

# **Cultivating Observation: Essential Skills for Design Students and Practitioners**

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## **Abstract**

This paper explores the pivotal role of observation as a fundamental research tool within the design process. It emphasizes how design seeks to enhance the user experience by focusing on the interaction between humans and machines. Design research, incorporating methods like observation, is essential for understanding user needs, behaviours, and preferences.

Observation, as a research method, involves the systematic gathering of data through the careful watching and documenting of behaviours and phenomena in their natural settings. It allows designers to uncover unspoken needs and latent motivations, providing deeper insights than other methods like surveys or interviews. Effective observation requires specific skills, including attention to detail, objectivity, and the ability to interpret subtle cues.

The insights gained from observational research inform evidence-based design decisions, leading to user-centered solutions and improved user satisfaction. The paper also addresses the importance of cultivating observation skills in design students through specific educational initiatives and methodologies. In conclusion, the paper affirms that observation is a cornerstone of design research, crucial for creating innovative and user-centric design outcomes.

## **Introduction**

Design holds a pivotal position in the evolution of technology, as it is the element that essentially “humanizes” the cold and often complex machine, rendering it more approachable, accessible, and user-friendly. At the heart of the design discipline lies the concept of the human-machine interface, a critical focal point that delves into the intricate ways in which users engage and interact with a diverse array of technological products and systems. Design professionals are constantly seeking to identify opportunities for enhancements and improvements in already existing products, but with a particular emphasis on elevating the quality of user interactions to ultimately craft experiences that are more intuitive, seamless, and deeply satisfying.

The design process, at its core, is structured as a systematic problem-solving methodology, characterized by its methodical and logical approach. The process commences with a well-defined and structured approach that involves carefully identifying and defining the core problem or problems that need to be addressed, and then it systematically progresses towards the development of appropriate solutions. The ability to pinpoint a specific need or to recognize a

valuable opportunity for improvement constitutes the fundamental starting point for any design endeavour, laying the groundwork for the entire creative process that follows. Designers must develop a deep and nuanced understanding of the individuals who will ultimately become the target users of a particular product, as well as the various stakeholders who are involved in its lifecycle. This approach ensures that user-centered design principles are thoroughly integrated into the design process. User research, which employs a range of research methodologies, is an indispensable component of the design process, integrated into every stage to guarantee that user needs and preferences are not only acknowledged but thoroughly incorporated into the design. Observation, which involves the careful and systematic watching of users, is a fundamental research tool that enables designers to obtain rich and contextual data regarding user behaviour and interactions.

### **Observation as a Core Design Research Method**

Observation stands out as a powerful and versatile research method, providing researchers with the ability to systematically gather data through the careful observation and meticulous documentation of behaviours, events, or phenomena as they unfold naturally in their real-world context. This approach offers invaluable insights into user behaviour within authentic settings, facilitating a deeper and more nuanced understanding than could be achieved through methods like surveys or interviews alone. The observation method proves to be particularly invaluable for gathering detailed information about user needs, identifying workarounds that users have developed to overcome existing limitations, uncovering underlying assumptions that may influence design decisions, and pinpointing specific areas that would benefit from further, more focused research and investigation.

One of the distinct advantages of observational research lies in its capacity to reveal users' unspoken needs and latent motivations, aspects that users themselves may not be fully aware of or able to articulate effectively. By immersing themselves in the users' natural environments, designers can develop a more nuanced and comprehensive understanding of how people behave and interact in various situations, gaining valuable insights into the ways in which environmental factors shape and influence their actions and interactions.

Within the broader landscape of research methodologies, observation is a fundamental and widely utilized approach for gathering data and generating insights across a diverse spectrum of disciplines. Through the process of careful observation and meticulous recording of findings, researchers are able to derive valuable insights, contribute to the generation of new knowledge, and formulate meaningful conclusions pertaining to various facets of human behaviour, social dynamics, and natural occurrences. In the specific context of design, the observation process plays a central role in cultivating empathy towards users and the diverse range of stakeholders

who participate in the design ecosystem. This capacity for empathetic understanding is an indispensable quality for designers, enabling them to develop solutions that are closely aligned with users' actual needs, preferences, and aspirations. Consequently, the development of strong observation skills is widely recognized as an essential skill set for any designer seeking to maximize their effectiveness and impact.

