviews with Abby that we analyzed to understand how she depicted her participation in this authentic project. In general, Abby found her project involvement to open up both possibilities and constraints. Early in her involvement, when she encountered limitations she did not expect, those constraints showed up as most significant and she saw the project as a place of disenfranchisement that highlighted her inadequacies. Later, in conjunction with changes in the project structure and help from a supportive mentor, she reoriented to the possibilities her participation made available, all of which disrupted the cycle of disenfranchisement in which she seemed to be caught. Abby saw more clearly opportunities that had previously been obscured, and she became one of the project's valued leaders. We conclude by discussing implications of these findings for understanding how authentic project experiences can fit into instructional design education.*

## Introduction

Our purpose in this paper is to explore authentic project experiences in instructional design education. As Lowell and Moore (2020) summarized, such experiences are meant to help students “hit the ground running” (p. 581), preparing them for the rigors of professional practice upon completion of their academic training. Prior research has pointed towards a number of benefits they can have to accomplish this purpose. Studies indicate authentic projects help bridge the gap between classroom and workplace as they provide natural interactions between students and professional colleagues (Kramer-Simpson et al., 2015), expose students to the constraints and challenges of work settings

(Herrington et al., 2003), and present opportunities to practice design in potentially demanding circumstances (Miller & Grooms, 2018).

Our interest in authentic project experiences centers on how they matter to instructional design students as part of their education. But whereas prior studies—both within instructional design and in other fields—have researched student perspectives to develop insights into what they think about authentic projects (Dabbagh & Williams Blijd, 2010; Hynie et al., 2011; Miller & Grooms, 2018; Vo et al., 2018), our concern was somewhat different. We studied the issue from a practice-oriented point-of-view (Nicolini, 2012), attending to different modes of engagement that are opened up to students through authentic project participation, including how students fit into project environments and what can be learned about how projects matter by depicting this fit qualitatively. To explore this in richness and depth, we carried out a single case study of a student involved in an authentic project at the culmination of her Master's program in instructional design. Our inquiry focused on three questions: How did the student's authentic project participation matter to her? How did her project involvement fit into her education? And what can be learned about student involvement in authentic instructional design projects by studying this fit?

## Literature Review

The expectations that clients, team members, and other stakeholders have about what instructional designers do can lead to challenges for novices in the field. Instructional design is a complex profession, requiring designers to cope with uncertainty (Ertmer et al., 2008), make frequent judgments (Gray et al., 2015), and adapt formal models or theories into practical action, with little time for reflection (Ertmer et al., 2009; Yanchar et al., 2010). All of these can be difficult for new practitioners to manage, leading to work-related stress (Fortney & Yamagata-Lynch, 2013), and requiring employers to invest in on-the-job assistance (Stefaniak, 2017). The role of an instructional designer can also be very ambiguous, leading to additional stress if designers' expectations of their role are misaligned with those with whom they work (Drysdale, 2019; Radhakrishnan, 2018). In addition, instructional designers are often expected to be proficient in a wide range of skills that go beyond the actual design of instruction, including project management, building professional relationships, responding to shifting priorities, and promoting or defending their role to colleagues (Schwier & Wilson, 2010).

These needs have led to calls for more authentic experiences to be integrated into instructional design education, as a means for preparing students for the rigors of professional practice (Bannan-Ritland, 2001; Larson & Lockee, 2009; Lowell & Moore, 2020). Long a part of learning in many fields, authentic project experiences can vary in scope, ranging from class assignments based on true-to-life scenarios (Herrington et al., 2003), to working on client projects as part of coursework (Lowell & Moore, 2020), to internships where students work for an extended period of time and with at least some degree of autonomy (Johari & Bradshaw, 2008). They can be primarily teacher-directed, student-directed, or exhibit a mix of oversight methods (Aadland & Aaboen, 2020).

Regardless of scale or the name by which they go, however, authentic project experiences share at least some commitment to a learn-by-doing philosophy, as described in theories of experiential learning (Kolb, 1984). Their benefit is often framed in the opportunities they give students to practice design in real circumstances (Miller & Grooms, 2018), or at least circumstances that closely model real situations (Herrington et al., 2003). They allow students to collaborate with clients and disciplinary specialists (Kramer-Simpson et al., 2015; Lei & Yin, 2019), often exposing them to constraints they might face in on-the-job settings (Herrington et al., 2003). Projects can help students develop specific skills they will need upon entering the workforce, such as leadership and communication (Hynie et al., 2011). In many ways, the value of authentic experiences is the balance they provide between offering students a "dose of reality" about professional practice (Hartt & Rossett, 2000, p. 41), while at the same time being a reasonably safe environment where they can reflect on, and learn from, failures they might experience (Kramer-Simpson et al., 2015).

Research indicates there can be challenges with authentic project experiences, however. Especially in their more unstructured forms they likely require effective mentorship on the part of instructors or other experts to help students translate the experience into productive growth (Heinrich & Green, 2020; Johari & Bradshaw, 2008). Also, if the project is

significantly beyond students' skills, they might not provide a sufficient return on investment to the person or organization providing the experience (Hartt & Rossett, 2000). The value of authentic projects can also be limited if students are not willing to fully immerse themselves in the learning task, especially those that might be structured around more simulated scenarios (Herrington et al., 2003). And students might have expectations about the experience that are unmet—such as the nature of the work they will be doing, their role on the team, or how effective the experience will be—leading to frustration or disillusionment (Dabbagh & Williams Blijd, 2010).

To address these possible shortcomings, scholars have studied authentic project experiences in instructional design education from a variety of perspectives. Some research has been more conceptual, such as Bannan-Ritland's (2001) review of what she called the principles of "action learning" (p. 37), which she illustrated by describing examples of how authentic project experiences can align with those principles. This type of research also includes Miller and Groom's (2018) articulation of a framework for integrating authentic projects into instructional design curricula. Other researchers have focused on the varying perceptions of those participating in authentic projects. Dabbagh and Williams Blijd (2010) found that students generally viewed authentic projects as a positive contribution towards their education, in spite of moments of "anxiety and confusion" that often accompanied their immersion in the project environment (p. 6). From another angle, Hartt and Rossett (2000) focused on the perspective of those providing authentic project experiences. They studied to what extent students' work provided a return on their organizational investment, and found that in many cases students provided meaningful value and the overall experience was positive for the organization. Finally, other researchers have focused on guidelines for designing particular types of authentic projects, such as Stefaniak's (2015) focus on service-learning experiences, Johari and Bradshaw's (2008) study of project-based learning in internship programs, and Lowell and Moore's (2020) exploration of authentic projects in online environments.

Our study aims to contribute towards this body of literature, focusing on authentic project experiences as a rich phenomenon that can reveal unique insights when examined from the perspective of the "concernful involvement" of students participating in projects (Yanchar, 2015, p. 110). We did not solely focus on what authentic projects accomplish from an external point-of-view, such as the educational outcomes instructors might want them to provide. Nor did we focus only on the subjective perspectives that students might have about authentic projects. Instead, we studied how students were involved in, and engaged with, project work from a practice-oriented perspective (Nicolini, 2012), to more fully understand how authentic projects matter to students as seen through their responses to project experiences. This can generate knowledge about the nature of student involvement in authentic projects as well as how authentic projects fit into instructional design education more generally (Yanchar & Slife, 2017).

## Method

To address our research questions we chose a case study methodology. Our case is that of an instructional design student involved with a team-based project, designing simulations to teach cybersecurity at both the high school and college level. Throughout our report we will refer to her as Abby. We chose a case study because it would allow us to explore Abby's practical involvement with this authentic project in detail, providing insight into her participation by taking the world seriously as she experienced it (Packer, 2018). Our purpose was not to test a hypothesis about authentic projects, nor to generate universal laws or principles about how they fit into instructional design education. We also did not attempt to evaluate the effectiveness of the team with which Abby participated. Rather, we aimed to understand authentic projects in a new, and perhaps unfamiliar way, as we became attuned to the details of Abby's experience over the course of about a year. We were also interested in the discriminations she made in response to project-related events, including her affective responses to both positive and negative situations. This type of research allows readers to become "affectively reoriented to the world," meaning "that we think differently about the world, . . . that we feel it differently, [and] see it differently" (Wrathall, 2011, p. 170). Throughout our research we assumed a view of people and their practical involvement as found in the writings of Dreyfus (1991), Packer (2018), and Yanchar and Slife (2017), based in the philosophy of thinkers such as Heidegger (1962) and Merleau-Ponty (1964). In this perspective, "humans are fully embodied, engaged agents . . . situated in a lived world of significance," which allows for

theorizing into human activity that does not “invoke a more fundamental reality of causal forces assumed to control . . . human participation” (Yanchar & Slife, 2017, pp. 147–148).

The context of Abby’s involvement with this instructional design team was grounded in her pursuit of a Master’s degree in instructional design from an R2 university in the western United States. This university enrolled about 34,000 students (31,000 undergraduates and 3,000 graduate students), and employed over 1,000 full-time, tenure-track faculty. The team included members from all of these groups – professors (including this paper’s first author), undergraduate, and graduate students, from the fields of instructional design, information technology, and creative writing. The professors were supported by grants they had received to study simulations in cybersecurity education, including a large NSF grant. All of the students were part-time employees. Abby, who had been a member of the team for about 12 months, was involved for at least three additional reasons: the project fulfilled an internship requirement for her Master’s degree in instructional design; she was using the project as the site of her thesis research; and the project gave her opportunities to complete various assignments for classes in which she was enrolled. According to Aadland and Aaboens (2020) taxonomy, Abby’s involvement would be characterized as student-directed. She was primarily responsible for ensuring her participation met her educational goals, and her work was not specifically designed to serve her needs. While Abby did receive oversight from professors associated with the project they did so in their capacity as project supervisors and not as her teachers.

Our data were drawn from our multi-year, in-depth study of the team with which Abby was involved. Our full corpus of data consisted of interviews with team members, transcripts of team meetings, field notes generated by researchers, and artifacts the team produced during the course of their work. From this data we segmented out observations and interviews in which Abby participated over the course of approximately one year, along with related field notes produced by the researchers during the same period. The researchers observed Abby in team meetings held every 1 – 2 weeks, and the first author conducted discussions with her every 2 – 3 weeks. Some conversations lasted a few minutes while others were an hour or more. The specific quotes we use in our report to illustrate Abby’s involvement with the project were drawn from two formal interviews the first author conducted with her towards the end of the study, each lasting approximately 45 minutes. These interviews were audio recorded, then transcribed for analysis.

Our analysis method was drawn from Packer (2018). Packer’s approach relies on careful analysis of the words and other linguistic conventions research participants use to relate their experiences. The goal is not to summarize people’s experiences into a set of codes or otherwise abstract expressions that can be generalized across situations. In contrast, his method is meant to generate an empirically based interpretation of the local, practical work in which people engage to account for themselves and their situation. The results of such an analysis are typically ethnographic in character, although they are not full ethnographies since they are centered around participants’ self-reports rather than including observations or artifact analysis. There are reports that Packer called, “a way of seeing the world that follows from [interview participants’] way of being in the world” (p. 472). Further, it is often the case that the usefulness of these studies is at least partially found in their uniqueness. Rather than being valuable because they are universal, such research is meant to provide a distinctive vantage point from which to view a phenomenon—a view that can reveal fresh insights about common things.

To achieve this outcome we conducted a hermeneutic analysis based on close readings of our data. This analysis centered around the effects Abby’s interviews had on our understanding of her project experience (Packer, 2018). We started by articulating our initial understanding of each transcript (done individually by each author and then in discussion together). We then engaged in the following steps recommended by Packer, focusing not on any inherent meaning in the words of the transcript but attempting to articulate the effects they had on our understanding. In each transcript we identified: (a) the context of the interview – its background, purpose, and facts it contained about Abby or her participation in the project; (b) gaps in Abby’s report, where she seemed to be making assumptions or taking for granted certain conclusions; (c) the tropes and structures through which Abby communicated details of her situation as well as her affective responses to her circumstances; (d) the chronology of Abby’s experience—especially breakdowns in her experience—and how she talked about herself as an agent in these events; and (e) any explicit knowledge Abby identified as important to understand her story. At each stage we recorded evidence that supported our interpretation of Abby’s claims, any disconfirming evidence or examples, the effects our readings were having on our understanding, and

additional questions raised by that phase of analysis. Through hermeneutic comparison of each of these parts with the whole transcripts, as well as the whole with the individual parts (Fleming et al., 2003), we crafted an account that provided “a new way of seeing” (Packer, 2018, p. 149) the research issues of our study, while remaining true to the details of Abby’s experience.

