

Conducting a Learner Analysis

José Fulgencio & Tataleni I. Asino

As mentioned at the outset: designing a course that best fits the needs of learners requires both an understanding of who the learners are, as well as actual efforts to evaluate and understand their needs. The chapter reviewed both conceptual issues that concern learner analysis as well as practical approaches you can use to analyze actual learner needs.

Because of this, learner analysis is an important aspect of the instructional design process. It is important to remember that learners are not empty containers in which knowledge can simply be poured. They have experiences through which they understand the world and through which they will understand or evaluate the instruction. In this way, learning is a process that involves change in knowledge; it is not something that is done to learners but instead something that learners do themselves (Ambrose et al., 2010). Hence, “consideration of the learners’ prior knowledge, abilities, points of view, and perceived needs are an important part of a learner analysis process” (Brown & Green, 2015, p.73).

Although various scholars may use different verbiage, broadly, a learner analysis can be understood as the process of identifying critical aspects of the learner, including demographics, prior knowledge, and social needs (Adams Becker et al., 2014), and “is characterized as an iterative process that informs vital instructional design decisions from front-end analysis to evaluation” (Saxena, 2011, p. 94) by customizing the instruction to the previous knowledge of each individual learner so that the learner controls their own learning and has a deeper understanding of the classroom material (Reigeluth & Carr-Chellman, 2009). For example, an instructor teaching a biology master’s program can expect learners to have a solid foundational knowledge of biology. At an undergraduate level however, the instructor may expect students to have a somewhat limited understanding of biology. The instructor will also have to take into consideration the learner group characteristics such as first-generation students, international students, adult learners, and learners with accessibility needs (e.g. requiring note-taking accommodations and extra time on exams), all of which may influence teaching of content, distribution of content, and pace of content distribution in the classroom. Another characteristic is the learning preferences within the group of learners, such as whether they prefer and respond better to small group learning, hands-on experiences, or case studies.

Much has been written about learner analysis, in terms of definition and the process by which it can be accomplished. However, regardless of the definition advanced, what is important to discern is that through a learner analysis, the learner contributes to the instructional design of the course and miscommunications between the learner, instructor, and course goals are identified (Adams Becker, 2014; Dick et al., 2009; Jonassen et al., 1999; Fink, 2013). A learner analysis ensures that the learner benefits from a productive learning environment that can leave a lasting impact on their lifelong learning (Adams Becker et al., 2014; Dick et al., 2009; Jonassen et al., 1999; Fink, 2013).

The focus of this chapter is on how to conduct a learner analysis. This process often includes identifying learners’ characteristics, their prior knowledge, and their demographics, all of which are key factors to consider when designing a learning environment (Adams Becker et al., 2014; Dick et al., 2009; Jonassen et al., 1999; Fink, 2013). Demographics include the environment in which the learner lives and works, ethnicity, accessibility to technology, and educational background. Other factors—such as motivation, personal learning style, and access to content—also play a role in how individuals learn (Adams Becker et al., 2014; Dick et al., 2009; Jonassen et al., 1999; Fink, 2013).

The chapter begins with explaining the components of a learner analysis, describing reasons for a learner analysis, and providing a learner analysis worksheet. The next section of the chapter explains an area that the authors believe is often not discussed when writing about learner analysis: the ethics of working with learners, developing personas, and experience mapping. The last section of the chapter includes a learner analysis design project to enable the reader to put into practice some of what is covered in the chapter.

Components of a Learner Analysis

When designing learning environments, there needs to be a birds-eye view of the entire process from who the learner is, the environment, background of the learner, and the goal of the learning environment. An educator cannot make assumptions about learners based on the educator's experience. The following are key factors of the learner analysis to consider.

1. Learner Characteristics

Understanding the characteristics of learners can help shape the design of the course. For example, if your class is an executive-level course for Fortune 500 high-level officers, you may expect learners with professional experience, and who have different goals for learning and their careers, which is different from a class of undergraduate students who have little to no work experience.

