

**Connecting the Dots: Instructional Design Practices Through a Creativity Lens.**

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08.01.2017

### **Abstract**

There is growing anecdotal evidence suggesting the importance and desirability of creativity-based skills and traits in higher education instructional designers; however, little formal research data is available to examine those competencies in depth or to validate their necessity. This study explored how creativity manifests in the field of instructional design in higher education and identified specific competencies desirable in this context. An expert panel of 28 higher education instructional design leaders was surveyed about the aspects of creativity and instructional design that the literature suggested was relevant. Using a three-round Delphi process, the panel projected these constructs into their contexts of practice and reached consensus on the importance of 36 of 42 discrete items that relate creativity to instructional design in higher education. Additionally, analysis of responses to over 100 open-ended prompts yielded several important related themes, including: the evolution of instructional design, the influence of work context, connections between creativity and collaboration, and the balance needed between practicality and creativity. In the aggregate, these results paint a compelling picture of applied creativity in higher education instructional design.

## Introduction

In recent years, disruptive innovations and the integration of academic technologies into the curriculum have reshaped the educational landscape (Abdelaziz 2012; Christensen, Johnson, & Horn, 2008). Likewise, rapid changes in the technology-enhanced, flexible-delivery environment, as well as the emergence of diverse instructional design models and theories, have redefined the role of the instructional designer (Chattopadhyay, 2016; Irlbeck, 2011). While early instructional designers (IDs) typically adhered to step-by-step systems-based models (Hartley, Kinshuk, Koper, Okamoto, & Spector, 2010), there is growing disagreement about whether these approaches adequately encompass the skill set necessary to be effective (Allen, 2012; Gordon & Zemke, 2000; Yocum, 2015).

This evolving instructional environment requires a creative thinker with a strong foundation in learning theory (Nunes & McPherson, 2007), as well as skills in problem solving, iterative refinement (Ericsson, Roaring, & Nandagopal, 2007), imagination (Gibson, 2013), flexibility, and divergent thought in the search for design solutions (Cheung, 2011). To embrace the ongoing movement towards constructivist, heuristic approaches (Clinton & Hokanson, 2012) that provide (and encourage) wide latitude in solving complex, ill-structured, and ambiguous problems, IDs must engage in a complex contextual analysis and problem solving process (Silber, 2007) that involves idea generation, reflective judgment, dispositions, and self-regulation; (Baum & Newbill, 2010) all while advocating for new modes of instruction that show promise to transform higher education (Abdelaziz 2013; Christensen, Johnson, & Horn, 2008). In short, today's IDs are as dependent on creativity and artistry as on principles of cognitive science and education (Hirumi, Appelman, Rieber, & Van Eck; McDonald, 2011).

Despite the indications that creative problem solving is an increasingly desired trait in IDs, and the desire for the trait in workplaces in general (Enayati, 2012), professional instructional design organizations such as the International Board of Standards for Training, Performance, and Instruction (IBSTPI) have been slow to formally recognize it. While seemingly desired, these emerging creativity-related competencies remain ill-defined, and a convincing connection between creativity in theory and instructional design in practice has yet to be established.

This study explored how creativity manifests in the instructional design field and identifies specific creativity-related constructs that shape the practice of IDs in higher education.

### **Method**

The Delphi method was used as the primary research tool to explore creativity through the lens of instructional design. This method has proven to be adaptable (Skulmoski, Hartman, & Krahn, 2007), useful for illustrating the present and future state of a specific context (Hsu & Sandford, 2007), and effective in situations where an incomplete state of knowledge exists (Powell, 2003). An expert panel provided responses to multiple rounds of Likert scale and open-ended prompts, addressing creativity-related constructs gleaned from the literature and the relationship of those constructs to instructional design (see Clark, 2015).

### **Panel Selection**

A purposeful snowball procedure was used to establish the panel to assure that the participants' expertise made *representativeness* of the sample unnecessary (Creswell, 2003; Powell, 2003). An initial sample was created by enlisting the services of suitable professional contacts, and then augmented through a snowball process where participants nominated potential

additional qualified contributors based on required nominee criteria. From this month-long sampling, vetting, and consent process, we established an expert panel of 28.

### **Constructs Relevant to Creativity in Instructional Design**

To investigate the “amazingly complex” and “multifactorially determined” (Ogoemeka, 2011, p. 595) concept of creativity, literature concerning four general areas related to creativity and instructional design was reviewed: creativity, ambiguity and uncertainty, situated creativity, and traditional and non-traditional approaches to instructional design. This exploration resulted in the identification of 33 creativity-related constructs that informed the survey design (Table 1). To establish the framework for the survey instrument, these 33 creativity-related constructs were organized into seven themes: (a) *Problem Solving*, (b) *Problem Finding*, (c) *Boundary Awareness*, (d) *The Creative Act* (Ideation through Innovation), (e) *Disposition(s)*, (f) *The Ambiguity Tolerance Continuum*, and (g) *Motivations and Intrinsic Rewards*.

### **Instrumentation**

For each of the 33 identified constructs, a topic statement was created appropriate to the higher education context. Panelists were asked to indicate their level of agreement with each topic statement in two ways: First, by way of a 5-point Likert scale (*Strongly Agree*, *Agree*, *Disagree*, *Strongly Disagree*, and *No Judgment*), and second, by providing open-ended rationale statements and other comments related to the item. Panelists were also provided opportunities to suggest additional topic statements to inform the study. In all, the round one instrument consisted of 33 Likert scale responses (with accompanying rationale statements) and eight open-ended opportunities to suggest additional topic statements.