While this method allowed for a detailed examination of Abby’s mode of engaging with the project—including her own complicity in creating that mode of engagement (Packer, 2018)—we acknowledge that it does come with some limitations. Abby’s reports undoubtedly reflected her own biases, and the project itself also afforded certain ways of participating better than others. So we recognize that other instructional design students may see and experience their authentic project experiences differently than did Abby, as well as respond to events in a different manner than she did. So our findings do not generalize to every situation educators might encounter. Nevertheless, there is still value in understanding the experiences of one student to the depth we provide here. Even single cases can uncover new possibilities or reveal uncommon or unfamiliar aspects of the world – possibilities and aspects that might remain hidden when using research methods that summarize the detail of large numbers of students (Stake, 1995). They can also suggest certain things that must be taken into account if one were to develop broader, more generalizable theories or frameworks, recognizing that if events happen even in one case they are legitimately part of the world, regardless of their frequency (Flyvbjerg, 2001). It is these types of findings that we aimed to generate through our study.

## Findings

As Abby described her involvement with the simulation project, she depicted it as a place of both possibility and constraint. As she initially explored the project space she encountered considerable freedom, and she believed these opportunities would allow her to meaningfully contribute towards ensuring the simulations would achieve their intended outcomes. But then Abby encountered limitations to her participation that she did not expect. The significance of these constraints started to eclipse the opportunities she had seen, and the project started to show up to her as a place of disenfranchisement that highlighted her inadequacies. Later, in conjunction with changes in the project structure and help from a supportive mentor, Abby reoriented to the possibilities available and disrupted the cycle of disenfranchisement in which she seemed to be caught. She saw more clearly opportunities that had previously been obscured, and she became one of the project’s valued leaders. These stages are summarized in Table 1, and are further developed in the sections that follow.

**Table 1**

*Summary of Abby’s Involvement in an Authentic Project Experience*

Abby’s involvement	How Abby’s involvement was significant
Abby encountered initial freedom, with few firm expectations and many opportunities to pursue what she thought was important.	Abby believed she developed a unique point-of-view on the project that would help her make a meaningful contribution.
Abby encountered limitations; she did not have the skills to implement her ideas for improving the simulations, and teammates often told her that her suggestions were not the team’s priorities.	Abby felt like she had been boxed in and disenfranchised. She felt inadequate and started to pull away from full participation.
Abby received help from a supportive mentor, and was given new opportunities to lead out in aspects of the project’s development.	Abby reoriented towards the possibilities the project offered her; as she reengaged she became one of the project’s valued leaders, seeing even more ways she could be meaningfully involved.

## Abby’s Initial Involvement – Few Firm Expectations and a Unique Point-Of-View

Abby’s initial engagement with the team looked as if it would serve mutually beneficial purposes. From Abby’s point of view, joining the project gave her an opportunity to pursue a research interest that would ultimately become her thesis – how to better attract high school girls to STEM careers. On the team’s part, they wanted Abby to oversee what she called the simulations’ “education-oriented” components. Her first assignment was to develop learning outcomes for



each simulation. Abby was also tasked to develop teacher support materials to accompany the simulations; while students were meant to complete each one on their own (as a unit within a larger class on cybersecurity-related topics), the team wanted to provide teachers with enough support to feel confident they could answer any student questions that might arise. And finally, because Abby had some training in instructional video production, the team anticipated that she would oversee the production staff who would develop each simulation's video elements (however, this was not scheduled to begin until a few months after Abby was hired, and so it did not influence her initial participation).

As Abby's involvement with the project deepened, she became aware that the nature of her work differed from other students. While others were required to provide tangible evidence of their progress on a regular basis, Abby's responsibilities did not come with the same amount of oversight. She generally followed her own schedule, and was rarely asked to report the status of her work in the same way as others. If something was not completed on time (such as the learning outcomes for a simulation phase), the rest of the team was told to move ahead, adjusting their work when Abby was finished. Relatedly, Abby also noticed that her deliverables differed from those of other students. Their work products were almost exclusively concrete – written narrative elements, files for UX elements, or code to run the simulation. Abby, in contrast, while producing a few tangible artifacts (e.g., worksheets for teachers), found most of her work to be conceptual, such as writing learning outcomes that might influence the form the narrative or user interface took, but that did not show up in the simulations directly.

Together, these conditions created an environment where Abby initially felt free to pursue whatever work she thought best. She said that she felt “less tethered to one particular expertise,” and although she was assigned certain tasks she did not feel bound to any certain process for completing them, nor did she limit her involvement to only those areas to which she was formally assigned. For example, she took it upon herself to complete one of the simulations on her own, from start to finish without the answer key – something no one else on the team had done. She told us this was because “I’m more responsible for what the student experience is like,” and “I feel like it’s my job to make sure that the students have the scaffolding that they need, that they’re accomplishing the tasks, [and] that the tasks are meaningful,” even though no one told her so explicitly. Additionally, Abby assumed responsibility for evaluating the simulations’ usability. She told us that watching students actually using them helped her generate insights for improving the team’s work. From her observations, Abby “could tell . . . if they thought [a simulation] was strange, or it rubbed them the wrong way.” She also observed what she called students’ “emotional reactions” to their experience, “if [this student] liked it or [another] didn’t,” that further informed her view of the project. Helping professors with their research into the simulations helped her develop additional ideas for improving them, as well.

Abby told us she initially believed that because these assigned and assumed responsibilities were unique compared to what her teammates were doing, she developed a “different perspective,” regarding how to design the simulations so they would achieve their intended outcomes. She saw a “vision” of the project that was not “necessarily easy for everyone to see.” She told us that, “because I’ve been involved in the research . . . and, like, going through it in classes, and trying to really understand the students’ experience, I think I’m more connected with that aspect.” She identified this as a distinct opportunity she had to contribute to the project team, “conveying that vision,” as she called it, and sharing her unique outlook with others – one that they were not in a position to see on their own.

## Abby Encounters Limitations to Her Involvement

As Abby became more involved with the team, however, she told us that her working environment began to show up as more and more limiting, and that the project started to feel like a place of constraint. She slipped into a pattern of yielding to others to shape the simulations’ direction, and eventually saw fewer opportunities to act on her own. As we undertake to describe this, we recognize the potential irony – one might think the environment Abby initially described, where she was largely able to decide when and how she would engage, and where she was bringing unique insights back to the team, would be a space of accomplishment. But in actuality she began to depict her participation as characterized by constraints and limits. As we will show later, Abby was eventually able to reorient and reengage with the project in a more freeing manner, but at least for a time nearly the opposite occurred, and she talked about herself as if she had been boxed in by obstacles that had been placed around her.



Yet this was not merely her private interpretation of the situation that she was able to overcome only by adopting a better attitude towards what seemed to be constraining forces. Rather, the project itself had real features that afforded themselves towards courses of action that were more limiting than freeing. As Abby pursued these she did so as if she were taking a path of least resistance – a path that, although it was the easiest, was nevertheless one that she moved into (although she avoided admitting that to herself at the time). Correspondingly, when we later describe the positive changes in Abby's participation, we will show that while it was true that it did include a change in how she approached her circumstances, it also reflected a change in the project structure so that it afforded itself towards more liberating possibilities on Abby's part. So we are careful not to portray Abby as either choosing on her own to see the project as a confined space, or as being forced into a constrained role by deterministic, environmental forces outside of her control. Abby's interviews invited us to see how the way she fit within the project's structure made it easy for limitations to show up as relevant, while at the same time recognizing that the concrete ways those limitations mattered to her, and how she chose to cope with them, were equally important in defining her experience.

## Being Boxed In

Abby told us about two, interrelated factors that together showed the project as a space where she was boxed in, with limited options to meaningfully participate. First, as noted earlier, there was a contrast between the nature of Abby's work and that of her teammates. Abby told us that others offered what she called "tangible" contributions towards the simulation's final form – the form students would actually experience. This included the simulations' code, the graphic design that gave them visual representation, and the creative writing that brought each simulation's story to life. Abby, on the other hand, defined her contribution as, "helping people do what they need to do." She seemed to draw a distinction between the work others did—creating the concrete and visible building blocks that one could point to in the final simulation—and the work she did, which was conceptual, in the background, and useful to the extent that it helped the rest of the team do their jobs better.

While in the abstract Abby talked about such contributions as having "value," actual examples she shared reflected a more conflicted tone, because most of her ideas required someone else to actually give them a perceptible form. For instance, she told us that she accepted responsibility for whether students were successful in learning from the simulations, "if people are experiencing [poor learning outcomes], then I would maybe feel, like, maybe that's on me." But she also said she had not created anything that students would encounter directly to help them achieve those outcomes, nor did she have the ability to do so. "People aren't going to be, like, 'oh, Abby built this or did this.' . . . I'm not doing anything right now that's going to be a tangible thing." The nature of Abby's involvement meant that without help from her colleagues, what she designed would not be used by students. And it seemed this began to overshadow the importance of any concrete materials she was producing, such as her teacher support materials. After initially describing that she was working on them, and while we know from our observations that she completed the assignment, she did not bring them up again and did not mention deriving any satisfaction or sense of significance from their completion.

Alone this may not have meant much to Abby, other than occasional hints she offered about how she would have enjoyed the recognition that accompanied the simulation's concrete development. But Abby also found that her teammates could be reluctant to accept or implement any suggestions she provided. Through her research, usability testing, and personal experience completing them, she generated a number of ideas for how the simulations could be improved. And at least for a time she would bring her ideas back to the rest of the team. But often their response was her suggestions were either too difficult or were not their current priority:

I'm, like, "hey, I really think we should change this." And I feel, like, sometimes people are, like, "that's kind of hard and we don't necessarily want to do it." So then that value doesn't necessarily come to fruition.

Abby offered multiple examples. A particularly illustrative one concerned the team's focus on building women's self-efficacy to pursue a cybersecurity career:

*I really feel like putting students' names in [the simulation] would be really helpful. We've used Junior because that's just an easy way to program it. And that rubbed me the wrong way when I got on, especially*

*thinking if we're trying to target girls. Like, so, here's me putting my researcher hat on. I know we want to help girls feel more, like, identify with this better. And I'm thinking, no girl has ever been called Junior as a nickname . . . I tried it out with my sister, and my sister's, like, "Junior, what, is that me?" So, I can hear this from the students. I'm thinking from my research mind, "this is not good." I talked to [the lead professor], he's, like, "oh, yeah, students identify better if their name is there." Then when I take that to the team, they're, like, "oh, that's going to be a lot of work." So, how much do I push it?*

The result of dismissals such as these was a growing sense on Abby's part that what she wanted to contribute was not as needed as what her team members offered. Not only did it appear that they valued different outcomes than her, but she also concluded that she did not have the ability to influence the direction the simulations would take, "I've kind of let the developers do their thing . . . I didn't see myself to be in a position to tell them anything." She often described the simulations' development as occurring around her, where she was aware of what was happening, but they were not something she was directly helping. Over time, she saw fewer opportunities to engage in ways that would change the project's trajectory, including changes aligned with what she learned through her research into the simulations' educational effectiveness.

## Growing Disenfranchisement

Given that Abby needed cooperation from her teammates to implement her designs, their dismissals hurt her deeply, "why be on a team if you're not doing anything? So, it kind of made me—if I'm not really doing much, then I just kind of feel pointless. Well, maybe I shouldn't be here." We use the term hurt intentionally. Similar to how a physical injury can become inflamed and sensitive, and the afflicted area becomes too tender to tolerate an otherwise benign touch, or bear what would otherwise be one's ordinary weight, Abby's growing sensitivity to her limitations led her to pull away from other team members to avoid difficult interactions. She particularly became attuned to, and even defensive about, potential offenses on the part of her teammates (whether intended or not).

One example occurred when new writers were hired to complete the simulation narrative. Abby told us that as they were beginning their work she tried to show them a set of scripts she had consulted on with the previous writers:

*I was trying to point out, "hey, look, we did a lot of work on this last spring. We might want to look in this folder because somebody already wrote a bunch of scripts. We don't need to reinvent the wheel." And [one of the writers] told me, "well, yeah, but we're master's students, and so we probably can do a better job."*

Abby continued, "that response just felt like it was dismissing what I was trying to say. So, instead of listening and validating. . . like, 'tell me more,' it was just dismissing." Abby told us that by this she meant that she thought the writers were both dismissive of the work that had been done as well as of her attempts to have a conversation about it. Additionally, she was particularly bothered that at least one writer did not seem to understand that she was also a graduate student, "[the writer said], 'well, I'm a master's student.' Okay. So am I, but I won't mention that." Abby found the experience quite disheartening, telling us, "I was so frustrated," and describing how afterwards she started to withdraw from fully participating. At one point she told us that her response was, "all right, I'll step aside." At another time she described it as, "okay, I'll back out of your way." Both phrases seemed to suggest Abby's sense of resignation and defeat.

