INCLUSIVITY AND ACCESSIBILITY IN UX DESIGN

Valeria COZLOV[1*], Maxim-Andrei ZADOROJNII[2]

[1]*Department of Software Engineering and Automation, FAF-213, Faculty of Computers, Informatics and Microelectronics, Technical University of Moldova, Chișinău, Moldova*
[2]*Department of Software Engineering and Automation, FAF-211, Faculty of Computers, Informatics and Microelectronics, Technical University of Moldova, Chișinău, Moldova*

* Correspondent author: Valeria Cozlov, valeria.cozlov@isa.utm.md

Abstract. *In the design industry, the start of a new decade means a greater emphasis on inclusive design. As a result, UX specialists throughout the IT sector are increasingly being drawn to design truly inclusive products and experiences. Don't think that inclusive design is an "advanced topic" if you're new to the realm of UX design! The history of UX design is replete with examples of inclusion. If your users feel excluded from the experience, whether it's a login screen, a search experience, a purchase procedure, or anything else you can think of, they're likely to abandon it totally. Inclusive design is one of the most powerful and successful methods to improve user experiences for people of all backgrounds, identities, and experiences.*

Keywords*: UX design, accessibility, inclusive design, assistive technology, next billion users.*

Introduction

Author Vale Querini puts it in her article that "If we don't intentionally include, the risk is to unintentionally exclude." [1]. There are a lot of features that have to be considered when designing a mobile application, a website, like the branding, colors, fonts, readability, or ease of access. In our opinion though, one of the most important aspects is considering the needs of people with special needs and making sure that their experience on the product they're designing is no less satisfactory than that of an average person. This concept can be shortened to accessibility and inclusivity and it is what our article will be focused on.

From universal to inclusive design

Let's begin at the very beginning. Universal design was coined when designers began thinking about how to involve a wider spectrum of individuals in their designs. Universal design is the process of producing a single product that can be used by people of all abilities and in a variety of contexts [2]. Consider it a one-size-fits-all solution. Designers propose a single solution for all. The issue is that when they focus on producing a single answer for everyone, the designs become ineffective. When designers have a large number of targeted consumers, it can be tough to meet any goals with their product.

There are many different user design frameworks, and they evolve a lot over time, but they all have one thing in common: they prioritize the user before everything else (business, money, etc.). Universal design, inclusive design, and equity-focused design are three strategies to put the user first as a designer. The approach to including people began to alter when UX designers learned that universal design didn't suit the demands of every user. This is when designers began to consider the concept of inclusive design, which focuses on developing solutions that address a variety of demands.

Inclusive design refers to creating design decisions that consider personal characteristics such as ability, race, economic background, language, age, and gender [3]. Researchers and designers from traditionally marginalized groups are included in the process of inclusive design, so they can contribute their unique insights at all stages of the design process. If universal design is a one-size-fits-all approach, inclusive design may be summed up as "solve for one, extend to many." When you solve for one type of user with inclusive design, the benefits of that solution can be extended to many other types of users.

For example, while creating, they pay greater attention to the requirements of persons who are blind or deaf than to those who rely on their sight or hearing to communicate. Then, when they construct new versions of a product, they design for those populations that are left out, such as people with physical or cognitive limitations. Inclusive design encompasses several aspects, including accessibility. Accessibility refers to the process of creating products, gadgets, services, or places that are accessible to individuals with impairments. However, designers have to keep in mind that the concept of "solve for one, extend to many" primarily benefits the design's intended audience and existing users. Many groups have yet to be included. With time, UX designers understood that inclusive design wasn't always enough, and UX designers have arrived at the point where equity-focused design is becoming a new industry aim.

Equality-focused design vs equity-focused design

Equity-focused design expands on the concept of inclusive design. It asks designers to concentrate on creating products for groups that have been historically underrepresented or ignored. The purpose of equity-focused design is to empower historically marginalized populations.

To design with equity in mind, we must first understand the distinction between equality and equity. Although the two words sound similar, they refer to two distinct topics. Equality entails offering equal opportunities and support to all members of society [4]. To put it another way, everyone receives the same thing. To achieve fair outcomes, equity requires giving varying levels of opportunity and assistance to each person. Equity-focused design is considering all parts of a product and ensures that it is both accessible and equitable to people of all genders, races, and abilities. Furthermore, the designers must take into account underrepresented and excluded populations.

Because they frequently involve gathering sensitive data from users, job applications and census forms are one area where gender and race require special consideration. You may have previously heard how important it is to use gender-neutral pronouns on these types of forms, but when creating these forms, it is important to think about whether or not a particular inquiry is necessary in the first place, and if gathering this information really is required. A question on gender identity, for example, is typically unnecessary in a job application. If a question must be included on the form, such as in a census that collects population data, the wording has to be carefully analyzed to ensure that it is not biased toward what is deemed the culturally accepted norm. Consider a survey that asks respondents to indicate their gender preference. A variety of options should be included, including male, female, gender-nonconforming, nonbinary, and a blank field for a written response.

The impact of assistive technology on people with disabilities

Next off, we'll look at some of the different assistive technologies that can help people with disabilities. Assistive technology, or AT for short, refers to any products, equipment, or systems that help people with disabilities learn, work, or go about their daily lives [5]. They have to look at color modification, voice control, screen readers, and alternative text as examples of assistive technologies, then at a few design considerations to keep in mind when creating accessible content.

