

Determining Environmental and Contextual Needs

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Because instructional design emphasizes facilitating learning and improving performance, instructional designers must begin by acquiring necessary information about their learners' educational journeys. Needs assessment can assist instructional designers to make recommendations and design appropriate solutions (both instructional and non-instructional solutions) that will assist their learners in translating what is taught to their successful implementation.

The purpose of a needs assessment is to identify the gap between the current state of performance and the desired state of performance (Altschuld & Kumar, 2010). This gap in performance is what then becomes the need. While needs assessment can be a powerful and informative tool, the instructional designer cannot get lost in analysis and delay their design work (Stefaniak, Baaki, Hoard, & Stapleton, 2018). They need to be able to work within the scope of their design space, rely on the resources they have available to them, and make decisions to the best of their knowledge.

This chapter will address how validating needs and contextual factors influencing learner performance can be accounted for in instructional design to ensure the transfer of learning in real-world contexts. It will also demonstrate how information gathered from needs assessment can be leveraged to identify and develop the necessary scaffolds to manage the learning experience.

Exploring the Intersection Between Needs Assessment, Needs Analysis, and Instructional Design

Richey, Klein, and Tracey (2011) defined instructional design as "the science and art of creating detailed specifications for the development, evaluation, and maintenance of situations which facilitate learning and performance" (p. 3). If we were to dissect this definition, I would point out that instructional designers are responsible for the following: (1) *creating detailed specifications*; (2) *conducting evaluations*; and (3) *maintaining of situations that facilitate learning and performance*.

The information that a needs assessment yields provides the details and specifications needed for an instructional designer to create an instructional product that is customized and accounts for the unique needs of the learning audience. It also provides benchmark data regarding the current level of performance (or situation) that the instructional designer and their team can evaluate and compare after instructional interventions have been designed and implemented. Instructional designers and the team members will also be better positioned to monitor the instructional delivery and transfer of knowledge to the job or desired application if they have been presented with sufficient data concerning these phases.

It is important to differentiate between needs assessment and needs analysis as they are not synonymous with one another but are often used interchangeably. **Needs assessment** is the process of gathering information to determine whether there is a gap between the current state and the desired state. This gap yields *the need*. **Needs analysis** is the

process of further investigating the situation to understand why this gap exists in the first place. The data that is gathered during the needs assessment is analyzed to determine what is contributing to or causing the gap (Kaufman & Guerra-Lopez, 2013).

Needs assessment and needs analysis provide an opportunity for an instructional designer to develop instructional materials that can have a meaningful impact on their learning audience. In more cases than not, when instructional designers are brought onto a project, the solution (need) has already been decided:

- We *need* to design an online degree program
- We *need* to design a safety course for incoming employees
- We *need* to design a team training course for the hospital staff

If you look closely, you will see that each of the above-mentioned statements contained the word *need*. Whether it is your client or a supervisor, the need has already been decided. Another caveat is that there are a lot of times where the need has been decided with no needs assessment ever having been conducted (Peterson & Peterson, 2004).

Oftentimes when this occurs, the instructional designer begins work on their tasks only to find that they have a lot of unanswered questions:

- Why are the learners experiencing this problem?
- How will they use the instruction after training takes place?
- How will we know if they are implementing what they have learned in their actual jobs?
- How do we know that the instruction we have designed is doing what it was meant to do?
- Has the organization tried this type of instructional method in the past?
- What is the rationale for proposing online instruction?
- Are we sure that instruction is going to solve the problem?
- Is there a subject matter expert that we can speak with to provide some more guidance on what the learners need?

All of these questions are very specific and unique to the learning audience of a project. Some of these questions may be related to the instructional environment while others may be looking ahead to how learners will be expected to transfer this knowledge to a real-world setting (i.e. the classroom, a job).

Regardless of what needs assessment model may be referenced, a typical assessment will consist of five-steps: problem identification, identification of data sources, data collection, data analysis, and recommendations. Table 1 provides an overview of each of these steps. While these steps are usually completed linearly, the individual who is conducting the needs assessment needs to continue to modify the problem and identify additional data sources as more information is uncovered during the assessment. With that in mind, the needs assessment process is very similar to the instructional design process in that both processes are recursive.