In talking about incidents like these, Abby seemed to describe the project as being a place of disenfranchisement, depriving her of opportunities to offer meaningful contributions, and where she had been judged as inadequate to contribute anything of substance. The positive aspects of her participation, which earlier had seemed so fulfilling, receded into the background. She started to primarily focus on her limitations, even going so far as to tell us, "I didn't really feel like I had anything that I was doing . . . [For a semester] I was hardly assigned anything. Yeah, I was like a bump on a log."

As we analyzed other events Abby talked about, however, we saw that while it was true that her contributions could be discounted, at the same time she started to pull away from the project as well. This also reduced the extent to which she was actively involved. In the face of rejection it seemed that Abby generally stopped putting herself in the position

of being rejected again. At one point she even seemed to openly admit this, saying, “[I] was, like, not super engaged in what was going on.” She described one instance, during the time she was “frustrated that no one was valuing what had been done last spring” (meaning when the new writers had abandoned the existing scripts). One of the professors asked Abby to work with the same writer who had been particularly dismissive to update some of the material students would initially encounter when using a simulation. Abby described this as another case of work she had previously completed being dismissed without actually examining what had been done, “I was like, ‘it’s all there, we did this, look at this.’” In response to the request, Abby told us that, “I refused to help. And so instead of being involved, I just, like, checked out.” Out of these difficult interactions a vicious circle seemed to emerge. Abby thought her contributions were being rebuffed, and she responded by pulling away. But this meant she had fewer opportunities for meaningful involvement, which further darkened her mood. As she became more discouraged, the actions of her teammates tended to show up as if they were intentionally slighting her work. Whether they actually were or not, the result was the same; Abby became sensitive (or perhaps overly sensitive) to saliences that appeared slighting, which, in turn, fueled a further sense on her part that she was not needed.

Interestingly, even though Abby told us that for a semester she “was hardly assigned to anything,” based on team meetings we observed during that period this appears to have not actually been the case. We watched Abby participating in project decisions, taking assignments, and being treated by others as a full contributor to the project. Yet we do not interpret Abby’s insistence that she had nothing to do as her trying to mislead us, or that her memory was flawed (although we acknowledge both of these as possibilities). Rather, since when she was not talking about her disenfranchisement she occasionally brought up other ways she was involved during this same period, it seems more likely that when she talked about not being assigned anything she was trying to communicate the affective quality of her experience instead of the literal facts of the situation. Saying that she was, “a bump on a log,” or that, “[I] didn’t really feel like I had anything I was doing,” were her attempts to point out what was significant about her circumstances. What seemed to matter most was that she saw herself as not being a contributor, and that she did not see the simulations being improved because of her work. Yet, as we have emphasized, this sense was not solely created by either the events around her, or by her beliefs and attitudes about those events. It seems to be better characterized as a way of engagement that was jointly produced both by the situation Abby found herself in as well as how she attempted to cope with what she experienced.

## Abby Moves from Disenfranchisement to Valued Project Leader

Despite her growing discouragement, Abby did not completely abandon her membership on the team. When we asked why she identified at least three aspects that continued to draw her in. First, notwithstanding the difficult interactions Abby had with some teammates, others had become her friends, and she described a “connection with certain people I was working with” that she wanted to maintain. She also seemed to fall into something of a sunk cost fallacy, telling us, “I was involved when it started . . . I guess I felt some level of investment and commitment.” Finally, she would reminisce about the sense of belonging and being a contributor she once experienced, and hoped that she could recapture it in some form, “we were excited about this idea that we [came] up with. . . . So I guess I cared about being on the team and I wanted to be productive and useful.” These largely emotional factors—all mattering to Abby in different ways and providing her different motives for wanting to participate—were significant enough to tether her to the project even as so many other aspects continued to push her away.

Alone, however, these commitments did not actually change anything in Abby’s situation. While they inclined her towards at least some association with the team, she still remained mostly disengaged until three, somewhat intertwined features of the project structure also changed, that together seemed to open up possibilities that Abby found less constraining. The first was that a certain professor who was sensitive to helping students have good experiences began to assume a more prominent role as the team began working on a simulation for which he was the subject matter expert (we will refer to him as Eric). Abby told us that Eric “makes [her] feel valued,” and, “he just totally built me up.” The second factor was Abby enrolled in a project management class that required her to be a “scrum master” for a product team (a project management role found in agile approaches to product development). Abby asked Eric if he would allow her to complete her assignment for the simulation he was overseeing, “I need this experience, so I emailed Eric, like, ‘hey, do you think I could be scrum master on our team?’” Eric’s response was, to

Abby, very enthusiastic, “immediately he started referring to me as the scrum master.” She further commented, “he’d, like, let me lead in meetings,” and, “the way Eric is, like, promoting me and what I can do, I think I [now] have more of a leadership role.” Finally, development reached the point that video production began, and Abby said she also felt valued because, “[team leaders] put me in charge of the videos and actually said, ‘Abby’s responsible for this,’ and, ‘go to Abby.’”

As Abby pursued the new assignments and opportunities these structural changes opened up, the character of her participation changed as well, reorienting from a sense of disengagement to one of more complete involvement. She became more attuned to possibilities in her situation, as suggested by her comment that, “I can do things because I feel valuable.” To illustrate she provided a number of examples of not only the new work she was doing but also the change she experienced in the character and quality of her participation.

One change was that even though the work Abby did during this period continued to be intangible and largely in the service of teammates doing concrete production, she began to describe it as adding value, as opposed to her previous sense that her work was not needed. For instance, even though Abby did not produce the simulation videos herself, she did take the initiative to recruit, hire, and support the videographer with little oversight or direction from those supervising her. Of this she said:

*I think we're all excited about the videos right now because we have [our videographer], who's, like, our – he's going to make it cool. He's going to make it cool. We have actors that we're excited about . . . [The videographer] interviewed them and sent me the videos and all these people are going to be so fun . . . So, I think I'm excited about the production, and we're shooting on Saturday, so it's like the big thing right now.*

The difference in Abby’s tone as she described her support of the videos was striking. Whereas her comments about previous events could reflect a sense of despondency, when she described her leadership over the video production—even though she was not directly shooting the videos herself—she spoke with a sense of enthusiasm that suggested she was more confident about her place on the team than she felt before.

A related change was that difficult interactions with teammates that had previously bothered her so much, seemed to recede into the background of her experience. She told us, “now I feel a lot more respected and capable and less impacted by those types of situations. So, I’m not as worried about that now.” Even though she told us there were still hard conversations or challenging problems to address, her sensitivity to them diminished, and she talked about them more dispassionately than she had before.

And finally, as Abby began acting as the scrum master she started to see things about the project she had not noticed earlier. In particular, her experience of being disenfranchised no longer appeared to be so unique. She started to get a sense that the overall project had been “stuck.” She told us, “there hasn’t been a whole lot of organization in getting stuff done,” and seemed to indicate that from the perspective of her new role she could see that she had not been the only person frustrated because they felt like they were not contributing, or that what they were doing did not matter. But realizing this did not lead to her to slip back into discouragement. Rather, she seemed more attuned to situational possibilities for how she could lead out and help the team make better progress, like enforcing daily status updates, planning agendas for project meetings, or contributing new design ideas that could create additional project momentum.

By the time of our final discussions with Abby she appeared to have largely overcome any sense that the project was boxing her in. Neither was she as discouraged as she had been earlier. But she did not just perceive different things about the simulations, her teammates, or her own work. She was involved in the project in a completely different way, more as a valued leader than as an occasional contributor. This does not mean the project has become trouble-free. As mentioned, after being placed in a leadership role Abby could see project shortcomings she had not seen before, and even while we were interviewing her she had questions about whether the simulations were as effective as they could be at achieving their outcomes. But Abby seemed to approach these challenges from a position of self-possession, rather than disenfranchisement or doubt. She became a leader not only because she had skills to help her lead, but because she started to respond to circumstances like leaders respond, as suggested by her comment:

*I'm involved in lots of aspects of lots of things . . . When things are brought up [I think], "oh, yes, I have something that I want to bring up for the team to think about." . . . I have more to contribute because I'm more involved.*

As we have emphasized, this seemed to be due to opportunities Abby was given as well as her own willingness to accept those opportunities and make something of them. Whereas before she experienced a vicious circle of further and further disengagement, she now seemed caught up in a virtuous circle. Others' willingness to believe in her and give her new ways to contribute opened a space for her to act. Accepting what they offered reignited her enthusiasm, and her improved mood showed her even more opportunities for involvement. Abby herself seemed to recognize the change, telling us, "there's just been a huge contrast" between times that she was so hurt by actions of her teammates that she was willing to step away from active participation, to the time of our interviews where she was being told by her colleagues, "Abby's so important on this team, Abby's involved, Abby does everything, Abby does more than the professors." When we shared that this was also reflected in our own interviews with other team members, and that they were equally telling us how much she was contributing, her response was, "wow, that's, wow. That makes me feel like I want to do even more!"

## Discussion

Our interest in studying Abby's case was to explore how her authentic project involvement mattered in her instructional design education. Analyzing her interviews provided us "a fresh way of seeing" (Packer, 2018, p. 148) what it could entail to be a student involved in this form of learning, which we summarize as three insights. First, Abby's account contributes towards the literature recognizing that even though authentic project experiences can have clear advantages, they also may not always be unambiguous goods in students' education. Second, we suggest that a reason for this is because the outcomes of authentic project experiences do not solely lie in any intrinsic properties of the opportunities themselves, nor in students' personal attempts to make meaning out of those opportunities. Avoiding a dichotomous distinction between situation and student provides a clearer view of how authentic projects become a learning space when students engage in the practical work of fitting themselves to the affordances such experiences offer. Finally, we learn from Abby's case that challenges accompanying authentic project experiences can be mitigated, but doing so will likely involve cooperation from those with the ability to adjust the form and structure of an experience, as well as the participating students themselves.

## Authentic Project Experiences May Not Always Be a Pedagogical Good

For Abby, participating in the simulation project allowed her to apply a variety of skills in authentic settings and offered her unanticipated leadership opportunities, but also challenged her self-confidence to the extent that she nearly abandoned her involvement. This duality suggests there can be tensions in authentic project experiences as a pedagogical strategy, and they may not always be unambiguous goods in students' education. This aligns with findings from prior research. While researchers have described a number of benefits these experiences can provide (Johari & Bradshaw, 2008; Miller & Grooms, 2018), the literature also recognizes that the very authenticity of these experiences can create complexities with which students may have a difficult time coping (Dabbagh & Williams Blijd, 2010; Hartt & Rossett, 2000). They may find themselves tangled up in binds they do not yet have the ability to unravel on their own.

Our study extends this literature, not only by drawing attention to the forms potential complexities could take, but also by showing at least some ways that students might affectively respond if complications arise. Highlighting both potentialities seem important to help educators address challenges they might face when implementing authentic project strategies themselves. For instance, one reason project involvement was not an unambiguous good for Abby was because when her teammates were reluctant to implement her ideas, their dismissals showed up to her as obstructing her ability to meaningfully contribute. But while her views were certainly understandable, they were also not unavoidable. We can imagine how it may not have mattered as much to other students if they were challenged as Abby was, or how they might even have been energized by the need to find ways to better persuade their colleagues. So in her case, for educators to understand how to help Abby have a better experience they would have to pay attention to the

situational affordances as well as the relevance of those affordances to her. Yet we are aware that Abby's experience only highlights some of the difficulties that might create strains for students involved in authentic projects. So we encourage continued research into other possibilities authentic project experiences might open up, especially research that explores challenges that can accompany the approach.

## Authentic Projects Become Learning Experiences Through a Reciprocal Relationship Between Student and the Project World

As just mentioned, and as we have described throughout our report, Abby's experience was born out of real situational affordances, as well as how she negotiated and navigated those affordances. This seemed typified by how she described how her mode of engagement changed after Eric appointed her scrum master, "I can do things because I feel valuable." In Abby's world, she not only felt more or less valued based on what she was able to do, but she also felt more or less capable of acting depending on how valuable she felt. Her experience seemed characterized by reciprocity. She had to respond to features of the environment outside of her control, but her responses altered the project context and changed what type of involvement was available to her moving forward. Focusing only on one side or the other—opportunity or Abby's attitude—seems insufficient to understand either Abby or the project itself. What transpired cannot be reduced either to the influence of environmental forces acting upon her, or her private processes of constructing meaning out of her experience (see Wrathall, 2004). It seems more accurate to attempt to unify what was provided from both Abby and from the project space, "not [as] sharply distinct, self-sufficient states or separately existing ingredients, but [as] essentially interwoven aspects of a single, unified phenomenon . . . More like two sides of a coin or two dimensions of a figure" (Carman, 2020, p. 77).