## **Design and the Role of Design Research**

Design research is an indispensable function that provides designers with the tools and knowledge necessary to develop a comprehensive understanding of users' needs, behaviours, and preferences. This is achieved through the strategic application of a combination of both quantitative and qualitative research methods, empowering designers to make well-informed and evidence-based decisions throughout the entire design process. Design research, however, goes beyond the basic understanding of the user; it also encourages a thorough exploration of other factors, including aesthetics, prevailing cultural trends, current market trends, and the relevant historical context that may influence design choices and user perceptions. This holistic and comprehensive perspective equips designers with the ability to identify and effectively address the gaps that may exist between user requirements and expectations.

By effectively bridging these identified gaps, designers are able to optimize the usability of their designs, enhance the overall user experience, and ultimately drive increased user satisfaction, leading to the development of products and services that are more successful and fulfilling. Design research, therefore, constitutes a critical initial phase within the design process, serving as the bedrock upon which user-centered design solutions are built and informing the strategic development of improved products and services. It functions as a dynamic process of gathering, analysing, and interpreting a wide range of data and insights, providing the inspiration, guidance, and essential context that designers need to make informed and effective design decisions. Design research provides designers with the crucial data necessary to make appropriate and informed decisions at each stage of the design and product development process.

Design research utilizes a customer-focused framework of research methods, enabling designers to cultivate a deep and insightful understanding of their users, the specific problems they encounter in their interactions, and their anticipated patterns of using the new product or service. A key feature of design research is its emphasis on enabling designers to directly observe users' interactions with existing products, yielding valuable insights that contribute to a more nuanced understanding of user needs and the context in which those needs arise. The insights gained through design research offer fresh perspectives on user behaviours, needs, and preferences, empowering designers to move beyond assumptions and intuition. Design decisions that are well-informed by thorough design research are grounded in evidence and data, leading

to the creation of design solutions that are more closely aligned with user requirements and expectations. This user-centric design approach elevates the overall quality of the design, resulting in an enhanced user experience and higher levels of user satisfaction. In today's highly competitive market, where user experience is increasingly becoming a key differentiator, design research plays an increasingly vital role in achieving business success. Design research is rightfully recognized as the foundation that supports every stage of the design and development process, ensuring that the products and services that are brought to market are closely aligned with the genuine needs and preferences of the users they are intended to serve.

### **Defining Observation**

Observation, in its most fundamental form, can be defined as the act of actively perceiving something and making a record of that perception. Within the context of research, observation has a dual role; it functions both as a distinct research method in its own right and as a valuable data collection technique that can be effectively integrated into other research methodologies. In the realm of the natural sciences, observation is specifically defined as the act or instance of noticing or perceiving something in the world around us. It involves the acquisition of information directly from a primary source, highlighting the firsthand and empirical nature of observational data. The term "observation" is utilized both as a verb, denoting an action, and as a noun, representing the outcome of that action, each with subtle yet important differences in meaning. As a verb, "to observe" signifies the act of watching someone or something attentively and carefully, with the express purpose of gaining knowledge or gathering information. As a noun, "observation" refers to the record, notes, and/or description that are produced and obtained through the act of observing.

The entire process of conducting observations and meticulously recording the findings places specific demands on the researcher, requiring a specialized set of skills and abilities. These essential skills include the ability to accurately notice and perceive details, the capacity to exercise sound judgment in recognizing relevant facts, the ability to effectively infer meaning from the observations, the capacity to conduct in-depth analysis of the collected data, and finally, the ability to record details in a manner that is both clear and effectively communicative. Observation, as a process, primarily relies on the use of the senses to gather information about the world. While the sense of sight is most commonly employed, it is important to recognize that other senses can also play a role, depending on the specific context and objectives of the observation. In the field of science, observation may also involve the use of scientific instruments to augment and extend the capabilities of human senses, enabling researchers to perceive and record data that would otherwise be inaccessible. Observation is a multifaceted and complex research method, often requiring the researcher to assume multiple roles and employ a diverse range of techniques, including the strategic use of their own five senses, to effectively collect and

interpret data. Observation is not simply a passive activity of seeing; rather, it is an active and dynamic mental process that requires focused engagement. The act of observing goes beyond the simple act of seeing, demanding conscious, careful, and thoughtful attention, all directed by a specific intention. The ability to truly see – to pay close attention to the details that are often readily available – is an indispensable precursor and a fundamental prerequisite for significant discovery and meaningful innovation.