It's crucial to note that there are many people who do not identify as disabled but utilize assistive technologies. That's because assistive technology makes our lives easier and contributes to a better user experience. Computers, tablets, and smartphones come to mind when we think of assistive technology. However, AT encompasses a broad range of devices, including prosthetics, pointing devices, electric wheelchairs, power lifts, eye gaze, head trackers, and much more. The UX design process must take into account how individuals with impairments use your product.

To begin with, let's take a look at color modification. The contrast of colors on a screen is increased via color modification, such as high contrast mode or dark mode on a device. High contrast can be seen in black text on a white backdrop or white text on a dark background. The interface's high contrast makes it easier for persons with low vision to view. Anyone who suffers from eye strain when watching displays in the dark or during the midday hours, when the sun creates an intense glare, can benefit from color alteration. It's used by a lot of individuals simply because it's easier on the eyes.

Next, we move on to voice control and switch devices. Both of these devices assist folks with limited dexterity and can be used instead of a keyboard or mouse. Voice control allows users to navigate and interact with their devices' buttons and screens solely by speaking. This feature is available on a variety of devices. A switch is a piece of assistive technology that takes the role of a computer keyboard or mouse. Users can utilize switch devices to operate technology such as a computer or smartphone. Switch devices come in a variety of shapes and sizes, but they all assist people with limited motor skills, who utilize technology effortlessly.

Screen readers are up next. For those with reduced eyesight, screen readers are one of the most used assistive tools. The software is compatible with mobile and web devices, and it reads any text on the screen aloud. Screen readers also interpret non-visible text such as button names and alternative text for images, as well as any interactive elements such as buttons. Alternative text (also known as alt text) aids in the conversion of a visual user interface to a text-based user interface. It essentially employs words to describe any relevant visual to someone who cannot see it. Alt text is also quite useful for folks with slow internet connections. If a device is unable to sustain an internet connection, it may have trouble loading a large file or image. When an image fails to load, the alt text provides context.

People don't need to be disabled to take advantage of assistive technology. A good example is speech to text. A user composes text using speech to text by speaking into their phone or computer. The voice recording is turned to text automatically. Many people find it much easier to text by talking to their device because it eliminates the need for their hands and minimizes the amount of mental energy required to type.

The next billion users: ultimate solutions

User experience does not only consider the experiences of current users; it also considers the experiences of those who are going to become internet users. These are folks from all over the world who are getting online for the first time. Did you know that a billion people around the world are just getting started with the internet? These people are known as the Next Billion Users, or NBUs [6].

To begin, let's look at the major difficulties that the Next Billion Users are facing, as well as what these issues entail for them from a designer’s point of view. The first major concern is the expense. People may not be able to purchase pricey phones with large screens and large storage capacities. The following issue is that of connectivity. Users may not have constant or unlimited Internet access. Others may be unfamiliar with certain design patterns, calls to action, and iconography that they take for granted. They might not know what a swipe means in the context of a touchscreen, for instance. They may not even be aware of the existence of a touchscreen. This could affect their self-confidence and drive to experiment with new technology. The final point to consider is literacy in general. Some users are unable to read, others may need to switch languages depending on their objectives.

Let's take a closer look at each of these four challenges. Let's start with the price. People with lower resources, for example, are more likely to purchase less expensive gadgets with limited RAM and storage. When a phone's RAM is low, it means that web pages will load more slowly and customers will have trouble downloading things. A corporation is unlikely to cut its usual price to tackle this problem. Instead, it's up to us, the UX designers, to find out how to improve storage without raising the price, with a lot of help from engineers. One method UX designers and programmers can accomplish this is by allowing users to temporarily stop apps.

Let's talk about connectivity next. Many of the Next Billion Users do not have constant internet connectivity. This could be because the data they purchased has expired, or that their network coverage is irregular or erratic. Designers of user interfaces should look for ways to make the offline experience as rich as the online one. Allowing customers to watch videos offline and ensuring that this function and experience are well-designed.

Then there's digital literacy. It's worth noting that some of their consumers may not know how to operate a phone, download an app, or create an account. They may only utilize the parts of the app

that they are already familiar with if there is no clear guidance, or they may stop using the app altogether if there is no clear direction. It is important to keep it simple while creating for their Next Billion Users. Designers can consider using video lessons to help new users learn how to install and utilize an app and explore new features more confidently.

Finally, there's the general issue of literacy. Some users are unable to read or type, while others may choose to change the language on their device based on their needs. A user might, for example, want to read in Russian while typing on an English keyboard. UX designers may make life easy for the Next Billion Users by designing a bilingual keyboard option and employing widely recognized iconography, such as an icon with a currency sign for a financial app.

There's a lot more to consider when designing for the Next Billion Users than these four frequent issues.

Conclusion

Our goal is to make every user feel as if the experience was tailored specifically for them, regardless of who they are, where they live, how much money they make, or how well educated they are. Gaining a thorough grasp of a user's context is a good place to start, and as a UX designer, it is already the first step in the realm of inclusive design.

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