Recognizing this provides a more comprehensive way of understanding authentic projects as learning experiences. Abby's account indicates that neither a view of learning that locates it primarily in environmental influences or one locating it primarily in individual processes of meaning-making is sufficient. For instance, while she clearly had to respond to environmental factors in her journey towards becoming a project leader, Abby cannot be portrayed as someone who learned leadership only because her actions came into alignment with a set of standards or norms provided by her environment – a view implied by theories that define learning as the result of processes of socialization and enculturation (cf. Matthews, 2016). And while she clearly had to interpret her situation and decide what events meant to her, she also cannot be portrayed as having learned leadership only because of personal, internal changes to her knowledge, attitudes, beliefs, or skills. Equally important were the changes to what Yanchar et al. (2013) called her "embodied familiarization" (p. 219) with the project, meaning how she was able to practically comport herself to fit into the space provided by the real, situational demands of her work. Abby learned from her project experience as she became more capable of "meaningful engagement" with what had previously been foreign. She became more "accustomed" to, and "familiar" with, how to navigate the very practical concerns her situation required (p. 220).

This is a view that transcends reductive attempts to locate learning primarily in one type of cause or another, either cognitive or cultural. It shows learning as a process of developing a practical stance towards the world – in Abby's case a stance taken by instructional designers. Certainly this stance includes learning new skills or developing a new identity, but is not defined by these features alone. It also includes how the world feels as one inhabits it, such as how the project felt to Abby when she was disengaged, or as she re-engaged (cf. Dreyfus, 1991). It entails how one anticipates, and becomes sensitized to, saliences in the world, such as how Abby as a project leader could see the team was not as organized as she once thought, and how this drew her attention towards opportunities that might have otherwise remained unnoticed (cf. Wrathall, 2004). It encompasses how one becomes resolved to act in response to opportunities the world offers, such as how Abby accepted the responsibility to plan project meetings so they would be a better experience for everyone involved (cf. Dreyfus, 2017). In this view, authentic projects fit into instructional design education not because they provide a single cause of learning, or even a group of causes, but because they contribute towards "shifts in how the world shows up, how learners fit into the cultural contexts of life, how they engage in practices, and the stands they take on matters of significance" (McDonald & Yanchar, 2020, p. 643).



## Educators and Students Jointly Improve Authentic Project Experiences

These views suggest a new way of understanding events that might arise during students' participation in authentic project experiences. Individual project events will not necessarily be good or bad because of any intrinsic properties they possess, because their value is at least partly found in how students respond to them. While it is true that project experiences can be well- or poorly designed, their design itself is only a starting point for the evolution of the experience that will occur as actual students get involved. But neither is it correct to say that any given event is neutral—with its learning value created by students themselves—since individual events will open up certain possibilities while at the same time closing down others. So it is still incumbent on those planning authentic experiences to “offer compelling beginnings” in projects that students “may be persuaded to pick up” as they engage in the project space (McDonald, in press). If authentic projects are not effective because of their inherent properties, instructional design educators and students can at least work together to make them effective by attempting to improve how students fit into them. This implies that educators may be able to help students break out of negative cycles of participation as they alter conditions in the environment and as they point students' attention towards new possibilities that might be opened up by the improved conditions.

Prior research suggests practical ideas that educators can consider for accomplishing this, including: cultivating meaningful relationships between students and mentors so that students come to trust the guidance they provide (Michela & McDonald, 2020); ensuring the designs of project environments do not inadvertently discourage or punish students for expressing their independence (Johari & Bradshaw, 2008); providing students frequent opportunities to reflect on their experiences and whether those experiences are leading to desirable ends (Bannan-Ritland, 2001); and ensuring regular evaluation is part of authentic project environments so necessary adjustments to structures or relationships can be made (Larson & Lockee, 2009). We recommend additional research be conducted to develop other design guidelines that are consistent with our findings.

But as our study emphasizes, when challenges arise during authentic projects it is likely not the sole responsibility of any party alone to mitigate the problems – neither the educators planning the project nor the students learning from it. This is not because either side can be relieved of responsibility, but because both sides are likely contributing something towards the unfolding situation (for good or bad). Challenges may have as much to do with what stands out to students as important about their involvement as they do with any objective factors within the context itself, although situational factors would certainly contribute towards what students could see. So neither side's efforts alone will be sufficient to alter the circumstances. On the side of the educators, while they can set up any number of conditions, they cannot set up how students respond to the conditions they provide. On the side of the students, no matter what attitude they bring into a situation, they may still find conditions that stifle their contributions or otherwise impede their capacity to act in alignment with the practical stance the authentic project is meant to make available. So cooperation from all sides will be needed to address authentic project challenges – those with the ability to adjust the form and structure of an experience, as well as the participating students themselves. Improving the student experience will jointly be a matter of changing what opportunities the environment provides, and of students becoming reenergized as they anticipate anew the potential futures such opportunities could unfold. But educators cannot pick up the possibilities on behalf of students directly. Ultimately, as it was for Abby, students have to accept the changes they are offered, and make the project personally relevant in a manner that improves the quality and character of their participation.

## Conclusion

Our purpose in this study was to explore how authentic project experiences matter to instructional design students. Through a case study of how an instructional design student, Abby, depicted her experiences as a member of a design team, we came to understand how (a) authentic projects may not always be unambiguous goods in instructional design education; (b) how this is so because authentic projects become learning experiences through a reciprocal relationship between students and the project; and (c) how because of this, educators and students must jointly cooperate in improving authentic project experiences. Of course, more research is needed to more fully understand how authentic projects matter to instructional design students. But our initial exploration here at least illuminates how part of their

significance lies in the range of practical and affective responses students might have to them. We hope that further research will continue to focus on these relationships between students and the project experiences in which they participate, seeing them as important not because of what they do to students, but also because of what students are able to meaningfully contribute towards the experiences themselves.

## References

- Aadland, T., & Aaboen, L. (2020). An entrepreneurship education taxonomy based on authenticity. *European Journal of Engineering Education*, 45(5), 711–728. <https://doi.org/10.1080/03043797.2020.1732305>
- Bannan-Ritland, B. (2001). Teaching instructional design: An action learning approach. *Performance Improvement Quarterly*, 14(2), 37–52.
- Carman, T. (2020). *Merleau-Ponty* (2nd ed.). Routledge.
- Dabbagh, N., & Williams Blijd, C. (2010). Students' perceptions of their learning experiences in an authentic instructional design context. *Interdisciplinary Journal of Problem-Based Learning*, 4(1), 2–13. <https://doi.org/10.7771/1541-5015.1092>
- Dreyfus, H. L. (1991). *Being-in-the-world: A commentary on Heidegger's Being and Time, Division I*. The MIT Press.
- Dreyfus, H. L. (2017). *Background practices: Essays on the understanding of being* (M. A. Wrathall, Ed.). Oxford University Press.
- Drysdale, J. T. (2019). The collaborative mapping model: Relationship-centered instructional design for higher education. *Online Learning Journal*, 23(3), 56–71. <https://doi.org/10.24059/olj.v23i3.2058>
- Ertmer, P. A., Stepich, D. A., York, C. S., Stickman, A., Wu, X., Zurek, S., & Goktas, Y. (2008). How instructional design experts use knowledge and experience to solve ill-structured problems. *Performance Improvement Quarterly*, 21(1), 17–42. <https://doi.org/10.1002/piq.20013>
- Ertmer, P. A., York, C. S., & Gedik, N. (2009). Learning from the pros: How experienced designers translate instructional design models into practice. *Educational Technology*, 49(1), 19–27.
- Fleming, V., Gaidys, U., & Robb, Y. (2003). Hermeneutic research in nursing: Developing a Gadamerian-based research method. *Nursing Inquiry*, 10(2), 113–120. <https://doi.org/10.1046/j.1440-1800.2003.00163.x>
- Flyvbjerg, B. (2001). *Making social science matter: Why social inquiry fails and how it can succeed again*. Cambridge University Press.
- Fortney, K. S., & Yamagata-Lynch, L. C. (2013). How instructional designers solve workplace problems. *Performance Improvement Quarterly*, 25(4), 91–109. <https://doi.org/10.1002/piq.21130>
- Gray, C. M., Dagli, C., Demiral-Uzan, M., Ergulec, F., Tan, V., Altuwaijri, A. A., Gyabak, K., Hilligoss, M., Kizilboga, R., Kei, T., & Boling, E. (2015). Judgment and instructional design: How ID practitioners work in practice. *Performance Improvement Quarterly*, 28(3), 25–49. <https://doi.org/10.1002/piq.21198>
- Hartt, D. C., & Rossett, A. (2000). When instructional design students consult with the real world. *Performance Improvement*, 39(7), 36–43. <https://doi.org/10.1002/pfi.4140390712>
- Heidegger, M. (1962). *Being and time* (J. Macquarrie & E. Robinson, Trans.). Blackwell Publishers Ltd.
- Heinrich, W. F., & Green, P. M. (2020). Remixing approaches to experiential learning, design, and assessment. *Journal of Experiential Education*, 43(2), 205–223. <https://doi.org/10.1177/1053825920915608>



- Herrington, J., Oliver, R., & Reeves, T. C. (2003). Patterns of engagement in authentic online learning environments. *Australasian Journal of Educational Technology*, 19(1), 59–71. <https://doi.org/10.14742/ajet.1701>
- Hynie, M., Jensen, K., Johnny, M., Wedlock, J., & Phipps, D. (2011). Student internships bridge research to real world problems. *Education and Training*, 53(1), 45–56. <https://doi.org/10.1108/00400911111102351>
- Johari, A., & Bradshaw, A. C. (2008). Project-based learning in an internship program: A qualitative study of related roles and their motivational attributes. *Educational Technology Research and Development*, 56(3), 329–359. <https://doi.org/10.1007/s11423-006-9009-2>
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development* (Vol. 1). Prentice-Hall.
- Kramer-Simpson, E., Newmark, J., & Dyke Ford, J. (2015). Learning beyond the classroom and textbook: Client projects' role in helping students transition from school to work. *IEEE Transactions on Professional Communication*, 58(1), 106–122. <https://doi.org/10.1109/TPC.2015.2423352>
- Larson, M. B., & Lockee, B. B. (2009). Preparing instructional designers for different career environments: A case study. *Educational Technology Research and Development*, 57(1), 1–24. <https://doi.org/10.1007/s11423-006-9031-4>
- Lei, S. A., & Yin, D. (2019). Evaluating benefits and drawbacks of internships: Perspectives of college students. *College Student Journal*, 53(2), 181–189.
- Lowell, V. L., & Moore, R. L. (2020). Developing practical knowledge and skills of online instructional design students through authentic learning and real-world activities. *TechTrends*, 64(4), 581–590. <https://doi.org/10.1007/s11528-020-00518-z>
- Matthews, M. T. (2016). *Learner agency and responsibility in educational technology*. (Unpublished doctoral dissertation). Brigham Young University.
- McDonald, J. K. (in press). Instructional design as a way of acting in relationship with learners. In B. Hokanson, M. E. Exter, A. Grincewicz, M. Schmidt, & A. A. Tawfik (Eds.), *Learning: Design, engagement, and definition*. Springer.
- McDonald, J. K., & Yanchar, S. C. (2020). Towards a view of originary theory in instructional design. *Educational Technology Research and Development*, 68(2), 633–651. <https://doi.org/10.1007/s11423-019-09734-8>
- Merleau-Ponty, M. (1964). *Phenomenology of perception* (C. Smith, Trans.). Routledge.
- Michlea, E., & McDonald, J. K. (2020). Relationships, feedback, and student growth in the design studio: A case study. In B. Hokanson, G. Clinton, A. A. Tawfik, A. Grincewicz, & M. Schmidt (Eds.), *Educational technology beyond content: A few focus for learning* (pp. 183–192). Springer Nature Switzerland AG. [https://doi.org/10.1007/978-3-030-37254-5\\_16](https://doi.org/10.1007/978-3-030-37254-5_16)
- Miller, C. L., & Grooms, J. (2018). Adapting the Kolb model for authentic instructional design projects: The 4-C Framework. *Scholarship of Teaching and Learning, Innovative Pedagogy*, 1(1), 36–49.
- Nicolini, D. (2012). *Practice theory, work, & organization: An introduction*. Oxford University Press.
- Packer, M. (2018). *The science of qualitative research* (2nd ed.). Cambridge University Press.
- Radhakrishnan, V. (2018). A role analysis exercise to minimize role ambiguity and promote role clarity in instructional design teams. John Hopkins University.
- Schwier, R. A., & Wilson, J. R. (2010). Unconventional roles and activities identified by instructional designers. *Contemporary Educational Technology*, 1(2), 134–147. <https://doi.org/10.30935/cedtech/5970>
- Stake, R. E. (1995). *The art of case study research*. Sage Publications.

