

Instructional Design In Action:
Observing the Judgments of ID Practitioners

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Abstract

In this study, we address the relative lack of rigorous research on instructional design (ID) practice via an exploratory study in which eight practicing IDs in two consulting environments were observed by pairs of researchers as they went about their normal work activities. In our initial analysis, we sought to discover the kinds of judgments these designers made, characterizing practice on its own terms, rather than through superimposition of existing ID models or frameworks. The Nelson & Stolterman (2012) framework of design judgments, a non-prescriptive, philosophical framework, was used as the lens for this study.

Keywords: Instructional design; Design practice; Design judgment.

Introduction

A shift is happening gradually in the field of instructional design and technology (IDT) from viewing design as a matter of following prescriptive theories and models to considering design as practice and process in the same manner as other design disciplines do. This brings up a changing view and conceptualization of design. A few decades ago, questions began to be asked in the field regarding design process, design practice, how instructional designers design, and what they actually do in practice (e.g., Perez & Emery, 1995; Rowland, 1992; Wedman & Tessmer, 1993), but no major shift in the direction of these questions can be discerned immediately. Over a decade later, in reviewing the foundational textbooks and published definitions in the field, Smith and Boling (2009) identified the lack of focus in the literature on design practice, including designers' roles and judgment in design process. In parallel, other authors were addressing the nature of design as it is understood in this field (Buchanan et al., 2013; Parrish, 2005; Rowland, 1996). A consequence of this shift in viewpoint is that views of designing from other fields in which design occurs are expanding the view within this field to include constructs like design judgment (Nelson & Stolterman, 2000; 2012).

Even with this shift to a more comprehensive, expansive view of design, our specific understanding of ID practice remains limited. Rowland's rigorous study in 1992 was remarkable not least because he attempted to understand practice on its own terms. While this was a promising start, a general lack of core understanding in the field as a whole about how design is actually done has resulted in a number of attempts by researchers to explain the complexity of practice with limited success.

Review of Literature

Views of Design in the Field

One approach has been to study practice based on how it conforms to existing ID theories or models. In Wedman and Tessmer (1993), eleven pre-identified instructional design activities were presented to instructional designers, who responded with 1) how often these were used, 2) whether or not they were used in their prescribed order, and 3) whether or not they were all completed to the same degree. Noting that rarely do designers use most of these, and not always in order, Wedman and Tessmer proposed instead the Layers of Necessity model, later revisited by Winer and Vasquez-Abad (1995), which encouraged designers to input their own needs into a base model for each unique situation. When ID practitioners began to move from a cognitive approach to a more constructivist approach, Kirschner et al. (2002) began describing the changes in how ID models were becoming more an inspiration for designers, and less a prescribed set of rules. The focus on how designers prioritize activities introduced by these authors, and the sense of temporal awareness that came with these ideas, also lead into the Cox and Osguthorpe (2003) study of how ID practitioners use their time. The focus of this study was moving away from "what" instructional designers do, and toward "how" they incorporate other aspects of designing, such as time management and task importance. In 2004, Visscher-Voerman and Gustafson (2004) and Christensen and Osguthorpe (2004) turned back to the study of how designers interact with prescribed models, theories, and methods they had been taught. Both of these studies came to the conclusion that homogenous

methods of design were not widely practiced by instructional designers, but that a more adaptable, diverse, and heterogeneous approach is typically followed. Several of these efforts have led to development of new models for designing, presumably reflecting better in their conception what designers actually do, but ultimately prescribing what they should do in an effort to ensure that following the model will produce optimal practice—an approach antithetical to broader views of design (Lawson & Dorst, 2009; Stolterman, 2008).

Understanding Design Practice Through Models

Any number of instructional design (ID) models exist, arguably similar enough to each other that they are, at a high level, indistinguishable. As recently as 2009, Branch has explained that the well-known, simple, ADDIE model of design (analysis, design, development, implementation and evaluation) can be applied in any situation where instruction is the appropriate response to a performance gap.

Traditional instructional models have been criticized for failing to capture or address the complexity of design (Reigeluth, 2013). However, even though it seems that instructional design models represent a single linear process, Verstegen, Bernard and Pilot (2006) state that instructional designers must consider different kinds of constraints and limitations in order to respond appropriately to the contexts in which they work. In other words, instructional designers should make decisions based on the constraints in their particular settings (Gibbons, Boling, & Smith, 2014; Schwier, Campbell, & Kenny, 2007) rather than just following the steps of a model (Branch & Kopcha, 2014). Spector (2012) also emphasizes that communication and interaction between the key stakeholders in a business takes a great deal effort during the design of instructional materials, a factor not included in ID models (e.g., Morrison et al., 2011).

All of these attempts to approach the complexity of design practice still take as their starting point an activity-centric model of designing, modified in one dimension or another, but still lacking any fundamental awareness of how designers use their professional knowledge to make situated judgments about anything except a choice of instructional strategy and *modifications to the model*.

