Black Representation in Design and the Evolution of HCI

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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I. Introduction

Technology is everywhere. It pervades almost every action; it's nearly impossible to go throughout your day without using or encountering some type of technological device. Many people are involved in the creation of these devices — there are software engineers, hardware engineers, and an assortment of designers. Designers, in particular, are essential to the development of a product. At one point, the extent of a person's daily interaction with technology was at their desktop computer or home landline. As mobile smartphones, smart televisions, and laptops have become more common, the design decisions that engineers make are more important. It's not enough anymore to only provide users with a sleek interface - designers must provide a compelling service to their users (Nunnally and Farkas, 2017, p. 15). These design decisions can truly lead a user to having a positive or negative experience with a product.

As major corporations have come to understand the importance of design, they have begun to invest more time and money into ensuring that each design decision is intentional and beneficial. For example, let's look at the first Apple computer, the Macintosh. When designing the logo for the first Macintosh in the early 1908s, Apple wanted to send a message to the user; they wanted to "demystify the operating system so that average people would understand what to do" (Kindy, 2019). Apple intended to separate itself from other bulky, non-aesthetic machines that seemed intimidating for the typical user. To accomplish this, Apple created icons that were intuitive, fun, and comforting. Furthermore, they utilized a sleek interface and silver hardware to differentiate their products from any other product on the market. Even now, so many people know the trademarked apple symbol and the circular icons that decorate the app store. Even as

Apple continues to expand to other products like watches and headphones, their signature logos and icons are distinct—they were able to create a visual brand that so many people love, and it has undoubtedly contributed to their massive success.

Stories like that of Apple's and other corporations have brought attention to the design space and the role it has in software. Now, many colleges offer classes that study the UX design process and provide students with the necessary tools to pursue a career in the field. Throughout my journey at the University of Virginia, I have become increasingly intrigued with the role of User Experience Designers. "User Experience (UX) is the total of effects felt by the user before, during, and after interaction with a product or system in an ecology" (Hartson and Pyla, p. 6, 2019). Human Computer Interaction (HCI) is the broad field from which the term UX derives and is concerned with understanding and analyzing how users interact with an entity. Further, User Experience designers are those who practice the discipline of HCI – using information about the user and intention of the product, they make decisions about colors, symbols, and basic layout of the software to create a product that caters to the user.

The idea of inclusive design is newer in the design space. Even as recently as 30 years ago, inclusive design only referred to certain factors and included a few select communities. As time has passed, those in the UX space realized that design inclusivity should encompass those of different cultures, races, faiths, and other communities. However, even as the design process has shifted to focus on a more human-first, intimate approach, several communities have remained underrepresented in these design choices.

I am particularly interested in how designers are inclusive of the Black community. After recent events that have brought to light glaring racial tensions, it's obvious to me that there is more work to be done in promoting education and acceptance. These current events and my

personal experience led me to focus this paper on the intersection of User Experience Design and Blackness. The paper will explore how User Experience designers incorporate methods and processes that account for the Black experience. I will argue that the existing design climate contributes to less usable design for Black users, and I will explain how this climate stems from a lack of understanding of the overarching shared themes, needs, and defining habits of the Black community.

This paper will consist of various sections, including a literature review, overview of methods, results and analysis, and conclusion. In the Literature Review, I examine the background of the design-for-all movement and its involvement in inclusive design. Following the literature review, the methods sections will outline how I researched the topic and collected data. Within the analysis I shape my exploration of my argument through various claims supported by my collected data and evidence. Finally, I utilize the conclusion to provide a synthesis of my findings and display a foundation for how future researchers can build on the research I present.

II. Literature review

Universal design, a concept that recognizes the need to cater for a full spectrum of users, has been discussed in HCI and adjacent fields since 1993 (Miraz, et al., 2016). In its early stages, however, the concept was primarily focused on creating applications and software that increased the usability for the elderly and disabled communities. This concept of universal design became more inclusive later because of the increasingly pervasive nature of technology and the wide range of people with mobile devices and access to web applications.

As the idea of inclusive design has evolved, the field of HCI shifted from a pragmatic, universal approach that lacked intimacy and focused mostly on “how to make technology

intuitive and easy to use" to a human-first approach that values the needs of users at the forefront. This shift has caused designers to be more aware of how factors such as culture, nationality, and experiences influence the way that users communicate and therefore interact with a technology system (Ford, G. & Kotzé, P., 2005). In another article about the role that culture and background has in UX Design, the authors reinforce how this shift has led designers to account for more abstract factors in their design choice like lived experiences: "In addition, the shift from usability to a UI-focused UX forces UI designers to take further aspects into account. Besides the experience during actual interaction, UX can also be influenced by prior experiences or expectations. Furthermore, UX is unique to an individual user and rooted in a cultural context [79]" (Lachner et. al., 2018, p. 2). This change has even permeated into large technology corporations, as seen with the increased popularity of the role of UX researcher — whose main responsibility is to give actionable and testable insights into the user's needs (Travis and Hogsdon, 2019, p.4). Due to this recognition, over the years, the HCI community has moved toward the concept of "designing-for-all", which "seeks to ensure products are conveniently usable by as many people as possible" (Cagiltay, 1999, p. 518). Although the movement towards the "design-for-all" methodology is a step towards more equitable design decisions – "designing for all" doesn't promote the necessary effort needed to create products that are representative of the Black experience, an experience that is distinct and warrants its own methodologies and processes. Because of this, the design-for-all methodology lacks in its ability to elevate marginalized communities when necessary.