In examining factors of learner characteristics, these are key questions to think about (Adams Becker et al., 2014; Dick et al., 2009; Jonassen et al., 1999; Fink, 2013):

- Who are the learners?
- What personal characteristics do these learners possess?
- What are the dimensions of the learner?
- What contributes to the reason for learning about the topic?
- What is the reason for enrolling in the course?
- What are the student's learning styles?
- What is it about the topic that motivates the learner?

2. Prior Knowledge

Time is a finite resource for most people, so instructional time should not be wasted covering material that learners already know, but instead building on their prior knowledge. Students' prior knowledge influences how they interpret and filter new information given in the classroom (Ambrose et al., 2010; Cordova et al., 2014; Dochy et al., 2002; Umanath & Marsh, 2014).

In examining factors of prior knowledge, there are key questions to think about:

- What do learners already know?
- How might this information contribute to the content and order of what you teach?

3. Demographics

Understanding who the learners are and their demographics can directly impact the instructional material. It is important, for example, not to include instructional material that may be culturally insensitive or that has no connection to students. This is particularly important when using media such as film that could be considered historic to one group and offensive to another. Culture is integral to learning and plays a central role in "determining the learning preferences, styles, approaches and experiences of learners" (Young 2014, p. 350). It is worth noting that culture can also relate to organisational cultures. For example, using learning materials or illustrations that promote collaboration amongst employees in an organization that does not have or prioritize such a practice, may run contrary to the typically established culture.

In examining factors of demographics, key questions to think about are:

- Where are the learners coming from in terms of their education level, ethnicity, demographic, hobbies, area of study, grade level?
- Why are these demographics important for the material you will be teaching?

4. Access to Technology

In education, it is important to make sure that all learners have access to the educational material. As technology becomes a necessity to participate in learning opportunities, it is also important to gauge whether or not students have access to technology. Material should be flexible, but you can imagine if you are assigning work through an app that is only available for Apple devices, how this can affect learners who own Android phones. Thus, make sure that throughout the course, educational material is universally accessible.

Sometimes issues of access can be tricky or surprising. For example, if there is only one computer, or limited internet bandwidth, but two parents and two children all need to access it for their job or homework, then there is not sufficient access. Similarly, the computer or internet access may be too old to play the instructional multimedia in a module. Thus, it is important to look beyond the statistics to truly understand the level of access.

In examining factors of access, key questions to think about are:

- How accessible is technology to every learner in my class?
- Are learning materials universally accessible for individuals with disabilities?
- If access is not universal, how can I adapt my course curriculum to include all learners?

Put Your Skills to Use: The Learner Analysis Worksheet

When conducting a learner analysis, a collection of learner information will help develop a positive learning environment. The Learner Analysis Worksheet below is one way to collect and record key factors and general information about the learners, using information available from student enrollment data. This worksheet can be adapted for designing instruction for various learning environments. Student information is often provided when a student enrolls, and academic advisors or student enrollment professionals may also be able to share this information with you. Another way to gather demographic information is to speak with the colleagues in your department. Who are the students who usually register for this course?

For example, a community college will have higher enrollment of non-traditional and first-generation students who are older than 25 and who are full-time workers compared to the conventional student body of 18 to 22-year-olds at a traditional institution who are part-time workers. The more information you can gather for the Learner Analysis Worksheet in Table 1, the more equipped you will be in designing the best learning environment for your learners.

Table 1

Learner Analysis Worksheet

Demographic Characteristics	Learner Details
Size of target audience	
Are there any subgroups that may participate?	
Age ranges	

Educational/grade level, or academic program year. How long have they been out of an educational setting?
Gender breakdown
Cultural backgrounds
Primary language
Employment status
Socioeconomic status
Traditional/non-traditional/first generation learners?
Geographic location(s)
Internet connectivity?
Access to technology?