**Table 1.***Constructs Relevant to Creativity in Instructional Design*

Category	Construct
<i>Creativity</i>	1. <i>problem finding/ identification</i> , the process of becoming aware of problems, deficiencies, gaps in knowledge (Torrance, 1993)
	2. the importance of <i>escaping assumptions</i> in the performance of a creative act (Mitchell, Inouye, & Blumenthal, 2003)
	3. <i>discovering and navigating</i> the context of a problem (Ericsson, Roaring, & Nandagopal, 2007)
	4. awareness of the rules and <i>contextual boundaries</i> in which a problem exists (Csikszentmihalyi, in Sternberg, 1999)
	5. <i>ideation</i> (Akinboye in Ogoemeka, 2011)
	6. <i>invention</i> (Dasgupta, 1996)
	7. <i>innovation</i> (Weisberg, 2006).
<i>Ambiguity and Uncertainty</i>	8. the necessity for <i>overcoming fear</i> (Fields, 2012) inherent in creative risk
	9. the potential benefits of a <i>post-modernism</i> approach (Visscher-Voerman & Gustafson, 2004)
	10. the challenges associated with <i>ambiguity intolerance</i> (McClary, 2009)
	11. the benefits of a <i>tolerance for ambiguous problems</i> (MacDonald, 1970)
	12. the benefits of a <i>tolerance for ambiguous situations and tasks</i> (Furnham & Ribchester, 1995)
	13. the benefits of “mindfulness” and <i>creative uncertainty</i> (Langer, 1990)
	14. the role of <i>passion</i> in the creative act (Vallerand & Houliort, 2003)
	15. defined the state of <i>flow</i> as an experience felt by those engaged in highly creative activities (Csikszentmihalyi, 1996)
	16. the relation between creative potential and <i>self-efficacy</i> (Bandura, 1977).
<i>Situated Creativity</i>	17. the importance of <i>contextual awareness of one’s role</i> within a creative team or organization (Amabile, Schatzel, Moneta, & Kramer, 2004)
	18. the importance of <i>navigating the [volume] risk/ reward dynamic</i> between creative freedom and operational constraints (Udwadia, 1990)
	19. the <i>cooperative</i> nature of highly creative teams (Amabile, 1988)
	20. the <i>intrinsic motivation</i> of innovative team members (Jaskyte and Kisieliene, 2006)
	21. the positive effect of <i>autonomy and challenge</i> for creative individuals (Zhou, 1998)
<i>Traditional and Non-traditional Approaches to Instructional Design</i>	22. the ineffectiveness of the <i>systems approach</i> to instructional design (Gordon & Zemke, 2000)
	23. the <i>heuristic</i> approach to Instructional design (York & Ertmer, 2011)
	24. the ill-structured (or <i>wicked</i> ) nature of many Instructional Design problems (Valentine & Ivey, 2008)
	25. navigation of the <i>risk/ reward dynamic</i> inherent in the timing of proposed ID solutions (Schön, 1987)
	26. <i>remixing</i> , the process of adapting old solutions to new problems (York & Ertmer, 2011)
	27. establishing and maintaining <i>connections</i> between facets of an ID problem (Valentine & Ivey, 2008)
	28. advantageous attitudes and dispositions for effective Instructional Design such as <i>flexibility</i> (Baum and Newbill, 2010)
	29. <i>confidence</i> (Baum and Newbill, 2010)
	30. <i>iconoclasm</i> (Hokanson, Miller, & Hooper, 2008), and finally
	31. the <i>playful</i> experimentation inherent in the “Instructional Artist” role (Hokanson, Miller, & Hooper, 2008)
	32. <i>pragmatism</i> (James, 1907)
	33. <i>diversity/ democracy of thought</i> (Manke, 1999).

### **Consensus Metrics for Quantitative Data Analysis**

Likert-scale responses of the expert panel were assigned numerical values: *Strongly Agree* = 4, *Agree* = 3, *Disagree* = 2, and *Strongly Disagree* = 1. A null-value *No Judgment* option was included for respondents who did not feel they could make an informed judgment or for whom the topic statement was not applicable.

Consensus was considered reached only when *both* statistical agreement and percentage of opinion to agree/disagree criteria were met. For each survey item, the statistical consensus of agreement threshold was established as a mean (*M*) response of 3.00 or greater and standard deviation (*SD*) of less than 1.00. Likewise, the consensus to disagree criteria was a mean response of 2.00 or less and standard deviation of less than 1.00. The percentage of opinion threshold was set at 80%. That is, 80% of all respondents must be of the same opinion to meet this criterion. *No Judgment* responses were included in the calculation of percentage of opinion but not the statistical consensus. These criteria were set with the assumption that the final sample size would remain above 24.

### **Implementation**

Likert response data from each round of the survey was compiled, and items that demonstrated consensus were removed from subsequent rounds. If no panel consensus was reached, items were revised if necessary (based on feedback received), and presented again for further consideration. Quantitative and qualitative response data for these items was summarized and included in the subsequent survey round to provide an opportunity for the panel to review areas of consensus and divergence of the group, reflect on their responses, and change their position if desired. Finally, new topic statements were added as a result of panelist suggestions. Additions, deletions, and adjustments resulted in a round two instrument with 25 Likert scale

items and a final round consisting of 8 items. Of the 28-member panel, 27 responded to the round one instrument, 28 responded to the round two survey, and 24 to the final round. In all, the panel responded to 42 discrete topic statements and 24 repeated and clarified iterations. Of the 42 discrete items, the panel reached consensus on 36 (86%). The results are presented below.