The last few years within the United States have illuminated the existing racial tensions and immense struggles for Black Americans. The murder of George Floyd, the spurring of the Black Lives Matter protests of 2019, and the increase in killings of various members of

marginalized communities all reintroduced a dire need for change in the way that race is viewed and treated (Weine et. al., 2020). This “awakening”, in combination with the increased influence of technology products prompted many individuals in the HCI community to reframe the way they thought about designing for and with Black Americans.

In “Intersectional HCI: Engaging Identity Through Gender, Race, and Class”, the authors view the role of HCI designers in this time as transformative and integral, asserting that the work of designers can inspire positive change in the lives of marginalized and underserved communities (Schlesinger, 2017). However, to do this, designers must be aware and sensitive to Black values and issues when interacting with the community (Ogbonnaya-Ogburu, 2020). Although many designers in the HCI space are broadly proponents of this shift, Black designers are specific in their want to ensure that this shift is done correctly, in a way that is encompassed by the following idea: “work that positions itself to be about the Black community must also engage with our joy, our moments of love and happiness, and not just see us as problems to be solved” (Harrington, et al., 2021). These comments reflect a disdain for the remnants of a heavily Westernized design environment that, when attempting to represent the Black experience in design, produces work that is surface-level. Instead of acknowledging the important characteristics that are indicative of Blackness, the resulting design is unable to create a highly useful experience for a Black user. This frequently results in situations that unintentionally devalue the community, such as a lack of diversity in video game avatars, racial discrimination in facial recognition technology, and children’s gaming websites that rarely present the Black experience in storylines.

With its ability to greatly influence the way that audiences interact with pieces of technology, the field of HCI has immense potential to frame the way that technology amplifies

and elevates the Black voice. The recognition of this power of design is not enough – in order for design thinking to produce work that is effective and uplifting, it must be coupled with the education and effort to understand the true needs of the Black community.

Through a glance at important literature in the HCI and UX design space, it is clear that HCI practitioners, scientists, and researchers recognize the importance of emphasizing the role of culture, environment, and communication styles in a user's relationship with technology (Bannon, 2011). The current literature reflects the Black community's want for product design to be more explicitly aware and considerate of the Black experience and Black voice, whether this is in design choices that prevent AI systems from begin able to identify darker skinned individuals or Sims games that create characters with qualities only presentative of a Western, white culture (Harrington, 2021). In particular, many members at the intersection of Blackness and HCI note that Black communities not only have minimal representation, but that the representation that is currently present lacks an overall understanding of the community as a whole. Although this current research expresses the missteps of HCI in its ability to elevate Black experience in an era where the relationship between technology and race is critical, there lacks research into the reasons behind these "holes".

In the next few sections, I will present my analysis of the processes and methods of current designers in the HCI space, ending with an assertion of where improvements can be made in applying the needs of Black users. I will particularly focus on how HCI can be used to move away from designs that harm marginalized communities and instead enhance the Black experience with technology. My analysis will be guided by the Social Construction of Technology (SCOT), which argues that technology does not determine human action, but that rather, human action shapes technology (Bijker, 2017). This framework will help me to

understand the relevant social groups and standards that have influenced the state of the HCI design space and will resultantly aid my analysis of the current methodologies. In particular, I will utilize SCOT to deconstruct what "success" means in the design of these technology systems; for years, success in HCI has been defined by quantitative statistics like profits or qualitative statistics like post-product launch surveys. In this paper, I will challenge these ideas of success in favor of a metric that centers the user's overall betterment when using the product.

III. Methods

The primary methods I used to gather data for my analysis were literature review and discourse analysis. Throughout the literature review, I focused on understanding how the ideas of the purpose of User Experience Design have evolved over time. This was integral to my research because to analyze the lack of detailed processes in the design space currently, I needed to have an understanding of the current design space, and how designers felt about where it stands. During my review of this literature, I focused on understanding the current work practice of engineers working on design, specifically analyzing how the relevant social groups have been impacted by the lack of use of inclusive design methods.