Note. Adapted from https://en.wikiversity.org/wiki/Instructional_design/Learner_analysis/what_when_why

Ethics of Working With Learners

There is now an ever-increasing amount of information on students available on the internet broadly, and specifically through learning management systems and social media that institutions and designers can access. Data on learners includes but is not limited to: personal information, enrollment information, academic information, and other data collected by educational institutions. What was once kept private between the learner and institution on paper can no longer be assumed as safe. Records which are now held in digital format are vulnerable to hackers and are enticing to outside agencies that are seeking to monetize the data. How, then, do institutions assure ethical use of learners' data that may be needed or used for learner analysis? How much data is reasonable to share? If institutions are asking learners to be ethical in their academic assignments, shouldn't institutions do the same when it comes to working with learners? This section covers professional expectations regarding ethical conduct towards learners.

Professional Expectations

In the context of conducting a learner analysis, a professional is expected to be “committed to the needs and best interests of their clients who are basically their learners” (Wainaina et al., 2015, p. 68). There are various code of conducts from which one can draw guidance for ethical practice as most professional organizations have codes of conduct or ethics. An example is the Association of Educational and Communication Technology (AECT), which is available at (<https://edtechbooks.org/-RXIX>) and aims to aid all members of AECT both individually and collectively in maintaining a high level of professional conduct. However, it is critical to know that just because one adheres to a code of ethics, it does not mean there will never be conflict. What is unfortunately inherent in all human relationships is a level of conflict, even when one has good intentions. So the question then is what happens when conflicts or perceived ethical violation occurs especially when a designer is engaged in collecting data needed for learner analysis? There are various approaches, but here we suggest the following ethical framework developed by Mathur and Corley (2014) which suggests considerations and questions to ask:

- Fact-finding – Most conflicts are related to communication or lack thereof. Hence one of the first steps is to engage in fact-finding exercises. What are the facts? What is known and what is not known?
- Who is involved – who are the people that care about this case or incident? What has been (mis)communicated? Who are the individuals involved?
- What is the conflict? – Is the conflict about the frameworks being used? If so, what are those frameworks and what is conflicting? If the conflicts concern the values, morals, or policies, establish what those are and what needs to be adhered to.
- Potential consequences to actions – What are some of the possible consequences for any actions taken to solve the dilemma? How would the people involved like to be treated? What is the role of the designer in solving the conflict (whether or not the designer is involved in causing this conflict)?
- Reflection – Lastly, reflect on the actions taken. What are the repercussions, if any, to the actions taken from the difficulty?

Educators have a responsibility entrusted upon them when educating learners. The duties include but are not limited to, creating a safe environment and being professional not just in virtual space but also in digital space. When educators neglect their responsibility to be professional and ethical (an expectation that we often have for students), this can be detrimental to learners.

Developing Personas in Learner Analysis

It is often stated that if you want to know a person, you must walk in their shoes. This idiom captures the goal of a learner analysis by helping us figuratively walk in someone's shoes and come to understand them more deeply. One way to do this is through personas. Personas are fictional characters that embrace the needs and goals of a real user or group of learners (Faily & Flechais, 2011). Personas help generate an understanding of learners and what their key attributes are that learning designers need to know for their designs (Dam & Siang, 2019). Personas may be fictional characters, but they are built based on real learner analysis data and thus embrace the needs and goals of real learners.

Effective personas do five things (from the following website: <https://edtechbooks.org/-bXV>):

1. Represent the majority of learners
2. Focus on the major needs of the learner
3. Provide clear understanding of the learners' expectations
4. Provide an aid to uncovering universal features
5. Describe real individuals

To develop your own persona, the following chart in Table 2 can be helpful.

Table 2

Questions to Ask During Persona Development

Objective	Questions
Define the purpose/vision of the course	What is the purpose of the course? What are the goals of the course?
Describe the user	Personal What is the age of the learner? What is the gender of the learner?

What is the highest level of education this learner has received?

Professional

How much work experience does your learner have?

What is your learner's professional background?

Why will the learner take the course?

Technical

What technological devices does the learner use on a regular basis?

What software and/or applications does the learner use on a regular basis?

Through what technological device does your user primarily access the web for information?

User motivation

What is the learner motivated by?

What are the learner's needs?