Table 1

Overview of Needs Assessment Process

Needs Assessment	
Step	Description
Identification of Problem	This step is typically completed in consult with a client (or the individual(s)) requesting instructional design services. During this phase, the purpose of the needs assessment (the problem) is identified for the instructional designer to begin gathering data to address the gap in performance.
Identification of Data Sources	Once the problem to be explored has been identified, instructional designers must identify data sources that will help them better understand the situation. Instructional designers must gather data that will help them explore the situation from multiple angles. Examples of data

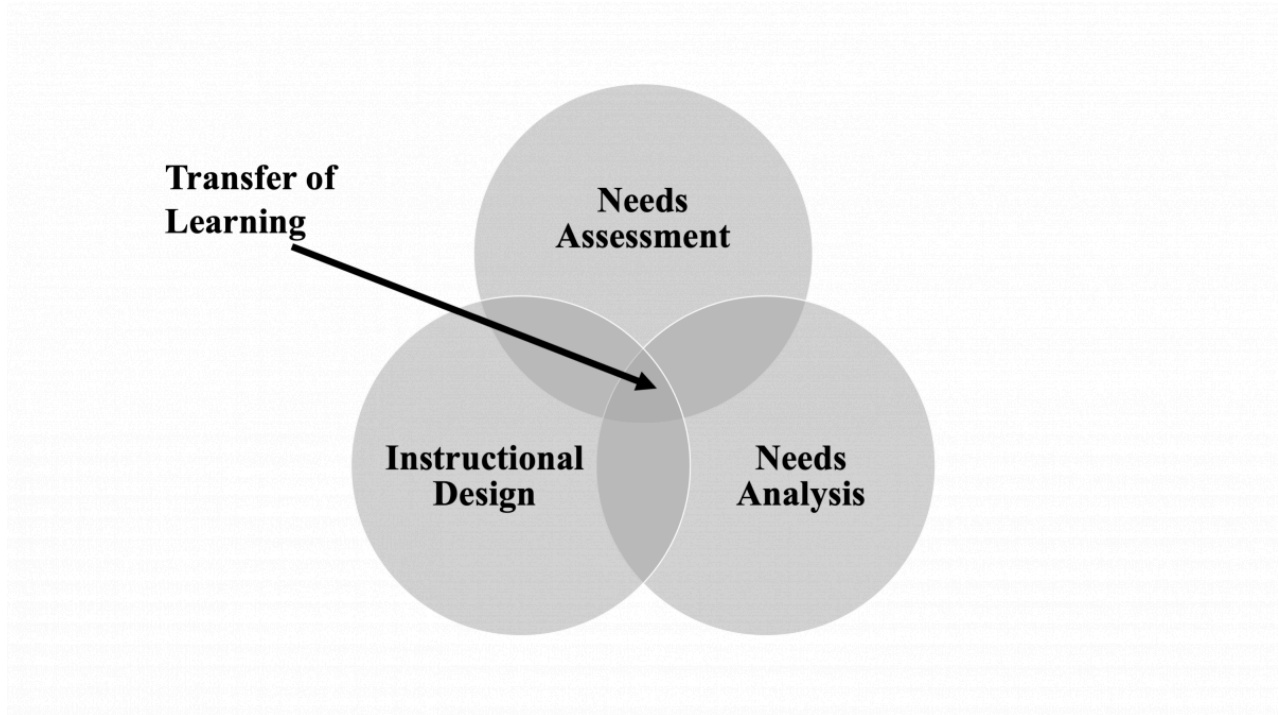
Needs Assessment	
Step	Description
	sources include, but are not limited to, task analyses, direct observations, focus groups, interviews, document analysis, reviews of existing work products, and surveys.
Data Collection	This phase involves the instructional designer gathering data based on the data sources that were identified in the previous step.
Data Analysis	Once data collection is complete, the instructional designer begins to analyze all data to identify patterns and factors contributing to the problem identified at the beginning of the assessment. Depending on the findings from the data collection and analysis phases, the problem may be modified to be more consistent with the actual situation as depicted by the data.
Recommendations	Upon identifying patterns contributing to the problem, the instructional designer makes a list of recommendations to present to their client. These recommendations are typically prioritized according to the severity of need and level of urgency.

