# 10. Contextual Inquiry

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## Definition and Background

An integral methodology in the initial empathize phase of the d.school's design thinking process, contextual inquiry, a structured shadowing and analysis of stakeholders in their environment, attempts to understand the behaviors, actions, and inner workings of an organization or workplace. Probing and analytical, contextual inquiry assists designers in knowing how a culture operates, how products are used, and how decisions are made (Beckman & Barry, 2007). Designers experience a user's vocabulary, habits, and workflow, asking for clarification and explanation of tasks and processes with the goal of learning more about the wicked problems faced. User-centricity with awareness of context meets the needs of today's workforce and results in the development of stronger services and ideas. Sara L. Beckman and Michael Barry (2007) write, "Today, marketing organizations must do more than appeal to an undifferentiated mass market. They must learn to deliver to individual customers. Doing so requires that they better understand the context in which those customers live" (p. 31).

Of the various field research methodologies that are employed in the design process to interact with target users, contextual inquiry is perhaps the most involved. Created in 1988 by Hugh R. Beyer and Karen Holtzblatt, contextual inquiry is a systematic approach that contrasts with—and may be used in conjunction with—other forms of information gathering such as focus groups, research, diaries, ethnographic interviews, and informal observations. In this structured ethnographic framework, a user's experiences and actions are captured in the moment rather than recalled later. The three key components are working in context, establishing a partnership, and maintaining focus through clarification of concerns (Raven & Flanders, 1996). At the core of contextual inquiry is observation intended to identify silos and communication breakdowns and uncover tacit knowledge in a unique environment. Holtzblatt and Beyer (2017) analogize this inquiry process to an apprentice and master: The designer learns from the customer to explore how systems work. They promote intense analysis by the apprentice to gain knowledge from the master: "Probe emotional energy to find its origin and motivations" (Holtzblatt & Beyer, 2017, p. 55). Verbal and nonverbal forms of communication, including body language and gestures, are observed. The intensive, in-depth interview process provides designers with a strong grasp of workplace successes and obstacles.

DOI: https://doi.org/10.37514/TPC-B.2022.1725.2.10 

## Design Application

Best suited for complex processes and experts in their field, the extensive process of contextual inquiry includes a series of observations conducted with the goal of capturing user needs, product potential, and environmental barriers—both visible and invisible. Prepared with a research brief of the target audience, the facilitator begins the contextual inquiry with preliminary discussion of expectations followed by an active observation in which the user is encouraged to focus on their everyday experiences (Beyer & Holtzblatt, 1995). Demonstrations of their typical workplace interactions with a product, rather than only explanations, are solicited as the facilitator seeks to understand the "how's" and "why's" of the user's choices. The facilitator identifies the simple tasks that an employee might overlook due to the habitual nature of the tasks (Lazar et al., 2010). Kim Salazar (2020) details a contextual inquiry experience in redesigning automobile insurance policy software for data entry. The observed specialists failed to mention several important steps of their daily tasks in interviews but were witnessed during contextual inquiry habitually cross-referencing materials and saving data despite the presence of auto-save. Through observations, the designers uncovered employee trust issues that could be addressed in new software development. These active observations are lengthy, natural, and conversational, with a focus on asking clarifying questions to acquire robust, jargon-free descriptions of tasks being performed while steering participants away from complaints or off-topic discussion.

As the designer engages in discovery via questioning in the real workplace, they build rapport through dialogue and practice empathy, an immersion into the lives of users to understand how they feel about the experience. The contextual inquiry process necessitates well-structured roles of observers and participants to achieve effective collaboration, as Matthew Vetter writes in this collection. Observers should be careful to avoid biases or assumptions and be open to new understandings. Mary Elizabeth Raven and Alicia Flanders (1996) share a story of entering a truck manufacturing site with the expectation of employees using a database in a professional setting, yet they found themselves "standing next to two men in an open assembly bay, with no air conditioning in 100-degree heat, wearing a hard hat, watching men converse in Portuguese while they pointed at the screen with grease-stained fingers" (p. 2). Interviewers should maintain ample documentation via detailed notes and even recordings. Though videotaped and virtual inquiries have become more common, Holtzblatt and Beyer (2017) note that physical presence is ideal. Post-inquiry steps include consolidation of observations and notes, qualitative coding "interpretation" sessions, and analysis and diagramming of interviews to understand patterns and trends (Beyer & Holtzblatt, 1998).

Contextual inquiry is utilized as a methodology for a wide range of industries and purposes, including the reduction of design error in surgical instruments (Moustafa et al., 2020), integration of educational technology in higher

education (Phipps & Lanclos, 2019), adoption of automatic teller machines by financial institutions (De Angeli et al., 2004), and analysis of Twitter as a platform for work engagement (Wani et al., 2017). The data and authentic behaviors revealed in the inquiry process can be beneficial to designers and businesses. Though in-depth research of users in their context often results in a strong designer-customer relationship, Michael Blechner et al. (2003) express concerns regarding the labor-intensive process in their case study of problem-based learning for medical students. They reflect that contextual inquiry, though highly structured and promising for the medical field, is time consuming, difficult in work environments that cannot excuse workers for lengthy observations or interviews, and problematic for the privacy of patient information.

## Pedagogical Integration

A viable pedagogical application of contextual inquiry is to let students immerse themselves in an *in-situ* data collection and analysis exercise where they shadow a "day in the life" of select professionals in particular lines of work (preferably to the students' own interest) and journal observed practices and unique situations. Students may interview their shadowing subject, document and—with permission—record specific occurrences in the professional setting, pay attention to the ecology of work in the select environment, and interpret what their findings reveal about the employees performing their duties. Through this experiential learning exercise, students should gain direct insights into the particular professional life of their observed subjects and understand organizational culture and situational factors that contribute to the joys and struggles of specific stakeholders under study.

Keep in mind that this exercise only allows students to gain a snapshot of the particular situation and the users they observed. Upon completing the contextual inquiry, should the students elect to further investigate the user experience of the selected setting, they should read their journal and other field notes closely to identify areas for improvement that could be brought about by designed solutions. Contextual inquiry is only the beginning of ***user-centered design***.

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