A Broader Understanding of Design

Attempts have been made to make sense of design practice more expansively by drawing on design theory and research inside and outside of our field. Some studies, such as Bichelmeyer, Boling and Gibbons (2006) look at proposing ways of thinking about what we do as instructional designers in order to provide a new perspective and ask what might be holding designers back. Studies such as this imply that the goal should not be to teach a model to instructional design students, but that we should be focusing on developing what has recently been called a cognitive flexibility towards professional practice (Yanchar & Gabbitas, 2011). Other studies focus attention on the agency and unique characteristics of the instructional designer, rather than on the models and theories they employ. Kenny and co-authors observe that designers not stick to the models they have learned, but also that they engage in many other tasks not at all related to instructional design (Kenny et al., 2005), illustrating how our view of ID shifts when we approach practice on its own terms. Still other authors argue that instructional design, in common with other forms of design, is characterized by

fundamental ambiguity that contrasts with existing models and processes of instructional design -- particularly those taught to students. They conclude that we have a need to understand more about, and adapt our thinking to include, understandings of design from other fields (Fortney and Yamagata-Lynch, 2013; Tracey & Boling, 2014).

These scholars are tapping into decades of research on design activity in the larger design community, several prominent examples of which are discussed here. Rowe (1987) started to look closely at the behaviors of designers, by mapping a generalized portrait of how a designer thinks while working on a project. He described the internal logic that designers use while designing, and explored the constraints and conditions influencing design. Lawson (1997), who focused on how designers think in relation to their design practice, which changes and evolves with the technology around it. Lawson (1997) and Cross (2011) focus on studio learning, and how design must be engaged in if it is to be learned, foregrounding the importance of understanding authentic design practice. Much of this work was carried out in architecture and product design. In engineering design, Vinck (2009) used ethnographic approaches to study technology in design and claimed that knowledge about design cannot come only from the study of the *results* of an action, but by observing also what happens *during a decision* that brings about an action.

How Practical Knowledge is Applied by Instructional Designers

Cross (2011) claims that everyone is capable of design, but that good designers must grow and develop to improve their skills and knowledge. He has examined not only the internal and external motivators of designers, but how designers work in teams, and what qualifies a designer as an expert. Robinson (2012) has looked at the satisfaction of designers, and how this satisfaction is affected by where they spend their time designing. By looking at how much time a designer spends in technical or social situations while working, Robinson hopes to influence changes in work practices, suggestions for human resources in regards to key skill requirements, or even how this knowledge can optimize the roles designers occupy within organizations.

There has been a substantial focus for some time regarding what knowledge and skills novice designers should have. Novice designers should have the knowledge of instructional models (Dick, 1996), but they should also have problem solving, communication, and management skills (Ertmer et al. 2008). Perez & Emery (1995) emphasize the importance of process of design where expert designers take into consideration a number of factors, whereas novices do not rather than theory based approaches. Furthermore, York & Ertmer (2011) found that instructional designers appeared to give more attention to the practice of ID models when designing. According to Ertmer, York, & Gedik (2009), even though experienced designers also use ID models “to frame their thinking about design problems” (p. 23), they do not follow the processes outlined in the textbooks. These designers stated that context and the constraints of that context influenced their design decisions.

Several scholars have offered principles, guidelines, and factors that may be valuable to explore in the context of authentic practice, shifting the focus from solely an application of theory or models. Parrish (2009) offers a set of 5 principles and 12 guidelines based on his understanding of aesthetics and pragmatist philosophy, which foreground issues to be addressed by designers rather

than theoretical prescriptions. Hardre, Ge, and Thomas (2006) reveal that the interaction of a number of factors such as the perception about learning, background experiences, individual needs, and learning strategies may have an impact on the development of ID expertise. Rowley (2005) stated that common expert practices can help novice instructional designers improve their expertise compared to novices, design experts are more likely to be better problem solvers because they use their background knowledge and personal experiences (Ertmer et al., 2008). Ertmer et al. (2009) suggested that explicit guidance or scaffolds based on these expert practices may support novice designers in their problem solving behaviors.

Design Judgment as a Productive Construct for Studying Instructional Design Practice

A new conceptual lens for understanding practice exists, not through the reification of another specific model or theory, but through understanding how professional knowledge is applied by each designer in the creation of an ultimate particular—an intervention of any kind—in the field of instructional design. Stolterman (2008) has expanded our notions of practice, explaining and arguing for the value of *phronesis*—practical knowledge—and how that knowledge is applied in a substantial way, without attempting to frame design activities primarily as, or only as, science. Dunne (1997) describes this concept in the following way:

Phronesis is precisely the kind of reason which, as including practical nous, has developed an 'eye' (Aristotle) or a 'nose' (Wittgenstein) for what is salient in concrete situations... the crucial thing about phronesis... is its attunement of the universal knowledge and the techniques to the particular occasion, so that they are deployed in relation to 'the right person, to the right extent, at the right time, with the right aim, and in the right way...[which] is not for everyone, nor is it easy' (p. 368).

Using the work of Holt (1997), Vickers (1984), and Polyani (1966) as a baseline for understanding how experts make largely tacit judgments in the act of designing, Nelson and Stolterman (2012) identify multiple components of this rich construct, providing a framework for observing and understanding designing *in situ* more completely than is possible using highly abstracted models of designing. In our own field, Yanchar and Gabbitas (2011) have introduced the concept of *conceptual design sense* and *critical flexibility*, which appear to be directly related to the notion of design judgment. Some in the field argue the necessity of understanding design practice and the development of design character (Tracey & Boling, 2014), highlighting design judgment as a component of design character, lacking but needed in ID (Korkmaz & Boling, 2014). Judgment explored as a manifestation of practical knowledge allows us to understand and deconstruct practice on its own terms.