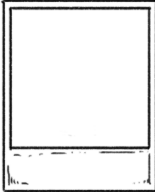

Note. From the U.S. Government usability website (U.S. Department of Health & Human Services, 2020) "questions to ask during persona development" chart.

When developing your persona, remember to organize the information in an easy-to-read logical format, and make it as visual as possible to convey the greatest sense of the "humanness" of the learners. Key pieces of information to include are the persona group (i.e. learner), fictional name, personal demographics, goals and tasks for the course, physical/social/technical environment, and a casual picture representing their learning environment.

Following in Figures 1–4 are some examples that provide an illustration of worksheets and examples for creating personas.

Figure 1

Persona Worksheet 1

 QUOTE: name: age: Profession: Bio: 	interests:	Powers:
	goals:	daily routine:
	likes/dislikes:	motivation:

Note. Persona worksheet from Open Design Kit

<https://edtechbooks.org/-oyBd>

Figure 2

Persona Worksheet 2

NAME
Use a realistic name. Don't use names of colleagues.

DESCRIPTOR
What type of persona is it. Describe the most prominent differentiator.

QUOTE
Capture the essence to one or two points that could come out of the persona's own mouth - so to speak.

WHO IS IT ?
Sketch the personal profile, age, location, job title, what kind of person is it? Think about one or more personas from segmentation.

WHAT GOALS?
What is the supreme motivator? What are (latent) needs and desires?

WHAT ATTITUDE?
What is the point of view? What is the expectation, perception of the service, company or brand. What motivates the persona to go to the website, into the shop, or use the service.

WHICH BEHAVIOUR?
What does she do? Tell stories about her behaviour while using a service, product or site. Channel usage for various needs internet, visiting comparable sites, mobile, social media.
What works well, what are the frustrations, what is stopping her from choosing a function, service or product?

Which Trends, mindsets or other indicators are applicable for this persona?

How important are functional, emotional, expressive benefits.

Fast or slow decision maker?
Why, how can you tell?

Decisions made on facts or emotion?
Why, how can you tell?

THE PERSONA CORE POSTER by CREATIVE COMPANION

Note. Persona example from <https://edtechbooks.org/-SCmQ>

Figure 3

Persona Example 1



Richard Sanchez

UNDERGRADUATE STUDENT

Personal Profile

- Age: 31
- Pronouns: he, him
- Lives less than 50 miles from campus

Quote

"I worry about revealing my veteran status to other students. I often feel judged for my past work and feel the need to defend myself or explain things."

Work History & Workload

- Works full time
- Retired Army Veteran

Education

- AA degree - communication
- Returning to finish bachelor's degree

Goals

- Earn a bachelor's degree
- Form a running group in community

Personal Details

- Training for a marathon



Financial Information

- GI Bill covers much of education costs

Family Background

- First-generation college student

Attitudes & Beliefs

- Does not like to do group projects because he feels like he always does more than his group members
- Believes he is a lifelong learner

Social Support Structure

- Lives off campus with non-students
- Looking forward to expanding his social circle and finding a community to settle in after retiring from the army

Note. Persona example from <https://edtechbooks.org/-GLf>

Figure 4

Persona Example 2



Sam Nyugen
COLLEGE STUDENT



Personal Profile

- Age: 25
- Pronouns: she, her
- Lives less than 50 miles from campus

Quote

"I'm excited and super anxious about navigating the university and paying for my education."

Work History & Workload

- Works full time

Education

- AS degree - general studies
- Currently completing BS degree

Goals

- Personal experience with immigrant parents who arrived in 1992 drives her to succeed
- Wants to run for office after completing her degree in political science
- Willing to explore law school options to satisfy parental expectations

Personal Details

- Gets about 6 hours of sleep per night



Financial Information

- Cost is a major factor in her choice of school and program
- She has taken time out to work and save money to finish her degree

Family Background

- Parents are supportive of her getting a bachelor's degree but are not supportive of career aspirations
- First-generation college student

Attitudes & Beliefs

- Has a hard time navigating the resources available and some of the expectations, such as "office hours"

Social Support Structure

- Lives off campus with family
- Struggles to feel a sense of belonging in college

Note. Persona example from <https://edtechbooks.org/-GLf>

Personas are a helpful way for designers to create a more engaging, more productive, and more effective educational experience for learners. Follow the guidelines provided in Table 2 when creating personas and be flexible and open to new information, as the personas may not be the same from start to finish.

