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Documenting Instructional Design Decisions

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Instructional designers are tasked with making countless decisions in every project they complete. Questions ranging from "Who is my learning audience?" to "How will this project be evaluated for effectiveness upon implementation?" all require the instructional designer to make a variety of decisions to ensure that their instructional design efforts are contributing to efficiency, effectiveness, and ease of learning (Morrison, Ross, Kalman, & Kemp, 2013). As the utility of instructional design continues to be recognized across industries, the complexities of design will continue to grow. With more options available in terms of how instructional solutions are to be designed and disseminated to a range of different learning audiences, the complexities of design decisions facing instructional designers are insurmountable.

There is a large body of literature in other design disciplines that outline strategies for engaging in decision-making and documenting design decisions. Many of these strategies lend themselves to the ID field, particularly with working on complex, ill-structured design problems. Marston and Mistree (1997) argue the importance of decision-making in design practices stating that decisions serve as markers to identify the progress that is made on designing a solution.

The purpose of this chapter is to help instructional designers differentiate between the different types of decisions they may be responsible for during a project. Various approaches for engaging in decision-making will be discussed and tools will be provided to assist the instructional designer with documenting their design decisions.

Types of Decisions

Instructional design problems can be classified as well-structured (Jonassen, 2000). Well-structured problems typically have one possible solution, whereas ill-structured problems may have multiple solutions. Instructional designers will often find themselves tasked with designing instructional solutions for problems of an ill-structured nature. While some problems may require a quick decision by the designer, other problems may be more complex; thus, requiring several interrelated decisions (Jonassen, 2011).

Decisions can be categorized according to types such as choices, acceptances/rejections, evaluation, and constructions (Yates & Tschirhart, 2006). Choices consist of selecting an option from a large set of options. Acceptance/rejection decisions consist of a binary decision where the option (or solution) is accepted or not. Evaluative decisions involve an individual assigning worth to a possible option and determining their level of commitment if they were to proceed with that option (Fitzpatrick, Sanders,

& Worthen, 2011; Guerra-Lopez, 2008). Decisions of a more constructive nature involve trying to "identify ideal solutions given available resources (Jonassen, 2012, p. 343).

Table 1 provides an overview of their typology along with the types of decisions an instructional designer may encounter during a project.

Table 1

Decision Typologies as They Relate to Instructional Design

Type	Example of Instructional Design Decisions
Choices	An instructional designer has been asked to help a local museum with developing learning materials for their patrons. During their brainstorming meeting with the museum staff, they discuss the possibility of using audio headsets, mobile learning, QR codes, online learning modules, and face-to-face training programs as training options.
Acceptances/Rejections	An instructional designer submits a proposal to present their project at a national instructional design conference. Reviewers responsible for reading the proposal must decide to accept or reject the conference proposal.
Evaluation	An instructional design firm in a metropolitan city meets with a not-for-profit organization to discuss their training needs. During a few of the initial conversations, the firm realizes that their client would not be able to pay the typical fees they charge for their instructional design services. The CEO of the instructional design firm sees the impact that the not-for-profit has made in the local community and decides that they can offer a few of their services pro bono.
Constructions	An instructional design program discusses the options for offering two special topics courses to their students in the upcoming year. Program faculty discuss possible topics and discuss which ones might be of the most interest to their students. During their discussions, they identify potential instructors for the courses and look to see how this might impact regular course offerings and instructor assignments.

Jonassen (2012) suggests that decisions fall under two models of decision-making: normative and naturalistic. Normative models involve an individual evaluating the situation and considering several options before deciding on a solution that yields the optimal solution given any constraints or resources related to the situation. He further categorizes normative models of decision-making as falling into three categories (rational choice, cost-benefit, and risk assessment).

Rational choice models involve the instructional designer evaluating alternative options for addressing a problem and weighing the option to determine what is the most viable of the solutions. Oftentimes, the instructional designer will evaluate the strengths and weaknesses of each solution using decision-making tools such as SWOT or force field analyses. A cost-benefit analysis seeks to select solutions based on the potential for their return-on-investment. There may be instances where it is worth foregoing training if an organization cannot justify incurring the costs associated with training. A risk assessment model is when an instructional designer will evaluate the risks associated with not proceeding with a particular solution.

Naturalistic models are suggested to assist in the decision-making process when decisions are more contextually-embedded. These models "stress the role of identity and unconscious emotions in

decision-making" (Jonassen, 2012, p. 348). Narrative-based models place value on the explanations that accompany the various decision options. More emphasis is placed on the explanation rather than the cost-benefit analysis associated with a particular solution. Identify-based decisions are centered around how any individual relates to solutions on a personal level. Table 2 provides examples of instructional design decisions that may fall under normative or naturalistic decision-making models.