In this study, we seek to answer two research questions: (1) What do instructional designers do in practice consistent with design judgment? (2) What design judgments take place in instructional design activities?

Method

This is an exploratory study, using direct observation of designers *in situ* at two professional instructional design-consulting sites, chosen for their accessibility to the research team. We carried out observations of any and all activities that we were allowed to view during our visits to the sites chosen, without restricting ourselves to those activities that the IDT literature might traditionally call “design” (e.g., Branch, 2009; Spector, 2012).

The design of the study was oriented toward a conceptual model from the literature, but not conducted with that model as a rigid, *a priori* framework. Following our observations, short interviews were conducted with participants to clarify activities observed by the researchers. The researchers collected and analyzed observation and interview data using primarily interpretive methods, well-established and highly rigorous in the traditions of qualitative and critical inquiry.

The research team, which included nine members, prepared in advance for the observations by in-depth discussion of the design judgment concepts put forward by Nelson & Stolterman (2012), practiced observations of a simulated design exchange, and of selected, publicly available design meetings. The team practiced data capture methods, refining our shared understanding of expectations for recording rich observations.

Data Collection

Context and Participants

Observations were carried out at two sites of instructional design practice: 1) a campus-wide, in-house consultancy serving the faculty of a large midwestern university; and 2) an established instructional design firm of over 70 employees consulting to a broad range of commercial clients. A total of eight practicing instructional designers participated in the study, one from the in-house consultancy, and seven from the commercial instructional firm. They represented a wide range of instructional design expertise, with varied formal education, although all but two held a Master’s degree in instructional design and technology. The participants included three males and five females, with job titles that ranged from contractor to director.

University Consultancy

The university consultancy was located within the main library on the university campus. It comprised a large main space where consultants meet with clients, and small offices for each of the consultants. The participant we observed used his office to conduct a Skype meeting with his first client during our observation, while he used the shared main space for a face-to-face meeting with his second client. The participant’s role was to assist faculty with technology integration in their courses, working both as an instructional consultant and media developer.

Commercial ID Firm

The commercial ID firm was located on the second floor of a city building. The firm recently expanded into a new suite in this building, and their offices were spread out across multiple spaces connected by public hallways. There were several other companies on the same floor, but the ID firm dominated most of the space. Most instructional designers did not have private offices; instead, the

majority of employees worked at cubicles in large open rooms. Some instructional designers did work in smaller offices, occupied by either one or two employees. Employees in management positions seemed most likely to have personal offices, while the remainder were split between shared offices and cubicles. The participants' role was to consult with clients and work with media developers and content developers to realize the interventions (often instructional) required by the clients.

Sources of Data

A total of six researchers from the research team collected data through field observations of participants while they conducted their everyday activities. These observations were carried out by teams of two researchers, each pair "shadowing" a study participant for one and a half to three hours, depending on the participant's availability. Data were recorded exclusively as handwritten field notes taken by both members of the team throughout the observation period. No audio recording of the primary observations was conducted, both to protect the confidentiality of the participants and the clients they worked with, and to focus our attention on the largely tacit judgments we intended to observe that might not be captured satisfactorily in audio form. At the conclusion of the formal observation period, the researchers interviewed the participants, augmenting their notes at this stage with audio recording. They asked basic demographic questions, questions clarifying activities or actions by the participant during the observation, and probing questions regarding some judgments the team observed.

After the data collection was complete, the two participating researchers combined their field notes into a digital narrative, using handwritten field notes and audio from the interview to generate a detailed record (Carspecken, 1996; Lincoln & Guba, 1985), cross-checking each others' notes, and using recollections from the observation experience to generate a reliable account. In total, nine records were generated from eight participating designers, with one designer participating in two sessions.

Analysis

A team of nine researchers participated in the analysis of data, which included two primary phases. First, the team unitized judgments in the record, then coded them using the types of judgments outlined by Nelson and Stolterman (2012). Second, the team created summaries of each observation which included: the primary settings of action and the types of judgments contained within each setting, the environment in which design activities took place, and the normative infrastructure that constrained the activity of the individual designer.

Phase I: Unitized Coding of Judgments

The team identified all instances of potential design judgments, using this approach to unitize the field note data record. The research team was divided into pairs and each pair was given two observation-plus-interview data sets to analyze based on a coding process that was developed using the Nelson and Stolterman (2012) design judgment framework. These pairs then came to a consensus on the design judgments being made by the participants, identified salient examples, and developed working definitions of the observed design judgments. Each example and definition was

reviewed and discussed by the entire research team to ensure a general understanding of the Nelson & Stolterman (2012) design judgment framework. The team then invited the design scholar Erik Stolterman to meet with us and clarify the framework, ensuring that we were utilizing the framework in an appropriate manner. Following this visit, the team created a set of exclusion criteria to further refine the data set and began the process of reconstructing the context surrounding the unitized judgments by developing holistic case summaries. The exclusion criteria included: 1) actions that are not directly related to design activity (e.g., everyday office work); 2) actions not performed by the designer being observed; 3) meta-statements about design or design activity (i.e., all commentary that doesn't constitute a design decision in its own right); and 4) design judgment might be occurring, but where too much inference would be required to make that decision.

Table 1.

Types of judgments (adapted from Nelson and Stolterman, 2012) with descriptions from the original source and the operationalized definitions used by the research team.