- Stefaniak, J. E. (2015). The implementation of service-learning in graduate instructional design coursework. *Journal of Computing in Higher Education*, 27(1), 2–9. <https://doi.org/10.1007/s12528-015-9092-7>
- Stefaniak, J. E. (2017). The role of coaching within the context of instructional design. *TechTrends*, 61(1), 26–31. <https://doi.org/10.1007/s11528-016-0128-2>
- Vo, N., Brodsky, A., Wilks, M., Goodner, J., & Christopher, K. (2018). Infusing authentic learning into online courses: A case of online introduction to sociology. *Journal of Educational Multimedia and Hypermedia*, 27(3), 391–409.
- Wrathall, M. A. (2004). Motives, reasons, and causes. In T. Carman & M. B. N. Hansen (Eds.), *The Cambridge companion to Merleau-Ponty* (pp. 111–128). Cambridge University Press.
- Wrathall, M. A. (2011). *Heidegger and unconcealment: Truth, language, and history*. Cambridge University Press.
- Yanchar, S. C. (2015). Truth and disclosure in qualitative research: Implications of hermeneutic realism. *Qualitative Research in Psychology*, 12(2), 107–124. <https://doi.org/10.1080/14780887.2014.933460>
- Yanchar, S. C., & Slife, B. D. (2017). Theorizing inquiry in the moral space of practice. *Qualitative Research in Psychology*, 14(2), 146–170. <https://doi.org/10.1080/14780887.2016.1264517>
- Yanchar, S. C., South, J. B., Williams, D. D., Allen, S., & Wilson, B. G. (2010). Struggling with theory? A qualitative investigation of conceptual tool use in instructional design. *Educational Technology Research and Development*, 58(1), 39–60. <https://doi.org/10.1007/s11423-009-9129-6>
- Yanchar, S. C., Spackman, J. S., & Faulconer, J. E. (2013). Learning as embodied familiarization. *Journal of Theoretical and Philosophical Psychology*, 33(4), 216–232. <https://doi.org/10.1037/a0031012>





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# Exploring Faculty Perceptions of Professional Development Support for Transitioning to Emergency Remote Teaching

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Instructional Design

Faculty Development

Higher Education

Professional Development

Emergency Remote Teaching



*Professional development (PD) for instructors at higher education institutions offering online courses is important for assuring the quality of online programs. However, PD opportunities for faculty members have often been piecemeal and inadequate. In light of the COVID-19 pandemic that forced instructors around the world to teach online, PD has become even more critical to the success of the instructors, students, and institutions themselves. This paper describes research conducted at a large university in the United States that used a survey developed to operationalize Baran and Correia's (2014) holistic Professional Development Framework for Online Teaching (PDFOT). The survey identified strengths and weaknesses in PD support that could be targeted for growth and improvement. Key findings include a need to bolster support at each of the teaching, community, and organizational levels. Recommendations for addressing improvements are discussed.*

## Introduction

With the spread of the COVID-19 pandemic in early 2020, colleges and universities around the world, along with K-12 institutions, were forced to rapidly transition from face-to-face classes to what has been coined “emergency remote teaching” (ERT; Bozkurt & Sharma, 2020). ERT uses some of the same pedagogical and technological tools as online courses, but ERT and online courses are quite different. The former involves a quick and temporary transition from synchronous face-to-face teaching to virtual, technology-enabled teaching, while the latter involves thoughtfully designed and developed interactions among the learners, the instructional materials, and the instructor (Hodges et al., 2020).

In March 2020, institutions of higher education everywhere found themselves racing to provide technological and pedagogical support for instructors who may never have anticipated teaching remotely. Despite the tremendous increase in online courses prior to the shift to ERT, many instructors were not prepared to use web-based technologies in effective ways (Alexiou-Ray & Bentley, 2015; Baran et al., 2011; Lackey, 2011). Prior to the pandemic, if a college or university's culture had not widely promoted or supported online learning, the institution may not have been able to provide adequate opportunities for faculty professional development (PD) in online teaching. Recent research indicates that faculty members who took part in more opportunities for PD for online teaching had higher self-efficacy and were better prepared to teach (Frass et al., 2017; Richter & Idleman, 2017). Those higher education institutions (HEIs) with robust PD programs for online teaching likely equipped their faculty members for a smoother transition to ERT.

HEIs' transition to successful online and blended environments is critical for universities and their students to survive and thrive long-term. Therefore, these institutions need to identify PD support structures that will continue to support transitioning their faculty to online teaching. The purpose of this study is to describe the organizational, community, and teaching support in a university that assisted instructors to transition to online teaching quickly during the COVID-19 crisis and faculty's perceptions of the institution's support structures.

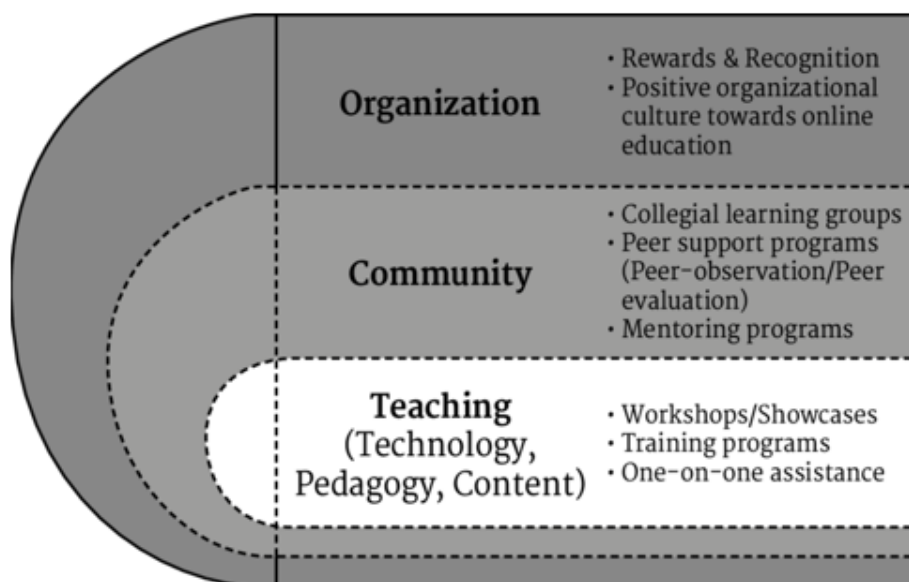
## **An Overview of Baran and Correia's Professional Development Framework for Online Teaching**

While there has been much research conducted about how to develop and maintain PD for online faculty, research has mainly focused on a particular component of PD support, such as instructional design assistance or technology integration (Baran & Correia, 2014; Lane, 2013). Additionally, existence of a variety of online PD programs among and within institutions lead to haphazard approaches (Frass et. al, 2017; Lane, 2013). Baran and Correia's (2014) Professional Development Framework for Online Teaching (PDFOT) proposes to unite and align an institution's PD efforts to foster high quality online teaching practices and better learning outcomes for students. With faculty members moving their face-to-face and blended classes to emergency remote teaching environments during the COVID-19 pandemic, ongoing PD support was critical to the success of students, faculty, and HEIs. The sudden shift to technology-enabled instruction offers institutions the opportunity to rethink their support systems for online teaching.

Building on research about faculty members' motivation, participation, and acceptance of online teaching, the PDFOT uses a systems approach to PD. The framework describes successful online teaching as the result of interactions among teaching, community, and organizational support in HEIs (Baran & Correia, 2014). It consists of a nested integration of the three supports: the organizational support on the outer level; the community support in the middle; and the teaching support at the inner level (see Figure 1). The purpose of this framework is to provide key administrative staff with a guide for designing, developing, and maintaining PD programs, which may involve a culture shift within the institution (Baran & Correia, 2014). Looking beyond PD support at the big picture of a HEI as a whole, an examination of what factors lead to institutional success in online development identified seven facets: advocacy and leadership within the university, entrepreneurial initiatives, faculty support, student support, digital technology, external advocacy, and professionalism (UPCEA, 2020). Faculty support in this context should "consider every touch point," (UPCEA, 2020, p. 14) including teaching, community, and organizational support outlined in the PDFOT that contribute to high quality online instruction and student learning outcomes.

### **Figure 1**

*Professional development framework for online teaching (Baran & Correia, 2014)*



Picture of a Conceptual Framework Describing a Professional Development Framework for Online Teaching

Note: From “A Professional Development Framework for Online Teaching” by E. Baran and A. Correia, 2014, TechTrends, 58(5), p. 97. Copyright 2014 by Springer. Used with permission.

## Teaching Support

Teaching support in the PDFOT refers to the formal and informal technological, pedagogical, and design and development support provided by an institution (Baran & Correia, 2014). Online teaching is vastly different from face-to-face teaching; therefore, this type of support is crucial for instructors who may find themselves uncomfortable and challenged in a new environment (Baran & Correia, 2014). Faculty do not typically have a background in pedagogy. They are subject-matter experts who often mimic the teaching style of instructors they had while they were students in the classroom (Grover et al., 2016; Mohr & Shelton, 2017). For many instructors new to online teaching, teaching support provided by department or campus-wide administrators, such as instructional designers, offer an opportunity to reexamine and improve teaching strategies (Abdous, 2011; Baran & Correia, 2014).

Online teaching support in HEIs vary widely depending on the size of the institutions and the resources available to the institution, as well as community and organizational support in place (Baran & Correia, 2014). Support ranges from simple technical assistance to full administrative centers for learning and teaching at the institutional level that provide formalized workshops and training as well as online course development. HEIs that have a dedicated center for teaching and learning more often have successful online courses and programs (UPCEA, 2020). Depending on the levels of service offered to faculty, centers may consist of a few instructional designers/technologists or an entire team including video production staff, graphic designers, and multimedia designers. For online course development, this team approach offers comprehensive and effective support for faculty (Abdous, 2020; UPCEA, 2020). Centers work hand-in-hand with or as a part of campus information technology services providing technological tools such as web-conferencing for faculty.

## Types of Teaching Support

HEI's often provide teaching support for faculty in different modalities which may include face-to-face and online, self-paced workshops, a collection of online resources, and one-on-one support, provided by the center's staff (Baran & Correia, 2014). HEI's also turn to open-source certification Massive Open Online Courses (MOOCs) for training online

faculty (Lane, 2013). Workshops, seminars, or other formal training may be required or optional for instructors (McGee et al., 2017). Effective quality PD opportunities reflect a supportive organizational culture (McGee et al., 2017).

For a faculty member transitioning to an online format, technology support is important and should include equipment, training, and access to support staff (UPCEA, 2020). Technology support also includes the Learning Management System (LMS) and other tools such as collaborative, polling, and web-conferencing tools. However, technology use cannot be meaningfully separated from pedagogical support and, teaching support should recognize the importance of integrating both (Baran & Correia, 2014; González-Sanmamed et al., 2014).

With regard to how HEI's provide teaching support, a large body of research shows that faculty members highly value individual support and feedback (Philipsen et al., 2019). Results of a survey indicated that faculty strongly preferred one-on-one with instructional designers and online resources over other types of teaching support; the least preferred was a formal course (Grover et al., 2016). Similarly, Lackey (2012) indicates that instructors prefer one-on-one training. Baran and Correia (2014) point out that though workshops help build confidence in instructors, workshops alone may not be enough to address individual needs and one-on-one assistance may be needed.

To be successful, online faculty need ongoing, sustained teaching support because as they receive more training, faculty may become more aware of personal gaps in skills (González-Sanmamed et al., 2014). The feedback provided by individual support is important for helping instructors identify their PD needs (Philipsen et al., 2019). Using an embedded mixed-methods design, Brinkley-Etzkorn (2019) found that instructors were very optimistic about their ability to teach online before and after a three-week-long intensive hybrid workshop. However, they became less optimistic about and satisfied with their training after teaching their first online course, mainly due to a lack of other teaching support which made instructors feel abandoned. These results align with findings that experienced online instructors were more likely to disagree with the statement that online classes are easier to teach than novice instructors, indicating that novice instructors are more likely to overestimate their capabilities to teach online (Rhode et al. 2017). To address this issue, McGee et al. (2017) recommended offering PD opportunities that incorporate strategies such as case studies to allow instructors to develop expertise over time by putting their learning in context.

The amount and variety of teaching support available for faculty appear to influence instructors' readiness to teach online. Results of a causal-comparison study showed that online instructors who participated in more support activities had higher self-efficacy (Richter & Idelman, 2017). An examination of the teaching support provided by four HEIs revealed that faculty who were required to participate in PD for online teaching felt better prepared to teach than those participating in voluntary PD (Frass et al., 2017). A phenomenological study of six novice and experienced online instructors found that their institutions offered no formalized training leaving instructors feeling ill-prepared to teach online. Instructors had to seek out resources on their own or one-on-one assistance from an instructional designer or colleague (Lackey, 2012). These findings clearly show the interconnectedness of the organization, community, and teaching support.