Table 2

Examples of Normative and Naturalistic Instructional Design Decisions

Type of Decision-Making	Model	Examples in Relation to Instructional Design
Normative Decision-Making	Rational choice	A manufacturing company is looking to conduct Kaizen events as a means to create a lean manufacturing environment. To date, there have been many issues reported and logged by employees related to inefficiencies related to production. The manufacturing supervisors and the director of continuous improvement meet to rank the performance issues. They will begin by developing training and Kaizen events around the top three issues that have been prioritized by the team.
	Cost-benefit analysis	A call center is interested in investing in the development of new training modules to assist their call attendants on strategies to troubleshoot common calls they have been receiving about new products. Investing in training has the potential to reduce each customer call by five minutes.
	Risk assessment	A local hospital has sought input from its training department to explore whether training is needed regarding patient safety for their volunteers. The organization is looking at what the cost would be to host training sessions every month with incoming volunteers versus the risks of not training them on patient safety practices.
Naturalistic Decision-Making	Narrative-based	A sociology department at a research-intensive university is meeting to discuss if there is a need to modify and update their curriculum for their graduate programs. A faculty member has mentioned to the group that they do not believe the existing curriculum places enough emphasis on vulnerable populations. As they talk during the meeting, they keep referring to some existing students and asking the program faculty to consider what they would do if they were these students.
	Identity-based	The curriculum committee at a medical school is discussing options for offering graduate certificates in Patient Safety and Quality or Global Health in addition to their medical degree programs. Three of the members on the curriculum committee participated in global health trips during their medical training and recall it being a very engaging experience. They are more inclined to support the certificate in global health because they identify with that program on a personal level.

Normative Decision-Making Example: An Accident Occurs on the Plant Floor

Mike is an instructional designer who works in the Department of Employee Development for an automotive aftermarket manufacturer. Over the weekend, an employee had a fatal accident operating a piece of machinery during the night shift. Mike and his supervisor have been included in meetings to explore whether modifications are needed to the company's existing health and safety modules.

It is most likely that Mike and his supervisor will employ a normative approach to decision-making by conducting a risk assessment to determine the need for updating existing modules or developing new courses. The following are examples of some questions that Mike may ask during his meeting with the organizational leadership:

- How many accidents have occurred on the plant floor in the past year?
- How many of these accidents were related to the particular machine?
- What training had the injured employee received before operating the machinery?
- Are safety practices related to the machine covered in the existing health and safety training modules?

Application Exercises

Make a list of all of the potential options you might consider if you were to assist Mike with the project.

Naturalistic Decision-Making Example: Transitioning Human Resource Mandatory Training

Angela has recently been hired as an instructional designer and trainer in support of employee development initiatives for a local hospital. In a recent meeting that was held with managers in human resources, there was a discussion about whether mandatory training courses should be offered in an online format. At her previous organization, Angela remembers that there were a lot of issues with transferring courses to an online format and she wonders if the employee development team has the necessary manpower and resources to support these modules.

Application Exercises

How might Angela's previous employment experience influence her position during this discussion about offering online training modules?

Fostering the Development of Instructional Design Decision-Making

Several studies have been conducted exploring the development of instructional designers' design judgment (Demiral-Uzan, 2015; Gray et al., 2015; Honebein, 2017; Korkmaz & Boling, 2014). These

studies have explored how instructional designers engage in making decisions based on resources available in real-world settings. The results of these studies have supported the idea that instructional design is not limited to a linear approach for designing and developing instructional solutions; it is complex, and heavily influenced by contextual factors that are uniquely situated in relation to the project goals.

Other studies have sought to explore the role of experience and instructional designers' abilities to make decisions. There are several differences inherent in terms of how novice instructional designers engage in decision-making compared to experts (Ertmer et al., 2008, 2009; Hoard, Stefaniak, Baaki, & Draper, 2019; Perez & Emery, 1995; Stefaniak, Baaki, Hoard, & Stapleton, 2018). Novice instructional designers are more apt to rely on instructional design models to guide their design process in a linear fashion whereas expert designers design in a more recursive manner. Several of the abovementioned studies also reported that novices tend to revert back to instructional design solutions they have used in previous projects; experts are more prone to customize solutions to meet the unique needs of their learning audience.

Several researchers in the instructional design field have suggested that an apprentice model can be beneficial to novice instructional design students as they are acquiring and developing design skills. The use of a cognitive apprenticeship provides a framework for instructors and expert instructional designers to model behavior and design practices in addition to providing the necessary instructional scaffolding to support instructional designers as they engage in design decision-making (Bannan-Ritland, 2001; Ertmer & Cennamo, 1995, Moallem, 1998; Shambaugh & Magliaro, 2001; Stefaniak, 2017)

Tools to Facilitate and Log Decision-Making During the Design Phase of Instruction

Instructional design is an iterative and recursive process that requires the instructional designer to continuously monitor and revisit their designs to ensure alignment between instructional components from conception to implementation. Table 3 provides an overview of various tools that an instructional designer can utilize throughout their design process to log and reflect upon their instructional design decisions. Also, examples of studies and resources that discuss the use of these tools in detail are included in the table.