Figure 1 provides an overview of how needs assessment and needs analysis can help leverage instructional design practices to support the transfer of learning. Conducting a needs assessment provides the instructional designer with the opportunity to contextualize their project. It provides them with an opportunity to gain insight into things they should include in their designs, as well as things they should consider to avoid. Regardless of the situation, a needs assessment will help an instructional designer identify or verify the project needs. This is especially helpful when the needs have already been identified without the guidance of a needs assessment.

Needs analysis also aids the instructional designer by providing some context as to why these needs exist in the first place. If learners are facing recurring challenges completing a particular task, instructional designers should understand the causes so that they can account for these issues in their designs. By developing a better understanding of factors that contribute to or inhibit the transfer of learning, instructional designers will be able to develop a more realistic approach to the instructional solution. It will also provide them with the opportunity to determine if certain non-instructional interventions are needed to support the transfer of learning.

Figure 1

The Relationship Between Needs Assessment, Needs Analysis, and Instructional Design

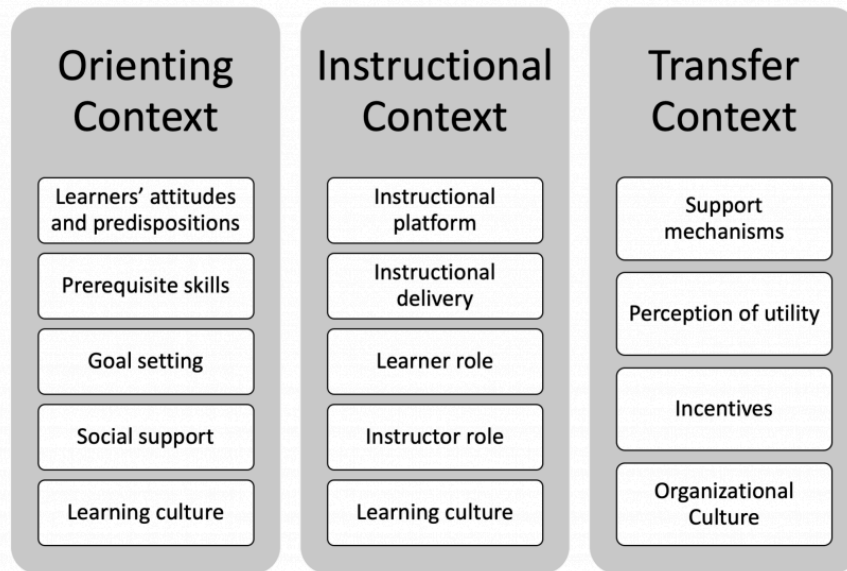


The Role of Context in Needs Assessment

Needs assessment is recognized as being an important component of the instructional design process (Dick, Carey, & Carey, 2009, Morrison, Ross, Kalman, & Kemp, 2013; Smith & Ragan, 2005; Cennamo & Kalk, 2019); however, it often tends to be minimized to focus more on learner analysis. Contextual analysis is also a term that is used synonymously with needs assessment in a lot of instructional design literature. A seminal piece written by Tessmer and Richey (1997) suggested that contextual analysis should account for factors influencing performance in the orienting, instructional, and transfer contexts. Figure 2 provides an overview of the more common factors that influence each of these contexts. Tips for how to address these three contexts will be discussed further in this chapter. By addressing these factors in instructional design practices, designers put themselves in a better position to design experiences that were relevant to the learning audience.

Figure 2

Common Contextual Factors Influencing Instructional Design Adapted from Tessmer & Richey (1997)



While contextual analysis aims at understanding the learner's work practice, needs assessment further delves into identifying, classifying, and validating the needs of users as they pertain to the context (environment). It is imperative that a designer fully understand the intricacies and nuances of the context (environment) so that they can design a prototype that addresses particular contextual factors that may support or inhibit the transfer of learning into the real-world environment (Smith & Ragan, 2005). These factors, both good and bad, ultimately influence the instructional designer's design.

While there are different types of analyses that an instructional designer may be required to employ during a project, it is important to recognize that while they are all different, they are not mutually exclusive. While each has different foci, all of these foci fall under the needs assessment umbrella.