## Community Support

Community support refers to collaborative support provided by in-depth interactions between faculty members and their colleagues. These types of support can be formal or informal and include collegial learning groups (CLGs), communities of practice (CoPs), and peer support (Baran & Correia, 2014). Scarpena et al. (2018) argued that community support is integral to all levels of the PDFOT and proposed an expanded framework to include additional opportunities for online faculty to connect. The PDFOT describes community support as critical in combating instructors' feelings of social isolation that can occur due to the lack of face-to-face interaction with colleagues. In a phenomenological study, Lackey (2012) found online instructors' feelings of isolation were the driving factor behind preference for opportunities for collaborating with colleagues over any other type of support. In light of social distancing and quarantine policies enacted to prevent the spread of COVID-19, formal and informal online community support emerge as even more important for the psychological and emotional wellbeing of instructors (Golden, 2016).



## Social Networks and Communities of Practice

CLGs, sometimes referred to as professional learning communities (PLCs) or professional learning networks (PLNs), and CoPs are informal and formal networks formed by instructors or by an organized group where ideas and diverse perspectives can be exchanged (Baran & Correia, 2014; Trust et al., 2017). These groups are important for HEIs to promote as the exchange of dialogue and reflection on teaching practices can improve pedagogical practices (Luo et al., 2020; UPCEA, 2020). Research indicates that social construction of knowledge can lead to transformative teaching practices (Baran & Correia, 2014). However, social networks can offer faculty richer experiences that include an emotional or affective component that is not present as part of a CoP (Lantz-Andersson et al., 2018; Trust et al., 2017).

Social networks offer faculty an informal, open support system for sharing ideas and resources. They also provide instructors with support in their peripheral roles, which may not be included in formal PD at their HEIs (González-Sanmamed et al., 2014). Regardless of whether a HEI offers formal opportunities for shared dialogue, faculty often seek out support from their peers (McGee et al., 2017). Social networks are frequently formed in social media spaces such as Facebook, LinkedIn, and Twitter (Ferguson & Wheat, 2015; Lantz-Andersson et al., 2018; Luo et al., 2020). Social media tools offer online educators ways to engage in PD opportunities that impact their growth as professionals (Trust et al., 2017).

CoPs offer instructors with more formal opportunities for collegial interactions and can be provided by institutions, departments, or professional associations. Main characteristics of CoPs include participants learning from each other through interactions, shared interest and competence in a domain, and a shared practice (Reilly et al., 2012). Though online faculty members may interact frequently with staff who provide teaching support, they may find few opportunities or additional time to participate in formal CoPs to exchange knowledge and ideas with their peers. Online teaching is a subjective practice and PD opportunities should allow instructors to share personal experiences teaching rather than just sharing technology tools (Glass, 2016). Instructors participating in both formal and informal networks, such as CLGs and CoPs, also transition better to teaching online (Baran et al., 2011; Samarawickrema & Stacey, 2007).

## Peer Support and Mentoring

Like other types of support, peer support available to online faculty is often dependent on organizational support in place. It may include peer observation, peer feedback, and peer mentoring (Baran & Correia, 2014) which are important for promoting confidence and motivation (Philipsen et al. 2019). A descriptive survey study of 47 faculty at a large public university showed that a university-wide mentoring program for online faculty facilitated high quality online programs (Buckenmeyer et al., 2011). These results support the University Professional and Continuing Education Association's (UPCEA's) 2020 recommendation for establishing a mentor-program for new online faculty. Embedding faculty mentoring in a formalized online professional development workshop, where the novice instructor shadows and is then observed by the mentor, has been used as a personalized and contextualized method of incorporating peer support (Gregory & Salmon, 2013; Frass et. al, 2017).

## Organizational Support

Organizational support refers to the rewards and organizational culture of a HEI that support online teaching and learning. At the overarching level in the PDFOT, organizational support and strategic plans are crucial to support student success through faculty support systems that include teaching and community support (Baran & Correia, 2014; Lackey, 2011). HEIs seeking success and effectiveness in online education need to align their institutional priorities by providing these kinds of organizational support systems (Herman, 2013; Velez, 2015).

## Rewards

Online faculty can encounter a variety of barriers, such as lack of technical skill and increased workload. Thus, organizational rewards are critical for motivating online faculty and maintaining continued engagement and interest (Baran & Correia, 2014). Rewards include stipends, technology, internal and external recognition and respect, credit

toward promotion, job security, and release time for professional development opportunities and online course development (Baran & Correia, 2014; McGee et al., 2017). Part-time faculty teach online courses more frequently than full-time faculty, making rewards such as stipends and release time may be more important for them (Herman, 2013). Lackey (2012) points to the need for institutions to find ways to gain buy-in from faculty. These types of rewards can provide incentives toward this aim. UPCEA (2020) recommends that compensation for faculty in terms of money and time should be standardized by institutional policy and communicated to all stakeholders clearly. However, a large-scale study involving 821 HEIs in the United States found that the majority of faculty perceived the incentives for developing and delivering online classes to be inadequate (Herman, 2013). This study also showed that about half of the HEIs did not provide online course design and delivery support or PD support in tenure and promotion.

## Organizational Culture

Organizational culture includes an institution's technology infrastructure to support online education and a positive attitude toward online teaching. Strategic leadership and advocacy at the institution level is critical for developing a strong organizational culture (King & Boyatt, 2014; UPCEA, 2020). For institutions seeking to establish the infrastructure and culture necessary to adopt or grow their online offerings, a strategic plan serves as the foundation for all faculty development support (King & Boyatt, 2014). Leaders who create opportunities for faculty to feel encouraged, respected, supported, included, valued, and rewarded by their institutions will see increased motivation in their faculty to teach online (Baran & Correia, 2014). One way to sustain faculty support and motivation is for an institution to share governance with faculty, alumni, administrators, and students – a hallmark of excellence in online leadership (UPCEA, 2020).

## Purpose Statement and Research Question

PD for faculty developing and teaching online is strongly correlated to the quality of online programs in higher education (Baran & Correia, 2014). Past research has examined the types of HEI support systems in place to foster success in faculty members transitioning from face-to-face to other environments, but there is a lack of research about the extent to which HEI's use a holistic approach to PD. The purpose of the current study is to investigate the impact of the types of organizational, community, and teaching support structures on faculty success in transitioning from face-to-face to other environments. The following research question will guide this study: To what extent did a university's organizational, community, and teaching support structures impact faculty members' perceptions of their ability to transition from conventional environments to ERT?

## Methods

### Participants and Setting

Participants were recruited from the target population of faculty members in a public university on the east coast of the United States. This study used a convenience sampling approach to solicit participants. At the time this study was conducted, there were around 1200 faculty members who may have transitioned their face-to-face classes to ERT due to the COVID-19 pandemic in the spring and summer of 2020. 88 responses to the survey were collected in total. Those who volunteered to participate and did not teach one or more courses with a face-to-face component on campus during the transition to ERT during the spring or summer semesters in 2020 were excluded from the study. Additionally, faculty members who taught online classes exclusively were also excluded, leaving the number of participants at 55.

### Instruments

The authors created an online survey to collect data using Qualtrics. The items in the survey were based on teaching, community, and organizational support described in the PDFOT (Baran & Correia, 2014). Teaching support consisted of three subscales of participant satisfaction with technological, pedagogical, and design and development support created or expanded during the shift to ERT. Participants indicated satisfaction with community support and agreement

with organizational support for technology-enhanced learning already in place prior to the transition. The authors conducted a check of the internal consistency of the survey's scale items (See Table 1).

**Table 1**

*Reliability Statistics*

	Cronbach's Alpha	N of items
Teaching supports		
Technology	.92	8
Pedagogy	.98	6
Design and Development	.93	6
Community supports	.79	6
Organizational supports	.80	8

## Data Collection

The survey consisted of two demographic items regarding the participant's college or role (e.g., Arts and Letters or Administrative office) and status (e.g., adjunct instructor, assistant professor, etc.), and one inclusion question to determine if the participant taught on campus prior to the transition to emergency remote teaching in the spring and summer of 2020. In addition, participants were asked whether they had previously taught an online or blended course to gauge prior familiarity with the university's support systems for online teaching. The remaining items included five-point Likert scale items ranging from "not at all satisfied" to "extremely satisfied," five-point Likert scale items ranging from "strongly disagree" to "strongly agree," and four open-ended items. Participants agreed to informed consent prior to beginning the study and no identifying information was collected.

## Data Analysis

The data was analyzed in SPSS using descriptive statistics. The open-ended questions on the questionnaire were analyzed using open-coding procedures and further refined by secondary and axial-coding techniques. The purpose of the procedures was to triangulate emerging themes within the data (Creswell, 2019).

## Results

### Descriptive Statistics

Descriptive analysis, shown in Table 2, revealed participants were most satisfied by community support ( $M = 4.17$ ) and then, followed by satisfaction with teaching support ( $M = 3.92$ ). The higher mean scores for community support may be attributed to fewer respondents who indicated that they used this type of support. With regard to teaching support, participants were most satisfied with pedagogical support and ( $M = 3.95$ ) and least satisfied by design and development support ( $M = 3.83$ ). Participants perceived organizational support as the weakest, as indicated by their agreement scores ( $M = 3.41$ ). Scores for community support deviated the least ( $SD = .77$ ) and the most for pedagogical support ( $SD = .93$ ).

**Table 2**

*Satisfaction scores for teaching, community, and organizational support*

	Total responses (N)	M	SD
Teaching supports satisfaction			
technology supports satisfaction	30	3.94	0.80

	Total responses (N)	M	SD
pedagogical supports satisfaction	18	3.95	0.93
design and development support satisfaction	12	3.83	0.84
Community supports satisfaction	22	4.17	0.77
Organizational agreement score	50	3.41	0.82

## Teaching Support

The survey items (See Table 3) asked participants if they sought teaching, pedagogical, or design and development support during the transition to ERT. Technology support was used the most (56.4%) while design and development support was used the least (23.1%).

**Table 3**

*Teaching Support: Total Responses*

During the transition to ERT did you seek . . .	Yes		No	
Total responses (N)	Percent	Total responses (N)	Percent	
technology support?	31	56.4%	24	43.6%
pedagogical support?	19	34.5%	36	65.5%
design and development support?	12	23.1%	40	76.9%

## Technology Support

As described in the PDFOT, technology support refers to help with online environment, infrastructure, and technical issues (Baran & Correia, 2014). Participants were prompted with specific technology support examples customized to the particular support provided by the university (e.g., Blackboard, Zoom, etc.). Technology support was provided by three departments within the university: Information Technology Services (ITS), the Center for Learning and Teaching (CLT), and the Center for Faculty Development (CFD). Support included websites, workshops, and one-on-one staff assistance. It should be noted that although each department had maintained websites prior to the transition, CLT developed an additional site called “Keep Teaching (KT)” to organize and consolidate resources to assist instructors during the transition. Table 4 shows that among various technical support, participants were most satisfied by workshops provided by the CFD (M = 4.12) and CLT (M = 3.96), and least satisfied by CLT and CLD staff assistance (M = 3.67; M = 3.78).

**Table 4**

*Technology support: Measure of central tendency and spread of Likert-type items*

	Ext Diss (n)	Somewhat Diss (n)	Neither (n)	Somewhat Sat (n)	Ext Sat (n)	Total (N)	M	SD
ITS website	1	1	5	12	8	27	3.92	1.00
ITS Help Desk	1	4	2	6	11	24	3.92	1.28
CLT's KT website	0	2	5	13	6	26	3.88	0.86
CLT workshops	0	3	2	14	7	26	3.96	0.92
CLT staff assistance	1	2	4	2	6	15	3.67	1.35
CFD website	0	1	5	13	4	23	3.87	0.76
CFD workshops	0	2	2	5	8	17	4.12	1.05
CFD staff assistance	0	1	3	2	3	9	3.78	1.09

## Pedagogical Support

This type of support refers to providing information about selecting appropriate technological tools and teaching strategies to help learners meet course objectives (Baran & Correia, 2014). Two organizations provided pedagogical support during the transition to ERT – the CLT and the CFD. Participants were most satisfied with the CLT and CFD staff assistance ( $M = 4.0$ ;  $M = 4.20$ ) and least satisfied with CLT's KT website ( $M = 3.69$ ) and CFD workshops ( $M = 3.75$ ) (see Table 5).