Table 3

Overview of Tools to Assist Instructional Designers with Logging Decisions

Tool	Description	Examples of Studies and Uses
Design documents	A document that serves as a blueprint for the entire instructional project. This document typically includes information related to course goals, learning objectives, instructional strategies, assessments, project timelines, and budgets.	Boot, Nelson, van Merrienboer, and Gibbons (2007) Martin (2011) Piskurich (2015)
External representations	The knowledge and structure in the environment, as physical symbols, objects, or dimensions (e.g., written symbols, beads of abacuses, dimensions of a graph, etc.), and as external rules, constraints, or relations embedded in physical configurations (e.g., spatial relations of written digits, visual and spatial layouts of diagrams, physical constraints in abacuses, etc.)" (Zhang, 1997, p. 180).	Baaki and Luo (2019) Boling and Gray (2015) Fischer and Mandl (2005) Huybrechts, Schoffelen, Schepers, and Braspenning (2012) Luo and Baaki (2019) Verschaffel, de Corte, de Jong, and Elen (2010) Yanchar, South, Williams, Allen, and Wilson (2010)
Group repositories	Space where an instructional design team can track the progress of a project and share notes. This space is typically housed by an online platform.	Gustafson (2002) Spector (2002) Stefaniak, Maddrell, Earnshaw, and Hale (2018) Van Rooij (2010)
Rapid Prototyping	An instructional design approach that is used to create a sample of an instructional design product that is scalable according to the needs of the project. Rapid prototyping allows instructional designs to combine multiple phases of the instructional design process to facilitate discussions and decisions about results.	Roytek (2010) Tripp & Bichelmeyer (1990) York and Ertmer (2011)
Reflection journals	A journal where an instructional designer can log any ideas they might help, reactions to different phases of the instructional design process, or notes that might be beneficial for a future project. The use of a journal helps an instructional designer keep track of their thoughts and ideas that might not be suitable to be documented in a design document while still promoting a reflection-in-action mindset (Schon, 1983).	Baaki, Tracey, and Hutchinson (2017) Bannan-Ritland (2001) Gray et al. (2015) Luppicini (2003) Moallem (1998) Tracey and Hutchinson (2013) Young (2008)

Conclusion

While decision-making is recognized as a common form of problem-solving in instructional design practices, Jonassen (2012) contends that there is a need for empirical research to assess decision-making in our field. To date, there is a growing body of literature exploring the decision-making

practices of instructional designers; however, we, as a field, have just begun to skim the surface. More studies are needed to explore the types and quality of decisions made by instructional designers of all levels in a variety of contexts. We know that contextual factors contribute to or hinder the effectiveness of instructional designers' final designs (Morrison et al., 2013; Smith & Ragan, 2005). Researchers have criticized that the role of context continues to be an aspect of design that still warrants further explanation and understanding (Tessmer, 1990; Tessmer & Wedman, 1995). This continues to be an issue facing our field. Additional studies on factors influencing instructional designers' abilities to engage in decision-making will better equip our field to prepare the future of instructional design (Ertmer et al., 2009; Jonassen, 2008; Stefaniak et al., 2018; Tracey & Boling, 2014).

In the meantime, instructional designers can continue to focus on cultivating their designer identity (Tracey & Hutchinson, 2016, 2018) by documenting their thoughts and making use of the tools mentioned in this chapter to track their design decisions during projects. Over time, the aspiring instructional designer will begin to identify patterns in terms of how they approach various types of design problems, identify and utilize design resources and space, and articulate their rationale to fellow designers and clients. This continual practice of design documentation will serve the field well by informing both theory and practice.

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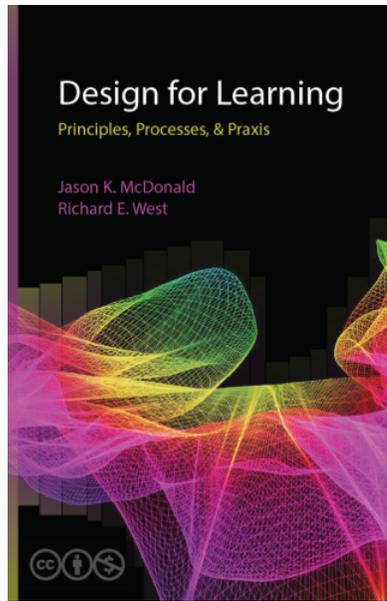
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