### Findings and Conclusions

Upon completion of the three Delphi-method rounds, panelist Likert responses were converted to numerical data and analyzed for consensus as a single data set. Tables 2 through 8 present the results of this analysis grouped by theme and presented in order of the distance of the item mean from the midpoint of the Likert scale (2.5).

**Table 2.**

*Summary of Responses to Topic Statements in the **Problem-Solving** Theme (Unique Concepts)*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	%	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must... successfully navigate complex, ill-defined problems.</i>	27	3.70	.465	100	A
<i>be fully cognizant of the “flex points” (i.e. opportunities for creativity) in any prescribed, systematic, design process.</i>	28	3.68	.612	93	A
<i>generate multiple possible solutions to a problem.</i>	27	3.36	.739	81	A
<i>work ONLY within the bounds of a prescribed, systematic, design process.</i>	28	1.64	.826	93	D

*n* = number of respondents, *M* = mean, *SD* = standard deviation, % = percentage of opinion, *C?* = consensus (Agree, Disagree, No consensus reached)

### Relationship between creativity and instructional design.

After three rounds, the panel came to consensus on 86% of the 42 discrete creativity-related items presented in the topic statements (see Tables 9 and 10). From a thematic perspective, all of the creativity-related items explored in the *Problem Solving* (Table 2), *Problem Finding* (Table 3), and *Ambiguity Tolerance* (Table 7) themes eventually demonstrated



panel consensus. In terms of non-consensus items, the *Boundary Awareness* (Table 4), *Creative Act* (Table 5), and *Dispositions* (Table 6) themes each had one non-consensus item, while the *Intrinsic Motivations and Rewards* (Table 8) theme had three. The six non-consensus items all lack practical application, a notion that was reflected in the panel's open-ended responses.

The prevalence of overall consensus indicates a relationship between creativity and instructional design. At minimum, it is evidence that many of the same constructs that the literature associates with creativity are also present in the field of instructional design, at least in the higher education context.

**Table 3.**

*Summary of Responses to Topic Statements in the **Problem Finding** Theme (Unique Concepts)*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	%	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must...</i>					
identify problems, deficiencies, gaps in knowledge, and omissions in a given situation.	27	3.59	.572	96	A
be able to distinguish between actual constraints and perceived constraints of a problem.	27	3.38	.571	93	A
project potential outcomes of a course of action and intervene appropriately.	27	3.31	.679	93	A

### Relationships Suggested by Qualitative Analysis

Through a careful analysis of responses to over 100 open-ended prompts, several themes regarding role of creativity in higher education instructional design emerged. (Quotations indicated below represent verbatim panelist responses; see Clark, 2015).

**The evolution of instructional design.** One evident theme was the perception that, in the higher education context, instructional design is a field in evolution. This theme, which echoed much of the literature (e.g. Bates, 2011; Groves, 2009; Tillander, 2011) suggested that instructional design is “still in [its] infancy,” and a “field/ discipline/ vocation” that is “not necessarily well respected (or understood) by many faculty or, indeed, much of academia.”

While the responses presented a reasonably unified view that the instructional design field is changing, there was divergence on exactly what should be expected of IDs in the face of that change. The reliance on systems approaches (such as the ADDIE model) was one area of contention among the panelists. Some panelists strongly advocated for the “tried and true” safety of “proven” checklists, models, and other systematic approaches that “allow for efficiencies and standardization” and questioned if “new models, strategies, or approaches are [even] required to solve instructional problems.”

Conversely, other panelist responses illustrated a call for abandoning the “cookie cutter”, “paint by numbers” approach implied by traditional systems methods, calling it “a rat-maze of design process steps” and “the biggest mistake most instructional designers make.” Finally, one panelist suggested: “If people weren’t willing to question established practices, we’d still be painting on cave walls.”

The panel also disagreed on the necessity of adherence to best practices. Responses ranged from stating that IDs have an obligation “to champion the best research and theory we have about instruction,” to noting the risks inherent in a best practices perspective:

This is perhaps the biggest failing in my experience with ‘traditional’ instructional designers... they’ve had best practices and established practices so inculcated into their experience and understanding that they don't have an intellectual interior open or broad enough to have new ideas, question assumptions, or consider how contextually dependent ‘best practices’ are.

Frustration with “old school” thinking, tempered with caution against the rise of unbound creativity and the loss of production, is compelling evidence that may reflect instructional design leaders coming to grips with the rapid evolution of their field. As one panelist put it: “I think

higher education is shifting, and we need instructional designers to not think what has been done typically, but what *should* be done---sometimes to solve a problem and sometimes to create better opportunities for learning not typically considered...” Another explained: “We are just scratching the surface of what is possible and what can be envisioned for the future of learning.”