Throughout history, many influential figures, including luminaries such as Leonardo da Vinci, Sir Isaac Newton, and Steve Jobs, have emphasized the critical importance of observation in their creative and scientific pursuits. Steve Jobs, for example, once commented, "When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something," highlighting the crucial role of observation in recognizing and capitalizing on existing possibilities. Leonardo da Vinci, a true Renaissance man, attributed his wide range of scientific and artistic accomplishments to a concept he famously termed "saper vedere," which translates to "knowing how to see," underscoring the significance of perceptive and insightful observation. Similarly, Sir Isaac Newton, one of the most influential scientists of all time, stated, "If I have ever made any valuable discoveries, it has been owing more to patient attention than to any other talent," emphasizing the power of careful and focused observation in driving scientific breakthroughs.

### **Observational Research in Detail**

Observational research is a broad and encompassing term that includes a wide variety of non-experimental studies, all of which share the common thread of researchers gathering data through the systematic observation of phenomena or behaviour. This research approach provides researchers with a valuable firsthand perspective into real-time occurrences, enabling them to collect authentic and unfiltered information directly as it unfolds. As the popular saying goes, "seeing is believing," and observational research embodies this principle by providing real-time data and delivering reliable insights into the phenomena being studied. Observational research is an especially valuable tool for designers, as it facilitates a deeper understanding of user situations, the specific tasks that users undertake, their underlying goals and motivations, and their broader aspirations. Within observational research, researchers engage in the careful and systematic watching and recording of what they observe, meticulously documenting their findings in order to extract meaningful insights and arrive at sound conclusions. Gorman and Clayton (2005) offer a succinct definition of observation research, describing it as research methods that "involve the systematic recording of observable phenomena or behaviour in a natural setting". It is worth noting that the terms "participant observation" and "ethnography" are sometimes used interchangeably with "observation research," although there may be subtle distinctions in their specific applications and nuances.

As a valuable and versatile design research method, observational research can be effectively applied at any stage of the design and development process. During the early stages of the design process, observational research can be instrumental in identifying opportunities for the development of new products or services and in gaining a deeper understanding of existing gaps within the market, thereby providing valuable guidance in defining the scope and objectives of the design project. In the development or evaluation stages, observational research can be strategically employed to assess the effectiveness and efficiency of a prototype in supporting users as they perform their intended tasks and interactions. Observations can be broadly classified into two main categories: qualitative observations and quantitative observations, each providing distinct types of data for analysis. Qualitative observations involve noting the presence or absence of specific properties or characteristics and providing descriptive accounts of the observed phenomenon, capturing the richness and complexity of the user experience. Quantitative observations, in contrast, involve assigning numerical values to the observed phenomenon through counting or measuring, enabling researchers to quantify and statistically analyse the data.

Researchers utilize a variety of mediums and tools to record observational data, ensuring that the information is captured accurately and can be revisited and analysed as needed. Common recording methods include written notes, audio recordings, video recordings, photographs, and other forms of documentation that serve to preserve the details of the observation. The user observation method is closely related to ethnographic research, a research methodology that places a strong emphasis on studying people within their natural cultural contexts, recognizing the influence of culture on behaviour and interactions. As a scientific method, user observation is characterized by its systematic approach and its focus on specific research questions, which guide the observation process and ensure that the data collected is relevant and purposeful. Observation can be conducted through direct or indirect participation by the researcher, depending on the level of involvement required to gather the necessary data, and it can take place in either a natural environment or a controlled, laboratory-like setting, depending on the research objectives and the specific context of the study. The two most commonly employed techniques for observing users are controlled observations and naturalistic observations. Controlled observations are typically conducted in a structured environment, where the researcher has the ability to manipulate certain variables to isolate specific effects, while naturalistic observations take place in the users' natural settings, providing a more realistic and ecologically valid view of their behaviour and interactions.

There are several observation methods that can be effectively used for design research, each with its own strengths and applications. Some common methods include Contextual Inquiry, which involves observing users in their work environment to understand their tasks and workflows; Usability Testing, which evaluates the ease of use of a product or interface; Diary

Studies, where users record their experiences over a period of time; Field Studies, which involve observing users in their natural settings to gain a holistic understanding of their behaviour; Shadowing, where the researcher closely follows a user to understand their daily routines; Remote Observation, which utilizes technology to observe users from a distance; and Eye-Tracking, which tracks users' eye movements to understand their visual attention and focus. To provide structure and guidance to observers, frameworks such as POEMS (People, Objects, Environment, Messages, Services), AEIOU (Activities, Environment, Interactions, Objects, Users), and the Five Human Factors (Physical, Cognitive, Social, Cultural, and Affective) can be employed. These methods can be used individually to address specific research questions or in combination to provide a more comprehensive and nuanced understanding of the user experience.