**Table 5**

*Pedagogical supports: Measure of central tendency and spread of Likert-type items*

	Ext Diss (n)	Somewhat Diss (n)	Neither (n)	Somewhat Sat (n)	Ext Sat (n)	Total (N)	M	SD
CLT's KT website	0	2	2	7	2	13	3.69	0.95
CLT workshops	0	2	3	4	6	15	3.93	1.10
CLT staff assistance	0	1	0	2	2	5	4.00	1.22
CFD website	0	0	4	4	3	11	3.91	0.83
CFD workshops	0	1	3	6	2	12	3.75	0.87
CFD staff assistance	0	0	1	2	2	5	4.20	0.84

## Design and Development Support

Design and development support refers to assistance with editing media, designing online content, and evaluating courses (See Table 6). The CLT and the CFD websites (developed during the transition to ERT) provided the most satisfying experiences for participants ( $M = 3.83$ ;  $M = 3.8$ ), while the CLT and CLD staff provided the least satisfying experiences ( $M = 3.60$ ;  $M = 3.67$ ). This result could be attributed to the emphasis instructors and support staff placed on technology and pedagogical support during the transition to ERT. Few instructors requested design and development support during this time. The low satisfaction scores and low number of responses to the staff assistance items may also reflect a lack of awareness of the availability of staff support for design and development by respondents who did not teach in technology-enabled environments prior to the pandemic.

**Table 6**

*Design and development support: Measure of central tendency and spread of Likert-type items*

	Ext Diss (n)	Somewhat Diss (n)	Neither (n)	Somewhat Sat (n)	Ext Sat (n)	Total (N)	M	SD
CLT's KT website	1	0	2	6	3	12	3.83	1.11
CLT workshops	0	1	4	4	3	12	3.75	0.97
CLT staff assistance	0	1	1	2	1	5	3.60	1.14
CFD website	0	0	4	4	2	10	3.80	0.79
CFD workshops	0	0	4	3	2	9	3.78	0.83
CFD staff assistance	0	0	1	2	0	3	3.67	0.58

## Thematic Analysis of Open-Ended Items

### Teaching Support

Analysis of the open-ended items provided by the participants ( $n = 33$ ) revealed three main themes: frustration, satisfaction with workshops and one-on-one assistance, and lack of need for teaching support. Though quantitative analysis revealed that participants relied mainly on technology support (56.4%), many of the participants' comments focused on pedagogical and design and development support. These findings may be an indication of the overlap among supports.

Though the overall perception of teaching support was positive, some participants indicated a sense of frustration. Several participants noted that the one-week transition to ERT made it difficult for instructors to find and use what they needed. One participant noted:

*I didn't really have the opportunity to use all of the resources at the time of the transition in the spring, as I was trying to balance my full-time responsibilities, modifying my course content and learning new technology on the fly.*

Others mentioned frustrations with the LMS and having to purchase their own screen-capture and video editing software.

Those respondents who weighed in about workshops and one-on-one assistance had mixed feelings. Some indicated they found the workshops very helpful while others found the workshops did not always provide them with what they needed. So, they sought one-on-one assistance from CLT and CFD staff. A participant stated “some of the workshops moved too quickly and assumed there was a base level of knowledge that was not there. Other workshops were too basic.” This sentiment was echoed by other participants who said “some workshops were more informative than others. I found the workshops that provided specific examples to be most helpful to identify if the approach would be appropriate to adopt.”

Another common theme was the lack of need for teaching support. Several participants described the transition to ERT as “seamless” and “simple” due to having taught online or having participated previously in a variety of PD opportunities. One participant noted, “I felt very comfortable knowing that the support was there if I needed it, and there were multiple PD opportunities to support faculty available.”

## Community Support

Community support refers to opportunities provided within or outside of the university for faculty members to connect with each other in formal and informal ways. For example, this type of support could mean reaching out to a peer for social, emotional, or teaching support. Almost half of participants indicated they used community support (42.6%). Participants indicated they were most satisfied with peer collaboration and group support most ( $M = 4.35$ ) and least satisfied by university support networks ( $M = 3.80$ ) (see Table 7).

**Table 7**

*Community support: Measure of central tendency and spread of Likert-type items*

	Ext Diss (n)	Somewhat Diss (n)	Neither (n)	Somewhat Sat (n)	Ext Sat (n)	Total (N)	M	SD
Formal support networks developed by the university or dept.	0	3	2	5	5	15	3.80	1.146
Formal support networks developed by external professional organizations	0	2	2	5	4	13	3.85	1.068
Informal, self-directed peer mentoring or collaboration support	0	1	2	6	11	20	4.35	0.875
Informal, self-directed one-on-one peer support	0	1	3	6	11	21	4.29	0.902
Informal, self-directed group peer support	0	1	3	2	11	17	4.35	0.996
Social media networks	0	1	3	4	6	14	4.07	0.997

One main theme emerged from the responses – support from colleagues. The responses overwhelmingly aligned with the quantitative results indicating that individual and peer-group support provided by colleagues was the most used and valued community support. Almost all respondents ( $n = 16$ ) mentioned the assistance provided by their peers was very helpful. They communicated with peers in a variety of ways: web-based meetings, phone calls, emails, and messaging apps such as Slack. One participant wrote “this is the resource I've used the most, mostly informal collaborations and

peer support. I get the most benefit from hearing other's ideas of how they have taught online or re-vamped assignments or experiential activities, and then work through how to apply those to my courses." Another wrote "the community support was key! It involved mostly reaching out to friends/colleagues and saying, 'this is what I'm thinking . . . what do you think?' or 'What are you doing about X?' I think what made these conversations so valuable was they were based on my schedule and quick."

## Organizational Support

A system of rewards for faculty developing and teaching online courses, as well as overall organizational culture, comprises organizational support. This type of support system is different from teaching and community support in the current study because the university already developed robust and long-standing online teaching and learning efforts. These efforts were largely unchanged during the transition with the exception of expanded training opportunities and technology tools. With regard to the rewards in place at the time of the transition to ERT, participants indicated that the university did a better job of providing training opportunities ( $M = 3.19$ ) and equipment and technology tools ( $M = 3.49$ ) than financial stipends ( $M = 2.55$ ) and release time ( $M = 2.26$ ) for developing online courses (see Table 8). With regard to the organizational culture in place, participants felt strongly that online teaching and learning were supported at the highest administrative levels ( $M = 3.81$ ). Participants also strongly agreed that they valued the university's online teaching and learning initiatives ( $M = 4.21$ ) but conversely, felt that their peers did not value them as much ( $M = 3.36$ ).

**Table 8**

*Organizational supports: Measure of central tendency and spread of Likert-type items*

	Strongly disagree (n)	Somewhat disagree (n)	Neither (n)	Somewhat agree (n)	Strongly agree (n)	Total (N)	M	SD
<b>Instructors receive adequate . . . for developing and teaching online courses</b>								
financial stipends	11	11	5	6	5	38	2.55	1.41
release time	14	12	4	4	4	38	2.26	1.35
training opportunities	4	7	13	15	4	43	3.19	1.12
equipment and tech tools	3	9	9	11	13	45	3.49	1.29
<b>Online teaching and learning are . . .</b>								
well-respected by university faculty and staff	2	5	12	12	16	47	3.74	1.17
supported at the highest admin levels	2	5	13	7	20	47	3.81	1.23
<b>. . . value university online teaching and learning initiatives</b>								
My peers	4	8	13	11	11	47	3.36	1.26
I	1	3	7	11	26	48	4.21	1.05

Two themes emerged as a result of analysis: lack of awareness of available organizational support and lack of centralized information. 27 participants responded to this prompt. A few respondents ( $n = 9$ ) indicated they felt fully supported at the organizational level, but some ( $n = 4$ ) indicated that the only organizational support they were aware of or had used were the training opportunities provided by the CLT or CFD. Notably, several ( $n = 8$ ) respondents pointed out though they had developed online classes, they never received rewards such as financial stipends, release time, or equipment and technology. At the university, such rewards are typically decentralized at the department level and vary widely. Only faculty who agree to work with CLT to develop online courses are provided a stipend at the organizational level. Therefore, other faculty may be unaware that such rewards exist. A respondent summed this up well indicating, "I do not believe the university does a very good job of telling faculty about the support available."

The other theme that developed was frustration with the lack of centralized dispersion of information. Three respondents wrote responses indicating during the transition to ERT, they received too much information from too many

sources. One noted “reading through a flurry of emails, some with very helpful and relevant information, but some repeatedly advertising non-essential meetings, was a bit confusing.” Another wrote:

*Often, I'd get 3 separate emails from 3 different places with the same information. I became increasingly frustrated with this 'throw everything at the faculty' approach in the hopes that something might be of use. A central repository should have been set up in an organized way, rather than feeling the need to send an email to faculty each time someone had a thought or idea.*

## Overall Support

At the end of the survey, 35 participants responded to the open-ended prompt: How can the university support your teaching better in technology-enabled environments (e.g., remote, online, hybrid/blended, hybrid/classroom, etc.)? Analysis revealed that most respondents (n = 33) requested additional teaching and organizational support (see Table 9). This supports the qualitative data showing lower satisfaction scores of teaching and organizational supports than community support. The low number of respondents requesting community support may reflect their perceptions of community support mainly as a self-directed, peer-to-peer social activity rather than a university-supported activity.

**Table 9**

### *Recommendations for supports*

Teaching supports	N of responses
Continue providing good supports	7
Improve technology tools, equipment, and integration	4
Provide additional asynchronous resources	4
Provide hardware, software, Internet for ERT at home	4
Provide research regarding effectiveness of online teaching	1
Provide more resources to reduce cheating on exams	1
Add more CLT support staff	1
Community supports	N of responses
Provide more opportunities for peer sharing	2
Organizational supports	N of responses
Improve communication (e.g. centralized dissemination of information, tech. outages, info for TAs)	4
Provide more rewards	3
Reduce class size	2

## Discussion

The present study investigates instructors’ satisfaction with their university’s PD support assisting with transition to ERT. Overall, participants indicated they were mostly satisfied with the PD support received. This university has over 30 years of experience in providing quality distance learning and online programs, therefore, it is not surprising that many reported feeling well-supported during the transition to ERT. However, it is evident that PD at this university can be improved and recommendations for improvement are discussed as implications for practice.

## Personalize PD Opportunities to Meet Individual Needs

Participant responses indicated a wide range in teaching-support needs suggesting the need for personalization. Several participants noted some workshops were too basic while other workshops were too detailed. This may be because many workshops were quickly developed and put in place within a week. Consequently, both the CLT and the CFD were building resources for faculty while delivering the resources. In addition, staff members initially involved in



delivering workshops and on-on-one assistance were limited to those accustomed to working closely with faculty. Later, as it became clear that demand greatly outweighed supply, other staff members were brought into assist.

The disparity in participants' experiences with workshops and other teaching support may also be attributed to a clearer understanding of personal needs. As instructors sought more professional development, they likely become more aware of personal gaps in skills (González-Sanmamed et al., 2014). In other words, additional training may have revealed to instructors that they overestimated certain skills and were not as proficient in some areas as they thought (Brinkley-Etzkorn, 2019; Rhode, et. al, 2017). By placing priority on instructors' individual needs and focusing on those types of PD offerings, support staff can maximize relevance, increase motivation, and encourage effective transfer of skills (Adnan, 2018; Baran & Correia, 2014; Baran, 2015; Philipson et al., 2019). One way to address this need is for support staff to administer an initial self-assessment that determines an instructor's individual needs (Rhode et al., 2017).

## Provide a Variety of PD Opportunities

With those who sought PD assistance, a three-tiered process emerged in participant responses. Some (n = 3) described starting with web resources, moving to synchronous and asynchronous workshops, and then seeking one-on-one staff assistance to resolve outstanding questions and need for assistance. One participant summed up this process well by indicating, "general materials like the webpages were useful, but only after attending seminars or personal help to navigate them. Even then, I had to turn for personal help more than once to understand what I saw there." HEIs should provide a wide variety of PD opportunities to meet different needs and encourage participation (Elliott et al., 2015; McGee 2017). Opportunities should include one-on-one support with feedback, online resources, and workshops offered in different modalities and feasible durations (Grover et al., 2016; Lackey, 2011; Philipson et al., 2019).

A key lesson learned for this university was that a more balanced approach to offering PD opportunities was needed. Prior to the pandemic, online resources were minimal, and instructors relied heavily on one-on-one consultations and workshops. The insufficiency of online resources likely contributed to the overwhelming amount of work by the CLT and CFD and the frustrations of instructors unable to get the information needed in a timely manner.

## Contextualize PD

Quantitative and open-ended responses in this survey showed a strong preference for one-on-one support consistent with findings in other studies (Grover et al., 2016; Philipson et al., 2019). One-on-one support offers instructors contextualization of information within personal teaching environments. Workshops should offer similar contextualization by engaging instructors in an online environment in an active, hands-on way using case studies (McGee et al., 2017) or creating a useful product (AlexiouRay & Bentley, 2016; Gregory & Salmon, 2013; Philipson et al., 2019). Contextualization also includes creating opportunities for instructors to critically reflect on their roles as educators and their educational philosophies (Baran et al., 2011; Lane 2013; Philipson et al., 2019). Self-assessment and reflection on online teaching practices can reshape faculty members' perceptions of the value of online learning (Glass, 2016) and empower them (Baran et al., 2011; Lane 2013).