**Table 4.**

*Summary of Responses to Topic Statements in the **Boundary Awareness Theme***

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must...</i>					
establish a personal “culture of creativity” through relationships, communication, and comportment (e.g. honesty, patience, resilience).	28	3.74	.526	93	A
balance creative activities with the constraints of a given project.	28	3.57	.634	93	A
recognize their role within the organization.	28	3.43	.690	96	A
recognize their operational boundaries (e.g. context, constraints, and accountabilities).	28	3.36	.621	93	A
recognize when creative activities are appropriate (i.e. warranted, practicable) and when they are not.	28	3.36	.488	100	A
demonstrate elements of creativity in their communication and collaboration with stakeholders. (e.g. creative “sales” in persuading faculty/ advocating for students).	28	3.29	.600	93	A
appropriately (i.e. within project context/ constraints; time, money, etc.) advocate for more elegant (i.e. relevant, ingenious, simple, novel, and effective) solutions.	24	3.13	.850	79	N

**Importance of context.** Another theme that emerged was the significance of organizational context. Panelists worked in a variety of operational units, and were accountable to a range of organizational influences. Responses suggested that potential institutional influencers on the roles, duties, and professional fulfillment of higher education IDs were the relative strength of alignment of the unit to the university mission, support from upper administration, size of institution, variability of reporting structures, funding model(s), faculty compensation structures, intellectual property policies, and the extent to which the ID “owns the development process.”

**Table 5.***Summary of Responses to Topic Statements in the Creative Act Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must...</i>					
effectively remix/ repurpose old materials into new materials.	27	3.65	.485	96	A
be capable of creating original (novel) models, strategies, or approaches to solve instructional problems.	28	3.50	.638	93	A
engage in creative acts specifically to solve problems.	27	3.5	.510	96	A
identify connections between elements previously considered disparate.	27	3.41	.636	93	A
establish “Dynamic Expertise” by continuously integrating emerging trends with a strong historical perspective (i.e. be fully conversant in a variety of educational theories, practices, and approaches, both old and new).	28	3.17	.669	86	A
engage in free-form (abstract, unapplied) creative acts that are unrelated to any current projects	24	2.48	.912	77	N

Underscoring the potential effects of contextual variability on an ID’s role were panelist responses such as: “In a faculty driven context where course design is owned by faculty, an ID role is very different from a context where IDs are driving the process” and:

In a smaller institution, in which the ID does more than just design an individual lesson, they must see the bigger picture. This may not be as critical in large universities, but is absolutely essential for survival within a smaller school.

In particular, this response from one panelist detailed some of the potential organizational variables that could directly influence the role of the ID:

...the organization may have different needs for instructional designers (are they project managers? are they instructional problem-solvers/consultants? are they truly instructional designers leading the creation of activities and content? are they faculty trainers? are they graphic designers? media creators?), and different levels of sophistication for the teams IDs operate within.

**Table 6.***Summary of Responses to Topic Statements in the Creative Dispositions Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>Successful Higher Education Instructional Designers are...</i>					
comfortable engaging with a variety of tasks and interactions.	27	3.89	.321	100	A
are empathetic to multiple perspectives.	27	3.70	.541	96	A
willing to suppress their ego for the good of the endeavor.	27	3.65	.562	93	A
To be successful, Higher Education Instructional Designers must integrate suggestions and feedback from others.	28	3.59	.508	100	A
confident in their abilities.	27	3.52	.580	96	A
To be successful, Higher Education Instructional Designers must actively seek multiple viewpoints (when appropriate relative to the constraints of a project).	28	3.36	.621	93	A
willing to continuously question underlying assumptions of established practice.	27	3.33	.620	93	A
willing to risk exposure embarrassment or censure to propose new ideas.	27	3.24	.579	85	A
comfortable surrendering ownership of creative works.	27	3.19	.567	89	A
devotees to current industry best practices only.	27	1.85	.718	89	D
able to restrain from implementing initial (or prescribed) responses while considering alternates (when appropriate relative to the constraints of a project).	24	2.87	.548	75	N

In addition to institutional context, the creative culture established within the ID's home unit or department plays a crucial role in influencing creative output. Echoing the work of Amabile (1988); Hunter, Cushenberry, and Friedrich (2012); and Woodman, Sawyer, and Griffin (1993), the panel suggested that designers who might otherwise follow the "relevant, ingenious, simple, novel, effective path" or other more creative approaches to design may be limited (or even completely blocked) by the unit culture as well as the "criteria placed on the instructional design process" by their department or team. While these prescriptive practices will have a detrimental effect on an ID's ability to be creative in the abstract, these organizations may provide a desirable environment for IDs who are generally less creative because "[they] can be successful without higher-level skills [since] they will rarely be demanded of them." Regardless of circumstance, IDs in higher education must "be willing to challenge themselves to think deeper" and "be as creative as one can be" while remaining accountable to the demands of the job, the structure of the institution, and the specific project constraints, in an effort to "balance innovation, exploration, and simply getting the job done."

**Table 7.***Summary of Responses to Topic Statements in the Ambiguity Tolerance Continuum Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>Successful Higher Education Instructional Designers are...</i>					
completely avoid ill-defined problems.	27	1.38	.571	96	D
embrace ambiguity as an empowering opportunity.	27	3.54	.581	93	A
can operate effectively despite unspecific or incomplete direction.	27	3.48	.643	93	A
tolerate ill-defined problems.	27	3.19	.981	81	A

**Practicality and applied creativity.** Another theme that resonated was the ID’s accountability to “real world” project constraints and realities. Although not unanimous, respondents who advocated for strict adherence to project constraints and the importance of avoiding “scope creep” far outnumbered those who supported a more free-form, discovery-based approach to design.