Table 2

Overview of Analyses an Instructional Designer May Utilize to Inform Their Design

Method of Analysis	Description	Resources and Studies for References
Needs Analysis	Analysis that occurs after a needs assessment has been conducted to understand the root causes contributing to a problem.	Brown (2002)Crompton, Olszewski, and Bielefeldt (2016)Dick and Carey (1977)Stefaniak et al. (2018)Stefaniak, Mi, and Afonso (2015)

Method of Analysis	Description	Resources and Studies for References
Contextual Analysis	The process of analyzing factors that may contribute to or inhibit knowledge acquisition and transfer of learning.	Arias and Clark (2004)Morrison, Ross, and Baldwin (1992)Perkins (2009)Tessmer and Wedman (1995)
Environmental Analysis	The process of focusing on the impact that the learner may have on the environment outside of the organization such as customers, competitors, industry, and society.	Lowyck, Elen, and Clarebout (2004)Marker (2007)Rothwell (2005)Tessmer (1990)
Learner Analysis	The process of capturing an in-depth understanding of an instructional designer’s learning audience. Demographic data, prerequisite skills, and attitudinal information are typically gathered to inform the instructional designer.	Baaki et al. (2017)Dudek and Heiser (2017)Öztok (2016)Stefaniak and Baaki (2013)van Rooij, S. W. (2012)
Task Analysis	The process of conducting direct observations of individuals performing job-related tasks and documenting in a step-by-step fashion. Task analyses are done to help instructional designers design instruction that is aligned with how the job will be performed in a real-world setting.	Jonassen, Tessmer, and Hannum (1998)Militelto and Hutton (1998)Schraagen, Chipman, and Shalin (2000)

Table 2 provides an overview of the various types of analyses that may be used. Examples of instructional design studies that have explored these topics in more detail are also included for reference. A commonality among all of these analyses is that they typically involve collecting data from multiple sources to gain a better understanding of the situation. Out of all of the analyses listed in Table 2, needs assessment is most often the most time-consuming because it requires instructional designers to identify appropriate data sources, collect data, conduct data analysis, and consult with their client on recommendations for moving forward. Direct observations, document analysis, interviews,

focus groups, and surveys are all examples of the types of data collection tools an instructional designer may utilize when conducting an analysis.

The use of the above-mentioned data sources has been used to inform the development of learner personas in instructional design (Anvari & Tran, 2013; Avgerinou & Andersson, 2007; Baaki, Maddrell, & Stauffer, 2017; van Rooij, 2012). With more emphasis being placed on user experience design practices, more attention is being placed on *who* our learners are as opposed to generalizing the learning audience. Learner analyses and contextual analyses are complementary in that both yield data that will inform the other. Environmental analyses add an additional layer by focusing on the impact that the learner may have on the environment outside of the organization such as customers, competitors, industry, and society (Rothwell, 2005).

The Reality of Instructional Design Work and Needs Assessment

While I would love to see every instructional designer be an advocate for needs assessment and push back when clients or supervisors present need statements with no assessment validating that the identified needs warrant instruction, the reality is that most instructional designers will have a hard time arguing the need to pause a project and conduct a thorough needs assessment (Hoard, Stefaniak, Baaki, & Draper, 2019; Stefaniak et al., 2018). Needs assessments *are* conducted; but often because the client has recognized the importance of needs assessment before approaching an instructional designer to work on a project. It is also important to note that a needs assessment is only as good as the data that is collected.

Table 3

Needs Statements and Further Inquiries

Client Need Statements	Instructional Designer Inquiries
We <i>need</i> to design an online degree program.	How are courses currently being offered?What is the market for online instruction? What is the rationale for moving towards the development of an online degree?
We <i>need</i> a new learning management system.	How are training materials currently being stored?What features are used in the existing LMS?What features are needed?How are the instructors and students currently using the LMS?
We <i>need</i> to design a safety course for incoming employees.	What do incoming employees need to know about safety upon starting a new job?What incident(s) occurred that suggests there is an immediate need to create a safety course?What other training courses are incoming employees expected to complete?

What does this mean for the instructional designer? Recognizing that the absence of a thorough needs assessment is a common issue in our field, there are strategies that instructional designers can employ to gather additional data and information relevant to the project they have been assigned.

If a client has decided to conduct a needs assessment, it is important for the instructional designer to participate in framing the needs by asking appropriate questions. Table 3 provides an overview of examples of needs statements and questions an instructional designer can ask to gain further clarification of the situation. Like most projects, there are varying degrees of complexity an instructional designer can delve into when addressing needs assessment (Rossett, 1999). The amount of time and resources that an instructional designer can apply towards gathering additional data for a project will ultimately determine the scalability of the level of analysis that is completed (Stefaniak, 2018; Tessmer, 1990).