Understanding Learners Through Experience Mapping

The popular adage of "the customer is always right," is often used to emphasize the importance of providing excellent customer service (Samson et al., 2017). While educational institutions are different from traditional service industries, they can still benefit from paying attention to learners' experiences. An experience map is a strategic tool that captures the journey of customers from point A to point B and generalizes critical insights into learner interactions that occur across such experiences. The journey captured in experience mapping, which is adapted from Schauer (2013), is split into four characteristics that generalize the experience of a learner:

1. uncover the truth
2. chart the course
3. tell the story
4. use the map

The first step, uncover the truth, includes studying the learner's behavior and interactions across channels and touchpoints. Channels are the interactions a person has with a product or service. Touchpoints are the interactions of a person with an agent or artifact of an organization. In the first part of the experience mapping, a designer finds various data and insights relevant to the experiences in the mapping process, including actually talking to the learners. Previous learner surveys and evaluations of the course or program are a good data source to begin. In order for the map to be believable, it needs to tell an authentic story and provide strong insights.

The second step, chart the course, collects the takeaways from learners to create actionable results. After you have collected data, obtained key aspects of the learner's journey, and obtained quotes from learners, it is time for the third characteristic: tell the story visually in a way that creates empathy and understanding. The goal of this characteristic is for the experience map to stand on its own, inspire new ideas, and foster strategy decisions.

The last step is to show the map to stakeholders that have insights and interactions with learners. Telling the story to stakeholders provides insights into the learner's experiences. The experience must go beyond the physical location and create an experience of usability such as identity, familiarization, memorability, and satisfaction (Ghani et al., 2016). Failure to meet the learner's needs can result in loss of interest, bad reviews, and challenges to getting the learners to accomplish the task.

As with personas, there are a number of examples of what format an experience map might take. Most are considered copyrighted and proprietary to the organizations developing them and so cannot be included here, but you can find examples of experience maps at the following sites (each also provides some practical tips for developing your own experience maps):

- [What is a Customer Experience Map? How to Create an Effective Customer Experience Map?](#)
- [The Ultimate Guide to Creating a Customer Experience Map](#)

Conclusion

As we said at the outset: designing a course that best fits the needs of learners requires both an understanding of who the learners are, as well as actual efforts to evaluate and understand their needs. We reviewed both conceptual issues that concern learner analysis as well as practical approaches you can use to analyze actual learner needs.

At this point, the best the authors can offer is to wish you luck! Your learner analysis activities will lay a strong foundation for the rest of your project, and it is worth the time it will take to set your project off right.

Practice: Learner Analysis Design Project

This learner analysis design exercise provides an opportunity to apply knowledge gained from this chapter. Imagine, you have been hired by a company based in New York City to design a Security Awareness course that teaches newly hired and senior employees to identify and prevent security breaches. The course focuses on teaching the company's staff the different types of security awareness, email and phishing attacks, malware, ransomware, social media awareness, and password security.

For your project you must do the following:

1. Complete a full learner analysis worksheet.
2. Complete a learner-centered design process based on the description of the course.
3. Develop two learner personas for the course.

Upon completing the project, share and discuss with others how you completed the learner analysis worksheet, how you developed the user-centered design and what resources were used to create the personas.

This exercise is meant to help you consider learner analysis from a practical perspective. However, realize that every company has their own style of course design for their employees, and their own methods for conducting learner analysis. While the principles discussed in this chapter should remain the same, the ways they are applied within any instructional design organization may vary. Despite this variety of approaches, our goals remain the same: all instructional designers agree on the important need to understand and empathize with learners in order to create instruction that best meets their needs.

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