For many respondents, unrestrained creativity can be a risk to productivity: “Creativity can eat up time and resources, you need to know how much is *creative enough*,” and “Spending time in abstraction has its limits. Getting the work done trumps spending an inordinate amount of time in abstraction and creativity. At some point a product needs to be developed and occur.” Although lengthened project timelines and associated costs were indicated as the primary dangers related to a “wouldn’t it be cool if...” design mentality, the potential for intra-team member tension resulting from the “extra work” created when one team member fails to maintain the project timeline as a result of “[going] off on their own to do creative [things].” was also cited. While some suggested that free (creative) play was “one way to undertake professional development and to improve an ID's future efficiency, creativity, and project know-how,” and that by viewing them as “cogs in [a production] machine,” we are in fact devaluing IDs as education professionals, one panelist who maintained the importance of focusing on “the work at

hand” stated simply: “I’m not swayed by the opinions of those that clearly don’t have experience with [instructional design] in the real world.”

**Table 8.**

*Summary of Responses to Topic Statements in the Intrinsic Motivations and Rewards Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>Successful Higher Education Instructional Designers...</i>					
are life-long learners.	28	3.73	.452	93	A
believe that their creative efforts are making a difference.	27	3.37	.688	89	A
are passionate about their work.	27	3.31	.788	85	A
view engaging with difficult tasks as something to be embraced rather than something to be avoided.	28	3.26	.585	93	A
engage in playful experimentation.	27	3.00	.748	77	N
demonstrate a single-minded immersion to creative or problem solving tasks (when appropriate relative to the constraints of a project).	24	2.58	.653	50	N
feel professionally fulfilled.	24	2.57	.746	50	N

Although an initial review of responses points to a bi-modal view of free-form creativity, a closer analysis revealed a far more nuanced perspective that advocated for an ID being able to maintain “creative balance.” Reaffirming the importance of functional creativity, (as defined by Cropley and Cropley (2010), and innovation (e.g. Weisberg, 2006) in instructional design, panel responses suggested a need for balance between creative efforts and practical ones. That is, IDs must learn to focus their creative efforts where both opportunity (e.g. early in the design process) and appropriateness (e.g. aligning high-level creative effort with high-level problems or tasks) exist. While IDs should always strive for the most “elegant” (Grudin, 1990) solutions practicable, when project constraints necessitate a “quick and dirty” approach, IDs should be able (and willing) to develop these solutions as needed. As one panelist succinctly stated: “We can’t always innovate, we also have to produce. This is always the creative dilemma.”

**Table 9.***Summary of Consensus Items, Themes 1, 2, 3 & 4**To be successful, Higher Education Instructional Designers must...*

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- work ONLY within the bounds of a prescribed, systematic, design process (*consensus to disagree*).
  - be fully cognizant of the “flex points” (i.e. opportunities for creativity) in any prescribed, systematic, design process.
  - generate multiple possible solutions to a problem.
  - successfully navigate complex, ill-defined problems.
  - identify problems, deficiencies, gaps in knowledge, and omissions in a given situation.
  - be able to distinguish between actual constraints and perceived constraints of a problem.
  - project potential outcomes of a course of action and intervene appropriately.
  - recognize their operational boundaries (e.g. context, constraints, and accountabilities).
  - recognize their role within the organization.
  - establish a personal “culture of creativity” through relationships, communication, and comportment (e.g. honesty, patience, resilience).
  - Within the context of a project, Higher Education Instructional Designers must recognize when creative activities are appropriate (i.e. warranted, practicable) and when they are not.
  - demonstrate elements of creativity in their communication and collaboration with stakeholders. (e.g. creative “sales” in persuading faculty/ advocating for students).
  - balance creative activities with the constraints of a given project.
  - be capable of creating original (novel) models, strategies, or approaches to solve instructional problems.
  - effectively remix/ repurpose old materials into new materials.
  - identify connections between elements previously considered disparate.
  - establish “Dynamic Expertise” by continuously integrating emerging trends with a strong historical perspective (i.e. be fully conversant in a variety of educational theories, practices, and approaches, both old and new).
  - engage in creative acts specifically to solve problems.
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**Creative interactions and collaborations.** Finally, the response data highlighted a reciprocal relationship between creativity and collaboration. This theme, which is aligned with Visscher-Voerman and Gustafson’s (2004) Communicative Paradigm, Clinton and Hokanson’s (2012) Creativity and Social Context, and even Sternberg’s (2007) Investment Theory of Creative Contributions, outlines the delicate symbiosis established and maintained between stakeholders throughout the creative design process.

In higher education, IDs have the uniquely challenging role of being accountable for a design process or product that they often don’t own. In most higher education contexts, instructional design is a “service-oriented profession,” and successful IDs must be comfortable with playing a supporting role and often surrendering ownership of work to “make instructors look good.” As such, it is crucial that IDs be “politically sensitive to the organizational and



operational boundaries in order to work effectively within them without burning bridges or having to fall on their own sword.” However, even though some boundaries (e.g. the pedagogy/content divide) can be relatively inflexible, many other aspects of the collaboration are negotiable, and it is the ID’s “creative mind and resourceful [ness]” that can ensure a positive and productive partnership.