Judgment Type	Nelson and Stolterman (2012) Definition	Operationalized Definition
framing	“defining and embracing the space of potential design outcomes ... forms the limits that delineate the conceptual container—a virtual crucible—that is required to contain the intense emotional and intellectual heat of creative activity ... in other words, what are the ‘edges’ of the project and what lies beyond consideration.” (p. 148)	Creating a working area for design activities to occur, often by introducing constraints (client or tool) or ways of assessing outcomes. This occurs dynamically across multiple levels.
deliberated off-hand	Bringing default judgments “up from their habitation in the unconscious and modify[ing] them by making them open to deliberation.” (p. 151)	Recalling to consciousness previous judgments that have led to successful practices and opening them to the possibility of adaptation or use.
appreciative	“... a matter of appreciating any particular situation ... determining what is to be considered as background and what requires attention as foreground ... key in the determination ... of what is to be considered as context in a design situation. (p. 151)	Placing high value and emphases on certain aspect/s of a design situation while backgrounding others.
quality	“...to determine whether there is enough of a match between aesthetic norms and standards and the proposed design.” (p. 151)	Making design decisions about the effectiveness of visual and other forms of style, or to demonstrate due diligence, often in accordance with company standards, in relation to a concrete design artifact.
appearance	“...includes determinations of style, nature, character, and experience [but] not guided by a literal matching of attributes on a one-to-one basis, as is the case with scientific correspondence. [...] Instead, an appearance judgment is aesthetic whether focused on artifacts or experiences.” (p. 151)	Assessment of overall quality, relating to an entire product or experience, rather than just a portion. This often includes part/whole relations within a frame of aesthetic experience or measurement against heuristic(s).
connective	“Intimately related to compositional	Making connections, or bridging various

	judgment... such judgments make binding connections and interconnections between and among things so that they form functional assemblies transmitting their influences, energy, and power to one another, creating synergies and emergent qualities that transcend the nature of the individual things that are being connected.” (p. 153)	design objects that are central to the design process and activity. The connections made in this context are not generalized but specific to the design situation.
compositional	“... bringing things together in a relational whole ... includes aesthetic and ethical as well as sensual considerations. ... relationships are created among a palette of elements, with an eye toward calling forth an emergent unified appearance [which] displays the qualities, attributes, nature, and character particular to an ultimate particular.” (p. 153)	Making connections or bringing various design objects together that are central to the design process and activity. The connections made in this context are generalized and not specific to a particular design situation but to the overall process.
instrumental	“Instrumental judgment deals with the choice and mediation of means within the context of prescribed ends. It is the process of mediation that considers not only technique and which instruments to use, but proportion and gauge, as well. This is the form of judgment that takes technology into consideration. Any type of crafting requires instrumental judgments that meld absolutes into compounds of realistic possibilities.” (p. 152)	The selecting, utilization, or influence of a tool, concept, or method in reaching an established design goal.
navigational	“...making the right choices in an environment that is complex and unpredictable—the core of adaptive expertise ... securing the desired state of affairs for any moment, in the moment, by staying on track and proceeding in the right direction—in other words, maintaining an intentional heading.” (p. 152)	Considering a path, plan, or certain manner (of individual, disciplined preference) in approaching a task or a challenge to get to a desired state.
default	“made without deliberation ... a nearly automatic response to a triggering situation.” (p. 150)	Giving an automatic response to a situation without deliberation.
core	“...buried deep within each individual, but unlike off-hand judgments they are not easy to access. ... Core judgments are rooted in our individual absolute presuppositions [and are] a composite of meanings and values, formed during the experience of living. These are not the products of reflection, or deliberation, but are embodied as lived experience.” (p. 155)	Statement about one’s value or thinking, usually revealed when pushed by “why” questions concerning one’s judgment.

Phase II: Holistic Case Summaries

To ensure deeper understanding of what we saw in the field, the team decided to conduct a second round of analysis. The rationale for completing the holistic case summaries was because the earlier phase did not fully account for the contextual factors that may have affected the emergence of design judgments, which was foregrounded in our meeting with Erik Stolterman.

In order to maintain reliability in the study, we paired both of the original researchers that conducted the observation with a researcher who was not part of the observation team; each paired team conducted an analysis of two participants. The analysis in this phase accounted for: the setting where the activity took place, the infrastructure of the observation, the environment in which the design activity took place, the norms that constrained communication and judgments, and highlighted the participants role/position in the design situation.

After the individual summaries were captured, groups of three researchers met to come to consensus on a group summary to share with the entire research group. The research group went through each participant summary thoroughly and came to a consensus on a final group summary of the analysis.

Findings

In the first round of analysis, we identified the kinds of design judgments that the practitioners were engaged in and the frequency of such judgments during the period of observation. We did not attempt to draw statistical conclusions from these numbers, only to illustrate by simple frequencies some main features of what we noted in the observations.

Table 2.

Frequency and types of design judgment by participant observed.