## Provide Opportunities for Peer Support

During the transition to ERT, participants were highly satisfied with community support over any other type of support. Open-ended item responses revealed instructors valued interactions and shared experiences with their colleagues more than any other type of support which is consistent with results from other studies (Grover et al., 2016; Lackey, 2011). These findings demonstrate the human need for social and emotional support from peers during a time in which all aspects of life were disrupted by the COVID-19 pandemic. Feeling isolated from others, by the requirement of maintaining physical distance from others, is likely the driving factor behind instructors' impulses to collaborate with colleagues (Golden, 2016; Lackey, 2012). A strong desire to informally connect was found in participant responses and also highlights the suggestion to incorporate community support in all levels in the PDFOT (Scarpenna, et al., 2018). Peer supports are critical and evidentially, this university could build community support by strengthening or developing additional ways for instructors to connect with each other. Opportunities for social engagement should be facilitated by

teaching and learning centers that provide opportunities for peer collaboration, sharing of experiences, and mentorship (AlexiouRay & Bentley, 2016; Baran, 2015; Glass, 2016; Philipsen et al., 2019; Trust et al., 2017).

## Establish Clear Communication at the Organizational Level

Support for PD at the institutional and leadership levels enhances acceptance of online teaching by instructors (Philipsen et al., 2019). Therefore, communication of this support is important. The data in this study highlight the need for improved communication at the organizational level. Participants pointed to the need for improved communication regarding rewards and dissemination of information.

Rewards are critical to faculty buy-in and continued support for online courses (Herman, 2013; Lackey, 2012), but several (n = 6) respondents indicated unawareness of them. As part of a faculty-driven institution, colleges and departments determine which, if any, rewards will be offered to instructors to develop and teach online courses. These responses could also be due to the spending freeze put in place by the university at the beginning of the pandemic in response to uncertainty about future revenue sources. The freeze resulted in no course releases granted, adjunct hiring suspended, and other rewards made unavailable to online developers and instructors. Nevertheless, participants' responses highlight the university's need for improved coordination and communication about rewards.

In addition, respondents to the organizational and overall open-ended items (n = 5) described frustration with a lack of centralized communication strategy for disseminating information about the availability of PD opportunities during the transition to ERT. Another lesson learned by this institution was the CLT and the CFD should coordinate communications about PD to faculty to prevent confusion and redundancy. The success of PD initiatives is based on creating and clearly articulating an institutional strategy addressing PD standards, resources, and guidance for implementation (King & Boyatt, 2015; Philipsen et al., 2019; UPCEA, 2020). An internal needs assessment could help this university determine PD needs and align support efforts with online faculty competencies (Frass et al., 2017; McGee et al., 2017).

## Limitations and Recommendations for Future Research

The PDFOT survey shows adequate to robust internal consistency, and its use in this study elicited information useful to the university for increasing PD support for web-enabled environments. The survey was customized to the support provided by a particular university; therefore, the results are limited in scope and not generalizable. Another limitation of this study is the small number of participants, who, understandably, were exceptionally busy transitioning to ERT during the time data was collected.

The institution in this study learned valuable lessons about the types of PD support needed by its faculty during the rapid transition to ERT. Many changes and improvements to PD were made by this university while this study was conducted, thus, a follow-up study using the same PDFOT survey to assess faculty satisfaction with new teaching, community, and organization support initiatives could provide valuable insights for additional improvements.

For future research, it may be possible to standardize the PDFOT for studies across multiple universities. The PDFOT survey could also be customized for individual HIEs looking to identify areas for improvement in PD offerings. In the current study, open-ended items on the survey provided valuable context to the quantitative data. Future qualitative or mixed-methods studies using interviews could provide richer data for HEIs seeking to improve their PD for those teaching and developing technology-enabled courses.

## References

Abdous, M. (2011). A process-oriented framework for acquiring online teaching competencies. *Journal of Computing in Higher Education*, 23(1), 60-77. <https://doi.org/10.1007/s12528-010-9040-5>

- Abdous, M. (2020). Designing online courses as a team: A team-based approach model. *International Journal of Online Pedagogy and Course Design*, 10(1), 61-73. <https://doi.org/10.4018/IJOPCD.2020010105>
- Adnan, M. (2018). Professional development in the transition to online teaching: The voice of entrant online instructors. *ReCALL*, 30(1), 88-111. <https://doi.org/10.1017/S0958344017000106>
- Alexiou-Ray, J., & Bentley, C. C. (2015). Faculty professional development for quality online teaching. *Online Journal of Distance Learning Administration*, 18(4). Retrieved from [https://www.westga.edu/~distance/ojdl/winter184/ray\\_bentley184.html](https://www.westga.edu/~distance/ojdl/winter184/ray_bentley184.html).
- Baran, E. (2015). Investigating faculty technology mentoring as a university-wide professional development model. *Journal of Computing in Higher Education*, 28(1), 45-71. <https://doi.org/10.1007/s12528-015-9104-7>
- Baran, E., & Correia, A. P. (2014). A professional development framework for online teaching. *TechTrends*, 58(5), 95-101. <https://doi.org/10.1007/s11528-014-0791-0>
- Baran, E., Correia, A., & Thompson, A. (2011). Transforming online teaching practice: Critical analysis of the literature on the roles and competencies of online teachers. *Distance Education*, 32(3), 421-439. <https://doi.org/10.1080/01587919.2011.610293>
- Bozkurt, A. & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education*, 15(1), i-vi. <https://doi.org/10.5281/zenodo.3778083>
- Brinkley-Etz Korn, K. E. (2020). The effects of training on instructor beliefs about and attitudes toward online teaching. *American Journal of Distance Education*, 34(1), 19-35. <https://doi.org/10.1080/08923647.2020.1692553>
- Buckenmeyer, J., Hixon, E., Barczyk, C., & Feldman, L. (2011). Invest in the success of online programs at the university? Mentor professors. *Contemporary Issues in Education Research*, 4(6), 1-6. <https://doi.org/10.19030/cier.v4i6.4380>
- Elliott, M., Rhoades, N., Jackson, C., & Mandernach, J. (2015). Professional development: Designing initiatives to meet the needs of online faculty. *The Journal of Educators Online*, 12(1), 160-188. <https://doi.org/10.9743/JEO.2015.1.2>
- Ferguson, H., & Wheat, K. (2015). Early career academic mentoring using Twitter: The case of #ECRchat. *Journal of Higher Education Policy and Management*, 37(1), 3-13. <https://doi.org/10.1080/1360080X.2014.991533>
- Frass, L., Rucker, R., and Washington, G. (2017). An overview of how four institutions prepare faculty to teach online. *Journal of Online Higher Education*, 1(1), 1-7. Retrieved from [https://sc.edu/about/offices\\_and\\_divisions/cte/instructional\\_design/docs/overview\\_how\\_four\\_institutions\\_prepare\\_faculty\\_teach\\_online.pdf](https://sc.edu/about/offices_and_divisions/cte/instructional_design/docs/overview_how_four_institutions_prepare_faculty_teach_online.pdf)
- González-Sanmamed, M., Muñoz-Carril, P.-C., & Sangrà, A. (2014). Level of proficiency and professional development needs in peripheral online teaching roles. *International Review of Research in Open and Distance Learning*, 15(6), 162-187. <https://doi.org/10.19173/irrodl.v15i6.1771>
- Glass, C. (2017). Self-expression, social roles, and faculty members' attitudes towards online teaching. *Innovative Higher Education*, 42(3), 239-252. <https://doi.org/10.1007/s10755-016-9379-2>
- Golden, J. (2016). Supporting online faculty through communities of practice: Finding the faculty voice. *Innovations in Education and Teaching International*, 53(1), 84-93. <https://doi.org/10.1080/14703297.2014.910129>
- Gregory, J., & Salmon, G. (2013). Professional development for online university teaching. *Distance Education*, 34(3), 256-270. <https://doi.org/10.1080/01587919.2013.835771>

- Grover, K. S., Walters, S., & Turner, R. C. (2016). Exploring faculty preferences for mode of delivery for professional development initiatives. *Online Journal of Distance Learning Administration*, 19(1), 1-12. Retrieved from [https://www.westga.edu/~distance/ojdla/spring191/grover\\_walters\\_turner191.html](https://www.westga.edu/~distance/ojdla/spring191/grover_walters_turner191.html)
- Herman, J. (2013). Faculty incentives for online course design, delivery, and professional development. *Innovative Higher Education*, 38(5), 397-410. <https://doi.org/10.1007/s10755-012-9248-6>
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27). The difference between emergency remote teaching and online learning. *Educause Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remoteteaching-and-online-learning>
- King, E., & Boyatt, R. (2015). Exploring factors that influence adoption of e-learning within higher education. *British Journal of Educational Technology*, 46(6), 1272-1280. <https://doi.org/10.1111/bjet.12195>
- Lackey, K. (2011). Faculty development: An analysis of current and effective training strategies for preparing faculty to teach online. *Online Journal of Distance Learning Administration*, 14(4), 1-27. Retrieved from <https://www.westga.edu/~distance/ojdla/winter144/lackey144.html>
- Lane, L. M. (2013). An open, online class to prepare faculty to teach online. *Journal of Educators Online*, 10(1), 1-32. <https://doi.org/10.9743/jeo.2013.1.1>
- Lantz-Andersson, A., Lundin, M., & Selwyn, N. (2018). Twenty years of online teacher communities: A systematic review of formally-organized and informally-developed professional learning groups. *Teaching and Teacher Education*, 75, 302-315. <https://doi.org/10.1016/j.tate.2018.07.008>
- Luo, T., Freeman, C., & Stefaniak, J. (2020). "Like, comment, and share"—professional development through social media in higher education: A systematic review. *Educational Technology Research and Development*, 68(4), 1659-1683. <https://doi-org.proxy.lib.odu.edu/10.1007/s11423-020-09790-5>
- McGee, P., Windes, D., & Torres, M. (2017). Experienced online instructors: Beliefs and preferred support regarding online teaching. *Journal of Computing in Higher Education*, 29(2), 331-352. <https://doi.org/10.1007/s12528-017-9140-6>
- Mohr, S. C., & Shelton, K. (2017). Best practices framework for online faculty professional development: A delphi study. *Online Learning*, 21(4). <https://doi.org/10.24059/olj.v21i4.1273>
- Philipsen, B., Tondeur, J., Pareja Roblin, N., et al. (2019). Improving teacher professional development for online and blended learning: A systematic meta-aggregative review. *Educational Technology and Research Development*, 67(5), 1145-1174. <https://doi.org/10.1007/s1142%203-019-09645-8>
- Reilly, J., Vandenhousten, C., Gallagher-Lepak, S., & Ralston-Berg, P. (2012). Faculty development for e-learning: A multi-campus community of practice (COP) approach. *Journal of Asynchronous Learning Networks*, 16(2), 99-110. <http://dx.doi.org/10.24059/olj.v16i2.249>
- Rhode, J., Richter, S., & Miller, T. (2017). Designing personalized online teaching professional development through self-assessment. *TechTrends*, 61(5), 444-451. <https://doi.org/10.1007/s11528-017-0211-3>
- Richter, S., & Idleman, L. (2017). Online teaching efficacy: A product of professional development and ongoing support. *International journal of nursing education scholarship*, 14(1). <https://doi.org/10.1515/ijnes-2016-0033>
- Samarawickrema, G., & Stacey, E. (2007). Adopting web-based learning and teaching: A case study in higher education. *Distance Education*, 28(3), 313-333. <https://doi.org/10.1080/01587910701611344>
- Scarpina, K., Riley, M., & Keathley, M. (2018). Creating successful professional development activities for online faculty: A reorganized framework. *Online Journal of Distance Learning Administration*, 21(1), 1-8. Retrieved from

[https://www.westga.edu/~distance/ojdla/spring211/scarpen\\_riley\\_keathley211.html](https://www.westga.edu/~distance/ojdla/spring211/scarpen_riley_keathley211.html)

Trust, T., Carpenter, J., & Krutka, D. (2017). Moving beyond silos: Professional learning networks in higher education. *The Internet and Higher Education*, 35, 1-11. <https://doi.org/10.1016/j.iheduc.2017.06.001>

University Professional and Continuing Education Association [UPCEA] (2020). UPCEA hallmarks of excellence in online leadership. Retrieved from <https://upcea.edu/resources/hallmarks-online/>

Velez, E. (2015). Administration and faculty: How relationships create and solve the problems. *Journal of Applied Learning Technology*, 5(4), 37-40. <http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=63b2283e-bcd7-43ca-bb79-bf3ce9ef0da3%40sessionmgr4008>



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