**Table 10.**

*Summary of Consensus Items, Themes 5, 6, & 7*

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*Successful Higher Education Instructional Designers...*

- are comfortable engaging with a variety of tasks and interactions.
  - are confident in their abilities.
  - are willing to risk exposure embarrassment or censure to propose new ideas.
  - are willing to continuously question underlying assumptions of established practice.
  - are devotees to current industry best practices only (*consensus to disagree*).
  - are comfortable surrendering ownership of creative works.
  - are willing to suppress their ego for the good of the endeavor.
  - are empathetic to multiple perspectives.
  - To be successful, Higher Education Instructional Designers must actively seek multiple viewpoints (when appropriate relative to the constraints of a project).
  - To be successful, Higher Education Instructional Designers must integrate suggestions and feedback from others.
  - completely avoid ill-defined problems (*consensus to disagree*).
  - tolerate ill-defined problems.
  - can operate effectively despite unspecific or incomplete direction.
  - embrace ambiguity as an empowering opportunity.
  - believe that their creative efforts are making a difference.
  - are passionate about their work.
  - view engaging with difficult tasks as something to be embraced rather than something to be avoided.
  - are life-long learners.
- 

Participants indicated that IDs must be adept at recognizing the comfort level and preferences of their faculty partners, and also flexible enough to tailor their approach to meet the needs of both the faculty member and the unique circumstances of each project. Empathy, appropriate risk-taking, and a “constant striving to take instructors to the next level,” are key components to building a relationship of trust that can facilitate a positive collaborative outcome. The panel also suggested that qualities such as a design perspective informed by strong theoretical background as well as a keen sense of self, confidence (without overconfidence) in

one's abilities, and a willingness to suppress ego, could facilitate an effective relationship, and also “nudge” the faculty partner to “think about being creative and try new things.” Finally, in the words of one panelist: “The most satisfying ID/instructor relationships are the ones where there's true collaboration, where the form and content are a marriage, where the ID and faculty member both feel they are important and valuable contributors and partners.”

### **Significance of the Results**

The conclusions resulting from this effort are indicative of how creativity manifests in the *context of practice* of higher education IDs and add to a scant body of research on instructional design that ties directly to creativity literature. Additionally, qualitative data analysis established relevant, operationalized themes and also revealed two mitigating concepts: first, the terminology related to creativity in ID is not universally established, and second, the potential influence of trait desirability bias.

**Transformation from literature terminology to context of practice.** The responses exhibited a fairly distinct evolution of terminology as the constructs and themes being explored were transformed from terminology extant in the literature to more context specific instructional design language. This effect was evident in responses to the round two survey, which were much more applied and less theoretical than in round one. Additionally, several topic statements had to be refined to alleviate the panelist confusion and misunderstanding of terms revealed by the responses to the open-ended queries. Specifically, panelist responses indicated a variety of meanings attached to terms like “elegance,” “ambiguity tolerance,” and “dynamic expertise.” Finally, concerns over the multifaceted nature of the term “creativity” itself (e.g. as a trait, a state of being, or a habit) were apparent.

**Ramifications of potential desirability bias.** The overall panel consensus (86% of the 42 discrete creativity-related concepts presented in the Delphi portion of the study reached panel consensus) as well as the rapidity with which the panel came to consensus (89% reached consensus in the first round they were presented) suggests the results were influenced by *trait desirability bias* (see Phillips and Clancy, 1972). In the words of one panelist: “This [list of competencies] is like a wish list for a child who wants all his/her desired dream toys.” Additionally, since the traditional statistical methods for Likert-scale Delphi studies are ineffective in discriminating between consensus items, there is no readily available way to establish a rank order or any other relational information regarding the large number of consensus items. Finally, the rapidity of panel consensus also led to a lack of peer discussion regarding those items. All told, the panel only had opportunity to directly respond to summarized peer comments on fewer than a dozen non-consensus items. In light of this, we recommend that researchers using the Delphi method consider retaining items that could be considered to have attained relatively ‘weak’ consensus and include them in subsequent rounds to collect additional response data.

### **Recommendations for Further Study**

The targeted context for this research was instructional design in higher education. The importance and variety of organizational and operational contexts indicated by panel responses that exist within the broader higher education milieu suggested the potential for further research. Specific context variables identified included: size of institution, public or private charter, for-profit or not-for-profit status, variability of reporting structures (e.g. academic affairs, library, information technology), funding model(s) (self-sustaining vs. general funding), faculty compensation structures, intellectual property policies, and many others. Valuable information may be gleaned from studies with more specific context delineation in any one of these areas.

The concept of collaborative creativity and the cumulative effect of teams on the creative process is another related area that would merit further study. Although this research focused on competencies for individual IDs, several panelists echoed a call for discussion regarding the “whole of the [ID] team” being “greater than the sum of its parts” and noted that since it was probably not realistic for any one ID to possess expertise in all of the competencies, they made every effort to assemble teams of IDs with complementary knowledge, skills, and abilities. Research exploring specific ID to ID collaborative techniques such as “Agile” design principles (Yocum, 2015), or aligning the identified competencies with some of the recent team-based creativity literature (e.g. Barczak, Lassk, & Mulki, 2010; Richter, Hirst, van Knippenberg, & Baer, 2012; Diliello, Houghton, & Dawley, 2011), may be valuable. Finally, efforts to establish a “rank order” of relative desirability of the identified creativity-based skills and traits could prove enlightening.