	Framing	Off-hand	Appreciative	Quality	Appearance	Connective	Compositional	Instrumental	Navigational	Default	Core	TOTAL
Gabriel	9	8	10	4	5	4	2	8	5	0	1	56
Emily	5	6	8	2	0	3	4	8	6	10	0	52
Julia	0	4	3	5	4	2	4	2	2	4	0	30
Heather	5	1	7	0	0	0	0	0	3	0	0	16
Ethan	6	0	3	1	1	0	0	1	5	2	1	20
Ethan	3	0	2	1	1	1	0	1	3	0	0	12
Claire	3	3	6	3	1	2	3	2	3	0	0	31
Adam	3	3	0	1	1	1	2	1	1	0	0	13
Sally	13	4	4	8	14	7	5	13	8	15	1	92
TOTAL	47	29	43	25	27	20	20	36	36	31	3	322

The total number of unitized design judgments we identified across all observations was 322. The most frequent type of judgment observed was framing, which occurred 47 times. The least frequently observed type was core judgment, identified only 3 times across the nine observations conducted. The average number of the judgments across the sample was 35.7, ranging from 12 (Ethan) to 92 (Sally) during individual observations. The table above indicates that each of these

designers was making a variety of different types and frequency of judgments regardless of the project phase or activity taking place during the time of the observation.

There may be many reasons for this variation, but some may be due to the limitations of the study. These limitations include: 1) each observation was conducted by two researchers with different levels of experience in observational methods, which caused inconsistency in the field notes taken during the observations; 2) the observation period was constrained by participant availability; and 3) each observation was coded by two different researchers, and were not coded by all researchers.

Case Descriptions

In the second round of analysis, summaries were created for each participant to capture holistically what was happening in the field when these instructional designers were engaged in design activities. We assigned pseudonyms for each participant. Within each summary, we introduce the participant by providing background information, including: the designer's educational and professional experience, the context of work, and the role of the participant in this setting. We then note what kind of design activities the designer was engaged in during our observations, how the designer made design decisions, and what influenced those decisions *in situ*. When the participants explained what they are doing when we observed them we included details based on what they told us as well as things we directly observed, unlike during the first phase of analysis when we excluded judgments that were reported but not observed.

Gabriel (university-wide instructional consulting office)

Gabriel had worked in this office for two years. However, he had worked in the field periodically over three or four years before he came to the university. His role was assisting clients with technology integration into their courses. Gabriel's first client during our observation was an instructional consultant in the School of Education. They were working on a workshop presentation for an upcoming symposium held by the client's office. For the second client, he was developing an online version of her workshop in oral history for a research center on the campus. In both cases, Gabriel worked both as a consultant and a developer. In the meeting with the first client, Gabriel foregrounded his concerns for the time of instruction, workshop format, and purpose of the workshop. He also seemed to be working with multiple kinds of judgment simultaneously, such as considering the possibility that workshop participants may be interested in attending multiple workshops taking place simultaneously. The second client was a content expert with minimal technology skills, so Gabriel supported her in developing an online version of her workshop as a media developer. The decisions they made were detailed—chunking materials to avoid scrolling, using green to indicate correct answers and red to indicate incorrect answers on quiz feedback. Gabriel also suggested providing explanations for both correct and incorrect answers, and together they decided to organize the content into themes. Within the time we observed Gabriel, he also made technical decisions such as using HTML5 instead of Adobe Flash in order to make the content accessible on iPads. We observed in both meetings the participant's strong belief in Merrill's First Principles of Instruction (2013), and because of that belief he always tried to incorporate authentic tasks. We infer from this observation that his design decisions were influenced by clients and made

as team. Furthermore, the philosophy of this instructional designer seemed to play an important role in what to foreground while he made design decisions.

Emily (instructional design company)

Emily recently started working in the company as instructional designer. She mentioned working in museums previously as an instructional designer with her masters degree in the field. Because of being new in the company, she worked with the help of a mentor. During the time period of the observation, she stated she was working on two projects. While we observed her working, her focus was on a project for which she would have a phone meeting with others working for the project. She was getting prepared for the meeting by making changes on the slides that would be used for presenting the project to the client as well as multitasking—checking and replying to emails. During this time, we observed her unique design considerations and their influence on the design, such as emphasizing the importance of knowing the audience she was designing instruction for, and developing strategies to gather information about the audience. During the phone meeting, there were clearly external factors influencing her design decisions, including her teammates and especially a senior ID in the company, who dominated the meeting and made the major design decisions. Therefore, the position and role of the designer seemed to shape the ability for one to make a design decision. After this phone meeting, we also observed her meeting with her mentor and talking about the project she had just been speaking about. We saw that her mentor was making suggestions to her for improving the design; this was another external factor that influenced her design. Later, when talking about her reasons for design decisions she made, she referred to using her intuition as well as the foundational knowledge and accumulated experience she has. Even though she is new in the company and getting adapted to the setting with the help of her mentor, she did not hesitate to bring her practical knowledge into play, integrating her existing knowledge and skill into the new situation.

Julia (instructional design company)

Julia has been an instructional designer over five years. She has a multi-disciplinary background, including: fine arts, instructional technology, telecommunications, library science, and information science. In addition to serving as a team leader responsible for the quality of work for twelve people on the project, Julia trained and mentored less experienced designers. She mentioned using the ADDIE model as a general guideline. During the observation, all of her work was carried out on the computer. Because Julia leads the project, she spent a lot of time checking, editing, and updating others' work. We also observed her reviewing the work of a media developer in order to assess it, both in terms of visual design and instructional design. Julia mentioned the written guidelines created at the beginning of projects and explained that both the guidelines and her intuition are the basis for her feedback to her team. Overall, it does seem clear that Julia was making decisions continuously as she reviewed and re-reviewed materials; she was making many of these judgments and communicating them to others, but she mentioned “styles are [a] team effort” involving members of the team, a client specialist, and project developers. It seems as if external factors (e.g., clients and projects) and internal factors (e.g., knowledge and experience) influenced her design decisions. Throughout this observation, personal intuition and coworkers' interactions

provided her with what could be viewed as a framework for making design decisions. It also appeared that her judgments depended on a variety of factors: holistic judgments taking place seemed strongly related to a body of guidelines, knowledge, and standards built up over the course of the project, with some established early on in the absence of client guidance, and others being added along the way. We can infer that instructional designers like Julia seem to make multiple design judgments at the same time, using her knowledge of instructional design and practical knowledge, which she referred to as “intuition.”