Just because a client or a supervisor may not allocate the time or funding needed to support a needs assessment, that does not mean that the instructional designer has to abandon the idea altogether. At the very least, there are key components that an instructional designer should address during an initial intake meeting with the client or kick-off meeting with the instructional design team. Table 4 provides examples of different steps instructional designers can take if they were to scale a needs assessment project.

Table 4

Scalability of Instructional Design Needs Assessments

Level of Scale	Tasks
Low (1–2 weeks)	<ul style="list-style-type: none"> Review existing training materials. Review documents explaining job processes. Meet with a subject matter expert (in the organization) to provide guidance on content that should be emphasized in the instructional product. Obtain an overview of the learning audience by the client.
Medium (1 month)	<ul style="list-style-type: none"> Review existing training materials. Conduct observations of employees performing job tasks. Update existing task analyses. Meet with individuals that represent multiple levels of authority within the organization related to the instructional project. Obtain an overview of the learning audience by the client.
High (several months)	<ul style="list-style-type: none"> Review existing training materials. Review strategic planning documents. Meet with individuals that represent multiple levels of authority within the organization. Conduct observations of employees performing job tasks. Update existing task analyses. Conduct interviews and/or focus groups to understand factors that are inhibiting the transfer of learning. Triangulate information from multiple sources to understand patterns contributing to or inhibiting employee/learner performance on the job.

Table 5 provides an example of a form that instructional designers can use to gather the data they need to ensure their instructional design work is contextually relevant to the learners’ needs. This form is not meant to be an exhaustive list of questions instructional designers should ask at the beginning of a project; rather, it is intended to help instructional designers spark conversation with their client about the contextual factors and needs of the project that should be addressed throughout the design. Depending on the information provided in the intake form, instructional designers will decide whether a detailed task analysis is required to understand specific tasks expected of the learning audience.

Table 5

An Example of an Instructional Design Intake Form

INSTRUCTIONAL DESIGN PROJECT INTAKE FORM	
Date:	Client:

INSTRUCTIONAL DESIGN PROJECT INTAKE FORM

Instructional Designer:

Project Name:

PROJECT OVERVIEW

1. What is the purpose of the project (instructional need)?
2. What is the scope of the project?
3. Learning platform (i.e., face-to-face, blended, online)
4. Overarching course goal
5. Learning objectives
6. What level of importance is the training? (i.e., severe, moderate, mild)

LEARNING AUDIENCE

1. Who is the intended learning audience?
2. What are the learners' experiences with the project topic?
3. What challenges do learners typically experience with this topic?
4. What are the learners' overall attitudes toward training?
5. What information will the instructional designer have access to regarding the learning audience? (i.e., job observations, meetings with learners, work products, interviews, etc.)

INSTRUCTIONAL ENVIRONMENT

1. How will the instruction be delivered?
2. How will learners access the material?
3. What is the length of the course?
4. What are the learners' roles during instruction?
5. What is the instructor's role during instruction?
6. What types of assessment need to be included in the instruction?

TRANSFER (APPLICATION CONTEXT)

1. How soon after the training will learners apply their newly acquired skills?
2. What are the anticipated challenges with applying these new skills in a real-world environment?
3. What resources are available to support learners during this transfer phase (i.e., job aids)?
4. Who is responsible for monitoring learners with transference?

EVALUATION

1. How and when will the instructional training be evaluated for effectiveness?
2. Who will be responsible for conducting an evaluation?
3. What methods of evaluation will be used to determine the efficiency and effectiveness of the instruction?

OTHER COMMENTS

Conclusion

To adhere to Richey et al.'s (2011) definition of instructional design encompassing the facilitation of learning, instructional designers must task themselves with gathering as much information as they can to understand the contexts that their learners will experience (i.e. the learning and transfer contexts). Not only is it necessary for the instructional designer to understand the instructional environment, but they must also have insight into how their learners will apply the knowledge obtained from instruction and apply it to a real-world setting. The purpose of this chapter is to provide instructional designers with an introduction to the potential that needs assessment offers instructional designers and provide some strategies and tools that can be applied to an instructional design project regardless of the context.

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