## TABLES

**Table 1.***Constructs Relevant to Creativity in Instructional Design*

Category	Construct
<i>Creativity</i>	34. <i>problem finding/ identification</i> , the process of becoming aware of problems, deficiencies, gaps in knowledge (Torrance, 1993)
	35. the importance of <i>escaping assumptions</i> in the performance of a creative act (Mitchell, Inouye, & Blumenthal, 2003)
	36. <i>discovering and navigating</i> the context of a problem (Ericsson, Roaring, & Nandagopal, 2007)
	37. awareness of the rules and <i>contextual boundaries</i> in which a problem exists (Csikszentmihalyi, in Sternberg, 1999)
	38. <i>ideation</i> (Akinboye in Ogoemeka, 2011)
	39. <i>invention</i> (Dasgupta, 1996)
	40. <i>innovation</i> (Weisberg, 2006).
<i>Ambiguity and Uncertainty</i>	41. the necessity for <i>overcoming fear</i> (Fields, 2012) inherent in creative risk
	42. the potential benefits of a <i>post-modernism</i> approach (Visscher-Voerman & Gustafson, 2004)
	43. the challenges associated with <i>ambiguity intolerance</i> (McClary, 2009)
	44. the benefits of a <i>tolerance for ambiguous problems</i> (MacDonald, 1970)
	45. the benefits of a <i>tolerance for ambiguous situations and tasks</i> (Furnham & Ribchester, 1995)
	46. the benefits of “mindfulness” and <i>creative uncertainty</i> (Langer, 1990)
	47. the role of <i>passion</i> in the creative act (Vallerand & Houliort, 2003)
	48. defined the state of <i>flow</i> as an experience felt by those engaged in highly creative activities (Csikszentmihalyi, 1996)
	49. the relation between creative potential and <i>self-efficacy</i> (Bandura, 1977).
<i>Situated Creativity</i>	50. the importance of <i>contextual awareness of one’s role</i> within a creative team or organization (Amabile, Schatzel, Moneta, & Kramer, 2004)
	51. the importance of <i>navigating the [volume] risk/ reward dynamic</i> between creative freedom and operational constraints (Udwadia, 1990)
	52. the <i>cooperative</i> nature of highly creative teams (Amabile, 1988)
	53. the <i>intrinsic motivation</i> of innovative team members (Jaskyte and Kisieliene, 2006)
	54. the positive effect of <i>autonomy and challenge</i> for creative individuals (Zhou, 1998)
<i>Traditional and Non-traditional Approaches to Instructional Design</i>	55. the ineffectiveness of the <i>systems approach</i> to instructional design (Gordon & Zemke, 2000)
	56. the <i>heuristic</i> approach to Instructional design (York & Ertmer, 2011)
	57. the ill-structured (or <i>wicked</i> ) nature of many Instructional Design problems (Valentine & Ivey, 2008)
	58. navigation of the <i>risk/ reward dynamic</i> inherent in the timing of proposed ID solutions (Schön, 1987)
	59. <i>remixing</i> , the process of adapting old solutions to new problems (York & Ertmer, 2011)
	60. establishing and maintaining <i>connections</i> between facets of an ID problem (Valentine & Ivey, 2008)
	61. advantageous attitudes and dispositions for effective Instructional Design such as <i>flexibility</i> (Baum and Newbill, 2010)
	62. <i>confidence</i> (Baum and Newbill, 2010)
	63. <i>iconoclasm</i> (Hokanson, Miller, & Hooper, 2008), and finally
	64. the <i>playful</i> experimentation inherent in the “Instructional Artist” role (Hokanson, Miller, & Hooper, 2008)
	65. <i>pragmatism</i> (James, 1907)
66. <i>diversity/ democracy of thought</i> (Manke, 1999).	

**Table 2.**

*Summary of Responses to Topic Statements in the **Problem-Solving** Theme (Unique Concepts)*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	%	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must... successfully navigate complex, ill-defined problems.</i>	27	3.70	.465	100	A
be fully cognizant of the “flex points” (i.e. opportunities for creativity) in any prescribed, systematic, design process.	28	3.68	.612	93	A
generate multiple possible solutions to a problem.	27	3.36	.739	81	A
work ONLY within the bounds of a prescribed, systematic, design process.	28	1.64	.826	93	D

*n* = number of respondents, *M* = mean, *SD* = standard deviation, % = percentage of opinion, *C?* = consensus (Agree, Disagree, No consensus reached)

**Table 3.**

*Summary of Responses to Topic Statements in the **Problem Finding** Theme (Unique Concepts)*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	%	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must... identify problems, deficiencies, gaps in knowledge, and omissions in a given situation.</i>	27	3.59	.572	96	A
be able to distinguish between actual constraints and perceived constraints of a problem.	27	3.38	.571	93	A
project potential outcomes of a course of action and intervene appropriately.	27	3.31	.679	93	A

**Table 4.**

*Summary of Responses to Topic Statements in the **Boundary Awareness** Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	%	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must... establish a personal “culture of creativity” through relationships, communication, and comportment (e.g. honesty, patience, resilience).</i>	28	3.74	.526	93	A
balance creative activities with the constraints of a given project.	28	3.57	.634	93	A
recognize their role within the organization.	28	3.43	.690	96	A
recognize their operational boundaries (e.g. context, constraints, and accountabilities).	28	3.36	.621	93	A
recognize when creative activities are appropriate (i.e. warranted, practicable) and when they are not.	28	3.36	.488	100	A
demonstrate elements of creativity in their communication and collaboration with stakeholders. (e.g. creative “sales” in persuading faculty/ advocating for students).	28	3.29	.600	93	A
appropriately (i.e. within project context/ constraints; time, money, etc.) advocate for more elegant (i.e. relevant, ingenious, simple, novel, and effective) solutions.	24	3.13	.850	79	N

**Table 5.***Summary of Responses to Topic Statements in the Creative Act Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>To be successful, Higher Education Instructional Designers must...</i>					
effectively remix/ repurpose old materials into new materials.	27	3.65	.485	96	A
be capable of creating original (novel) models, strategies, or approaches to solve instructional problems.	28	3.50	.638	93	A
engage in creative acts specifically to solve problems.	27	3.5	.510	96	A
identify connections between elements previously considered disparate.	27	3.41	.636	93	A
establish “Dynamic Expertise” by continuously integrating emerging trends with a strong historical perspective (i.e. be fully conversant in a variety of educational theories, practices, and approaches, both old and new).	28	3.17	.669	86	A
engage in free-form (abstract, unapplied) creative acts that are unrelated to any current projects	24	2.48	.912	77	N