Heather (instructional design company)

Heather is a project manager, an experienced ID in the field and in the company. She holds the position of manager/client liaison in the company. She has been an ID for 11 years, and holds a Master’s degree in instructional systems technology and technical writing. She mentions that her background knowledge in management and human performance comes from the courses she took in her masters program. She informed us that she did a substantial amount of story-based writing before coming to the company, which helps her now with her projects. The majority of the observation time covered a conference call and a short face-to-face, walk-by interaction. The teleconferencing session was between Heather as project manager, a senior ID, and a client. She appeared to be making mostly navigational decisions, as required by her role. She seemed experienced, showing wisdom in the way she handled issues such as the terminology to be used and the management of their teleconferencing time. Her relationship to the colleague in the walk-by conversation was unclear, but represented internal structures and how they contribute to client work. In discussion with another manager, Heather was able to see that her current methods of keeping track of the project were no longer efficient, as the project expands. She appeared to see the need to have an efficient way for her to manage the project and to account to the company in terms of profits. She appeared skilled in the way she managed the client. For instance, she incorporated strategies to make the client think, and to guide them to figure out what they really wanted from her as a consultant. We also observed that she was guided by company principles or guidelines, which included high-level decisions such as how learners are evaluated, and the need to allow customization of learner paths in the system. This gave us insight into how instructional designers in high level management positions manage a project and find new ways to manage them better.

Ethan (instructional design company)

Ethan has been working for 2 years in the company as an instructional designer. He holds a bachelors degree in information technology and is pursuing a terminal degree in instructional systems technology; he shares an office space with 10-14 people working alongside him. Ethan uses two laptops (one for security purposes to keep client information secure), accessing applications and websites for the project he is working on. His primary communication tool is an Internet messaging function with which he communicates with other colleagues in the office. He is a multitasker; during the time period when we observed him, Ethan was engaged in several instructional design projects; one of them was for a major client and the others were small projects. We observed him documenting information gathered from the client by following standard procedures for the

company. His duty as instructional designer is to understand what clients' expectations are and to suggest alternative recommendations to meet their expectations. Based on our observation, he has the ability to identify issues and propose potential solutions for them. For instance, he reviewed training sessions and found that portions needed to be cut to address a client request. It appears in this observation that interactions and negotiations among instructional designers took place. During the observation, he conducted 15 to 30 minute teleconferences with several colleagues and clients. In particular, one of his clients asked for last minute changes and was late in submitting some deliverables. He also visited colleagues' offices to discuss the resulting issues because he preferred face-to-face interactions. These discussions were important because we saw the instructional designers' own perspective and how he brought his own set of skills and expectations into the design situation. We were able to observe how a designer with two years of experience makes design decisions in an environment, which requires negotiating with his teammates and clients.

Claire (instructional design company)

Claire is a senior instructional designer with six and half years of working experience in the company. Due to her masters degree in educational technology and experience in the company, she has in-depth knowledge about designing instruction and about workflow in the company. At the time of the observation, Claire had a phone meeting with a client for which she prepared beforehand. It is her habit to create a document for her own use in addition to the official design document used by the design team. She takes notes, highlighting where clarification or attention is needed in this document. We also observed her working on the document as preparation for the phone meeting. During that meeting, we observed her keeping a to-do list, taking notes, and taking alternately passive or active positions based on her duties within the project. When she actively engaged in the meeting over the phone, Claire listened to the client's demands and identified their needs. Meanwhile, she asked for information and clarification from the client to ensure that she understood the client's needs and got adequate information for the project. Without this information, it seemed that design judgments later on the project might be difficult for her to make. We observed her taking different roles in the process of design and recognized that her design decisions were made in a team-based design environment, which include other instructional designers, a media developer, content developer, project manager, and the client.

Adam (instructional design company)

Adam is in a leadership role as a team leader and manager; he has a background in journalism and instructional design. He has been with the company long enough to work his way up from interaction designer to manager, leading his own team of about 10 while managing his own projects. From this observation, we were able to see design judgments in the context of management philosophy, and to see how possible structures and solutions for problems are imagined at early stages, as well as the chaos of ad hoc teams. Adam says that his management philosophy is that it is important to know employees on a personal level, and to see that they are in projects and teams that are appropriate to them because there should be "support for people over support for projects." His actions were consistent with his stated beliefs in our observation, as he would travel around the building to speak directly to people, often times having to go to several areas in order to find them.

He told the observers that people were frequently scheduled for multiple meetings simultaneously, and would have to choose which was most important to attend. We observed from his messy desk and left over take-out containers that he likely worked through his breaks, and spent long hours in his office. From his conversations with others in the company, Adam is concerned with identifying potential problems and risks ahead of time, especially with large or expensive projects. These observations also lent an understanding of managing resources of both people and money within instructional design, as well as off-hand design judgments, management related design judgments, and how managers oversee ID practitioners interacting with clients.