### **The Essential Role of the Observer**

Observation, as a rigorous and systematic research method, demands a significant level of training and practical experience from the researcher. It is not a passive act of simply looking but rather an active and deliberate process of paying close attention to gather specific information that will be used for subsequent assessment and analysis. The observer is tasked with the critical responsibility of "seeing beyond the obvious," to identify underlying patterns, unmet needs, and potential opportunities for design intervention that may not be immediately apparent. A skilled observer cultivates a stance of neutrality and objectivity, striving to perceive and record observations as accurately and faithfully as possible, minimizing personal biases and interpretations. Effective observation requires a combination of patience, a keen eye for detail, and the ability to notice and interpret subtle cues and nonverbal communication. The observer may also be required to strategically assume different roles, such as that of a participant-observer, to gain richer and more nuanced insights into the user experience. The observer plays a crucial role in transforming raw and unprocessed observations into meaningful insights through the application of rigorous analysis and sound deductive reasoning. The development of strong observation skills involves the effective use of all five senses, enabling the observer to recognize, analyze, and synthesize information to arrive at a holistic and comprehensive understanding of the observed phenomena.

There are several key skills that can be cultivated and enhanced to improve one's observation abilities. These include curiosity, a natural desire to explore and understand; open-mindedness, a willingness to consider different perspectives; heightened awareness of one's surroundings; patience, the ability to observe without rushing to conclusions; the ability to concentrate and maintain focus; and a meticulous attention to detail. A person with adept observation skills has the ability to notice even the most minute details that others might easily overlook, allowing them to gain a more complete and accurate understanding of the situation.



One of the significant challenges in conducting observational research is the inherent difficulty in remaining completely unbiased and recording observations with absolute objectivity. Researchers must be vigilant in recognizing and mitigating their own biases to ensure the validity and reliability of their findings.

### **Preparing Students of Design**

The field of design inherently involves a continuous cycle of observation, investigation, and the application of learning to novel situations to arrive at effective and appropriate solutions. However, it has been observed that new design students often exhibit limited curiosity and a lack of interest in actively observing and exploring their surrounding environment. Recognizing the importance of these qualities for successful design practice, it becomes crucial to instil and nurture them in design students from the very beginning of their academic journey. Design educators face the ongoing challenge of developing creative and engaging assignments that effectively encourage observation and exploration in young minds, motivating them to actively engage with the world around them.

The National Institute of Design (NID), Ahmedabad, a prominent design institution, has implemented several initiatives to foster observation and curiosity among its students. One such initiative was the student design competition, aptly named 'Observe, Analyse and Identify Opportunities for Design Intervention'. This competition challenged students to carefully observe their surroundings, identify unique opportunity areas for design intervention, and present their findings and proposed solutions in the form of an A3-sized poster panel. Another noteworthy initiative is the course module 'Indigenous Innovations', specifically developed for first-year Master of Design (M.Des) students at NID. This module aims to subtly cultivate curiosity in these young minds by encouraging them to actively seek out innovative solutions within their immediate environments, transforming their perception of the mundane and familiar. The module promotes the exploration of indigenous resources, fostering a sense of curiosity and a drive for acquiring new knowledge. To provide a solid foundation in research methodologies, courses such as Research Methods and Design Process are offered to design students in their first year of study. These courses systematically introduce students to a variety of design research methods and their practical applications. Throughout their subsequent years of study, students are expected to independently select and apply appropriate design research methods at each stage of their design process, gaining valuable experience in real-world situations as they work on their design projects.

### **Conclusion**

In conclusion, observation stands as a cornerstone of design research, providing a powerful lens through which designers can gain a nuanced understanding of user behaviours, needs, and



contexts. This method's strength lies in its ability to reveal unspoken needs and latent motivations, fostering empathy and enabling the creation of user-centered solutions. Design research, in general, plays a vital role in bridging the gap between user requirements and expectations, ultimately enhancing usability and user satisfaction.

Effective observation demands specific skills, including attention to detail, objectivity, and the ability to interpret subtle cues. Design education, therefore, has a responsibility to cultivate these skills in students, encouraging curiosity and active engagement with their surroundings. By integrating observational research methods into the design process and fostering strong observation capabilities in designers, we can pave the way for more innovative, user-centric, and ultimately successful design outcomes.

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