**Table 6.***Summary of Responses to Topic Statements in the Creative Dispositions Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>Successful Higher Education Instructional Designers are...</i>					
comfortable engaging with a variety of tasks and interactions.	27	3.89	.321	100	A
are empathetic to multiple perspectives.	27	3.70	.541	96	A
willing to suppress their ego for the good of the endeavor.	27	3.65	.562	93	A
To be successful, Higher Education Instructional Designers must integrate suggestions and feedback from others.	28	3.59	.508	100	A
confident in their abilities.	27	3.52	.580	96	A
To be successful, Higher Education Instructional Designers must actively seek multiple viewpoints (when appropriate relative to the constraints of a project).	28	3.36	.621	93	A
willing to continuously question underlying assumptions of established practice.	27	3.33	.620	93	A
willing to risk exposure embarrassment or censure to propose new ideas.	27	3.24	.579	85	A
comfortable surrendering ownership of creative works.	27	3.19	.567	89	A
devotees to current industry best practices only.	27	1.85	.718	89	D
able to restrain from implementing initial (or prescribed) responses while considering alternates (when appropriate relative to the constraints of a project).	24	2.87	.548	75	N

**Table 7.***Summary of Responses to Topic Statements in the Ambiguity Tolerance Continuum Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>Successful Higher Education Instructional Designers are...</i>					
completely avoid ill-defined problems.	27	1.38	.571	96	D
embrace ambiguity as an empowering opportunity.	27	3.54	.581	93	A
can operate effectively despite unspecific or incomplete direction.	27	3.48	.643	93	A
tolerate ill-defined problems.	27	3.19	.981	81	A

**Table 8.***Summary of Responses to Topic Statements in the Intrinsic Motivations and Rewards Theme*

Topic Statement	<i>n</i>	<i>M</i>	<i>SD</i>	<i>%</i>	<i>C?</i>
<i>Successful Higher Education Instructional Designers...</i>					
are life-long learners.	28	3.73	.452	93	A
believe that their creative efforts are making a difference.	27	3.37	.688	89	A
are passionate about their work.	27	3.31	.788	85	A
view engaging with difficult tasks as something to be embraced rather than something to be avoided.	28	3.26	.585	93	A
engage in playful experimentation.	27	3.00	.748	77	N
demonstrate a single-minded immersion to creative or problem solving tasks (when appropriate relative to the constraints of a project).	24	2.58	.653	50	N
feel professionally fulfilled.	24	2.57	.746	50	N

**Table 9.***Summary of Consensus Items, Themes 1, 2, 3 & 4**To be successful, Higher Education Instructional Designers must...*

- work ONLY within the bounds of a prescribed, systematic, design process (*consensus to disagree*).
- be fully cognizant of the “flex points” (i.e. opportunities for creativity) in any prescribed, systematic, design process.
- generate multiple possible solutions to a problem.
- successfully navigate complex, ill-defined problems.
- identify problems, deficiencies, gaps in knowledge, and omissions in a given situation.
- be able to distinguish between actual constraints and perceived constraints of a problem.
- project potential outcomes of a course of action and intervene appropriately.
- recognize their operational boundaries (e.g. context, constraints, and accountabilities).
- recognize their role within the organization.
- establish a personal “culture of creativity” through relationships, communication, and comportment (e.g. honesty, patience, resilience).
- Within the context of a project, Higher Education Instructional Designers must recognize when creative activities are appropriate (i.e. warranted, practicable) and when they are not.
- demonstrate elements of creativity in their communication and collaboration with stakeholders. (e.g. creative “sales” in persuading faculty/ advocating for students).
- balance creative activities with the constraints of a given project.
- be capable of creating original (novel) models, strategies, or approaches to solve instructional problems.
- effectively remix/ repurpose old materials into new materials.
- identify connections between elements previously considered disparate.
- establish “Dynamic Expertise” by continuously integrating emerging trends with a strong historical perspective (i.e. be fully conversant in a variety of educational theories, practices, and approaches, both old and new).
- engage in creative acts specifically to solve problems.



**Table 10.**

*Summary of Consensus Items, Themes 5, 6, & 7*

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*Successful Higher Education Instructional Designers...*

- are comfortable engaging with a variety of tasks and interactions.
  - are confident in their abilities.
  - are willing to risk exposure embarrassment or censure to propose new ideas.
  - are willing to continuously question underlying assumptions of established practice
  - are devotees to current industry best practices only (*consensus to disagree*).
  - are comfortable surrendering ownership of creative works.
  - are willing to suppress their ego for the good of the endeavor.
  - are empathetic to multiple perspectives.
  - To be successful, Higher Education Instructional Designers must actively seek multiple viewpoints (when appropriate relative to the constraints of a project).
  - To be successful, Higher Education Instructional Designers must integrate suggestions and feedback from others.
  - completely avoid ill-defined problems (*consensus to disagree*).
  - tolerate ill-defined problems.
  - can operate effectively despite unspecific or incomplete direction.
  - embrace ambiguity as an empowering opportunity.
  - believe that their creative efforts are making a difference.
  - are passionate about their work.
  - view engaging with difficult tasks as something to be embraced rather than something to be avoided.
  - are life-long learners.
-

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