Sally (instructional design company)

Sally works as a senior instructional designer, but not in a management role. She has a background in film production, with additional experience in corporate training from a marketplace perspective. Much of the observation took place as she interacted with a junior ID; therefore we saw design judgments from both her perspective in a training or mentor role, and also how instructional designers make decisions in a team or group setting instead of an individual one. Because she was so closely with her co-worker, many of her judgments were expressed externally, allowing the observers to see in more detail how she came to her decisions. Her work is visual, and we observed that Sally would highlight and move text quickly as she thought through not only the sentences she was constructing, but possibly other factors as well. This reflected what she called her “common sense” approach to design; that it was not only a good sentence, but there was strategic writing involved as well. She used a company-specific tool, an issue tracker, that showed the company’s built in quality assurance steps, and how IDs engage with the final learning materials on numerous levels. This observation allowed us to see both framing and instrumental design judgments used by this ID practitioner, and observe how ID practitioners work together on projects and in mentor-like roles.

Discussion

Judgments are Happening All the Time

We saw IDs make an average of 35 design judgments in every observation session, each of which ranged from one and a half to three hours in duration. With a total of 20 observation hours, this results in 16.1 judgments per hour averaged across all participants. This finding indicates that IDs were making design judgments more often than might be anticipated based on the discussions in a recent study where instructional design scholars discussed the exercise of judgment as a discrete event involving choice of media or instructional strategies (Boling et al. 2011).

Judgments are Clustered and Layered

There were many moments in the observations when we saw multiple design judgments being made concurrently. Erik Stolterman described the nature of judgments “in the wild” during an in-person meeting, an explanation which helped to elucidate these findings:

Think about them [judgments] as pearls and they are connected with strings...If you take one and you hold it up, then the others one just hang, as a cluster under [...] it is more like a network, so they all are connected to every one in some way. (E. Stolterman, personal communication,

November 18, 2013).

This discussion clarified our understanding that design judgments presented in the framework represented pure types. In reality, “some of these [judgment types] are always together [...] so blended, you cannot separate them” (E. Stolterman, personal communication, November 18, 2013). To illustrate this layering and blending of judgment types, we highlight an episode from one of our observations:

She started the meeting [with a client via teleconferencing] with questions. She needs clarification on the document to understand the content better and said she wanted to ask questions to the person who created high level outline. [...] She continued making clarification on the understanding of the content and she asked “what communication skills and active listening skills mean. She wanted to sure whether what she understood is same what they mean with these terms. Then, she stated that she would like to have the definition of “active listening skills. (Claire, 123-124; 164-166)

In this case, a framing judgment appeared to be foregrounded (i.e., the pearl that is held up), as she sought to understand the content within the document by asking questions. She checked the high level document, and also the person who created it. In the process, she clarified specific terminology, and then asked deeper questions relating to the subject matter of the training, communication. Here, she seemed to be exercising connective judgment, in trying to get to the composite whole of “communication.” While she worked towards this communicative “whole,” she also seemed to emphasize certain aspects of communication over others, which is characteristic of appreciative judgment. In this way, connective and appreciative judgment “cluster behind” or are backgrounded below the primary framing judgment.

She [Sally] drafts some new text to resolve some of the alignment issues that Emily and her had discovered earlier. She highlights and moves text around, deleting some as she quietly works, it seems like she is considering many factors strategic writing, not just writing a good sentence. (Sally, 260-263)

In reviewing content, Sally, a relatively experienced ID was primarily exercising framing judgment as she made decisions on what should be included within that segment of material. Clustered closely behind were her judgments on quality and appearance, seemingly guided by her experience. In addition to the clustering quality of judgments, we observe that in this situation the framing judgment does not frame the entire project, but a portion of it; this framing is occurring within the larger framing of the whole design, suggesting that judgments are layered, or nested. The philosophical framework we are using may require more than one dimension of complication to describe the enacted experience of designing instead of the conceptualization of design.

In terms of the types of judgment outlined by Nelson and Stolterman (2013), framing (47 times) was the most observed, followed by appreciative (43 times). As suggested by the nature of

core judgment—buried deep within the designer (Table 1)—it was observed only three times. Additional work may be needed to understand more completely how types of judgments are being foregrounded. A study that makes a closer correlation between what is happening in the design project and how judgments are being made would be worthwhile.

Judgments are Shaped Through Situational Factors

In our observations, we see how design judgments shape and are shaped by an array of situational factors to the point that they may not be separate from situational factors, such as: the design environment/office culture; the role or position of the designer; and the kind of project, client, and external constraints. In particular, we contrast this understanding with that discussed by Boling and co-authors (2011) in which a learned model of design is seen as representing the right way to design, and situational factors are seen as hindrances to that right way rather than being seen as legitimate, inextricable and inevitable aspects of design itself.

Design environment/office culture

Gabriel worked as an ID consultant within an academic institution. Within this environment, he made reference to instructional theory in his design judgments as he worked with his client—an academic—and this strategy was well received. In the decisions made, the client-ID power structure did not seem to play a part; in fact, the client valued Gabriel's judgment in deciding the inclusion of content. In the commercial ID firm, the hierarchical power structure appeared to be in play in design judgments of some participants. For example, Heather, a project manager, used her navigational judgment in determining the direction, focus and follow-up during a teleconference with the client, and another ID in the project. Norms were also an important element in design judgments. For example, we saw many design judgments made in collaboration with a team where norms, however implicit, will always be assumed to be in play. Company guidelines and principles (e.g., company philosophy, common knowledge base built up) were also referenced in the design judgments of Julia and Heather.

Role or position of the designer

Within the commercial firm, the IDs had different roles and experiences. As a relatively new ID, Emily made her design judgments in consultation with teammates, especially the senior ID, who was also her mentor. Sally, a senior ID mentor, often explained her design judgments aloud for the benefit of the mentee. She referred to a variety of documents, as well as a sophisticated issue tracker tool in her design judgments. Another senior ID, Claire was oriented toward understanding client needs in her design judgments, and took on different roles as she coordinated work within her team. We also saw strategic decisions and navigation judgments made by Adam, a high level Course Director. He was guided by his core judgment, his philosophy of being people-oriented, and knowing his team well—to find the best fit for their knowledge and skills.

Project, client, and external factors

In our observation of participant Ethan, we saw how his work was shaped by external factors like the client—his client was asking for last minute changes, and was not timely in some of the deliverables. He exercised his judgment in interpreting client requests, and communicating them to

his teammates. Heather used her navigational judgment in dealing with ill-defined requests from clients, showing skill in managing them. Gabriel exercised multiple judgments as he negotiated the details for an upcoming workshop in a symposium, as his client explained the structure and vision of the workshop. In these examples, we see the ways in which IDs and clients interacted around often-complex factors—in relation to time, amount of information, or other issues—in which there was no “best” or “right” way to react. Instead, we observed IDs making difficult decisions, which represented trade-offs in relation to the final designed intervention.

Limitations

While we consider this study to be powerfully suggestive because of its contextualized nature, we recognize its limitations. The first is scope. Our observations were captured over a period of one and one half to three hours, and were limited to each ID’s workspace. The researchers were unable to observe continuity of design judgments across a project’s lifespan, for example, or across all parties working on that project, because there was one observation per ID, and each ID was working on more than one project at a time.

Related to scope is variation in the sample; we used a sample convenient to us and amenable to our observations. Although there were a total of nine IDs included in the study, eight of them were from one commercial ID firm, and only one from an academic institution. In addition, most of the IDs were educated in the same graduate program. Consequently, we can assume that we did not observe the widest possible variation in practice. We do not seek to make generalized claims based on these two settings or on the variation between IDs, but to highlight design judgment practiced by those IDs across some variation in positions/roles, experiences, and projects.

As in any observational study, we were not immune to selecting the occasional participant who explains his practice rather than demonstrating it, as did one participant here. Recognizing this, the exclusion criteria for Phase I analysis included “meta-statements about design or design activity (i.e., all commentary that doesn’t constitute a design decision in its own right).” We did find this participant’s explanations useful, however, in Phase II and for the discussion of the study.

Lastly, Nelson and Stolterman’s (2012) philosophical framework for the discussion of design judgment was not intended to function as a fully operationalized, or even comprehensive, model of design judgment. Nevertheless, in the situation we find ourselves in as scholars, where the research-ready frameworks in our field reify a view of designing that marginalizes or excludes the very aspect we hoped to view, this framework offered the most viable structure we had available.

Implications and Conclusion

The ID field is replete with prescriptive theories and systemic process models that attempt to theorize practice, often without a rich and detailed understanding of that practice. This can be unproductive, and even detrimental to, both practice and scholarship. Such attempts tend to redefine practice via theoretical argumentation (e.g., the paradigms and ADDIE superimposed by Visscher-Voerman & Gustafson, 2004) rather than defining practice on its own terms and working toward improvement of it from that basis.

Although small in scale and exploratory in approach, this study illustrates how the sophistication and complexity of ID practice in the field are not well captured in codified models or theories, no matter how detailed those might become. Dunne (1997) defines judgment as:

an ability to recognize situations, cases or problems of this kind (which are precisely of no clear specifiable kind) and then to deal adequately (effectively, economically, elegantly) with them. A person of judgment respects the particularity or individuality of the case—and thus does not impose on it a Procrustean application of the general rule. (pp. 209-210)

Evidence from this study suggests that IDs employ multiple forms of professional design judgments throughout their projects, and that judgments were required on a continuous basis, not as one-time adjustments to a model. In this study, we see how each ID practiced design judgments shaped by the situational factors of each unique situation.

So, what are instructional designers doing in the field besides not doing what academics think they should be doing? This study suggests that they are exercising various types of judgment frequently, and doing so throughout the lifetime of a project. Those judgments are intertwined with the context of designing, are not fully determined by any rational scientific guidance, and are clearly not reported in studies that confine designers' voices to the choices offer by an *a priori* model of their work.

We looked at one facet of what a small number of IDs are doing day-to-day in the field. We hope this study may stimulate future, larger efforts to understand this, or any other, facet of that work. The landscape of potential studies is vast and varied. If future scholars are to visit, they may aim their lenses in any direction they like—we know so little about most of it that anything they focus on is going to be of interest and value.

We are particularly interested in design education. A former member of this research team has called for instructional design education to put students into more authentic situations (Korkmaz, 2014), and has also highlighted the limitations that students sense on the guidance they get from their instructors within such situations. In calling for future research, we suggest that a richer understanding of what designers do would allow for richer—responsive rather than prescriptive—guidance for these students.

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