Further, an important part of my research will be understanding the perspective of Black users as it pertains to design. To do this, I will perform a discourse analysis on an article titled "Designing for the Black Experience" — a text that recounts the interviews of three Black women whose main research interests are in the HCI field. In this analysis, I focused on the difference of the identities and experience of these authors (Black scientists in computing vs. White scientists), and how they inform the conclusions made in the writings. Having both of these perspectives provides me with an understanding of the current design process for UX

designers and how it encompasses or does not encompass the Black experience while simultaneously providing a first-hand account of how Black designers do or do not see themselves represented in the User Experience space.

IV. Analysis

A central issue with the existing design methodology in the HCI space is a lack of socially informed research. Requirements gathering is a subset of the UX design process whose purpose is to establish end user's and stakeholders' system requirements (Zachariah and Nonyelum, 2020, p. 7). It is typically the first step executed during User Experience research; the primary goals of requirements gathering are to understand the user's current work practice and to gain a comprehensive overview of the identified user's environment. This practice is integral to the success of user-centered design – thorough requirements gathering provides designers with a foundation for creating a good UX that will contribute to a user's encouraging experience when interacting with a system or product (Konstantakis and Caridakis, 2020, p. 42). Due to its centrality in design methodology, if the requirements gathering phase of the UX design process is cursory, it could result in a product that is not useful to the user. (In the design context, usability is defined as how well a product meets the needs and capabilities of the people for whom they are intended (Issa and Isaias, 2022)). This is why socially informed design research is important. "Socially informed research in architecture and interior design is about values and methods, and how these should inform each other. It occurs when designers and sociologists fulfill an ethical obligation not only to take into consideration the values and social locations of people who will engage with a design but also broader values about sustainability and eradication of social inequalities that can sometimes get missed when focusing too much on individual people" (Janning, 2022, p. 15). In regards to the Black community, acknowledging

Black culture from a socially informed research perspective aids designers in correctly identifying the user population, asking informed questions to guide their design decisions, and identifying comprehensive requirements.

Existing methods for UX research do not conduct research from a socially informed perspective. User Experience designers frequently miss the mark when identifying underlying values, habits, and priorities of a community, instead identifying simplistic characteristics about a user population that cause users to experience less usability when interacting with the product. Because of this consistent lack of methodologies that dissect elements of Blackness and develop detailed, informed perspectives about the community, what is produced are shallow, ambiguous designs that promote systems with low level of learnability, natural mappings, and inconsistencies across platforms. In "Designing for the Black Experience", one author expresses her frustrations with how Black characters are presented in video games and explains how Black gamers have taken it upon themselves to make game modifications that are more closely represented with the Black experience: "I play *The Sims*, and it is a very whitewashed game. So, I'm in this Black Simmers group on Facebook, and it's wild the types of modifications they come up with in terms of apparel, in terms of hair styles—people get locs on there, people get hair accessories, they get lashes, they get the big hoops, they get everything you can imagine that we wear stylistically. In some instances, they create these trifling lifelike stories, but they mirror the experience that we have or that you see of Black people, so I really think a lot about the experience and the culture, the things that we're missing and the things that make it much more enjoyable to play" (Harrington, et al., 2021, p. 25). A point of intrigue is that these Black gamers know exactly how they want Black characters to look in these video games, even to the point of designing a mock-up for themselves. It is apparent that there are users who have the ability to

provide thorough guidance and insight to designers about their wants and needs for user-centered products; however, the outcome of software design rarely reflects this. This points not only to missteps of UX researchers in identifying useful and comprehensive environments that represent Blackness, but also reinforces a poor process of requirements gathering. This area of Human Computer Interaction would benefit from shifting its methods towards ones that prioritize more intimate connections, like focus groups and case studies.

An example of this lack of socially informed research is in AI technologies and the ongoing issues with bias against darker skinned individuals. Although there is a current push to increase the breadth of quantitative data to rectify some of the issues, the authors suggests that to combat future issues with algorithmic bias, UX designers should push aside the want to view technology as a strictly non-human entity and instead view these systems as so intertwined with the lifestyles of human that they in a way become human themselves, writing: "This, in turn, requires augmenting these systems with orthogonal but complementary human-centered insights that go beyond aggregated assessments and inferences to ones that factor in individuals' differences, demands, values, expectations, and preferences [17, 34]. The success of such systems in the real world requires multi-disciplinary partnerships who bring diverse perspectives to solve these problems which are as much human problems as they are AI" (Inkpen, et al., 2019, p. 3). While this article references Artificial Intelligence, this idea can be extrapolated to other systems where UX design is applied, such as websites, video games, and mobile applications. In fact, blurring this line between technology and the human user could overall aid designers in producing content that is more empathetic and aware of the needs of the marginalized user.

V. Conclusion

The depiction of the Black community, a marginalized group that has historically faced persecution in America, lacks depth and understanding in software applications and other forms of technology-centered media. In my research I discovered that the current work practice of UX designers demonstrates a lack of appropriate exploration into what Black culture truly is and how to survey audiences to reflect these elements of culture in design. I asserted that the issues with UX Design begins before the actual design process – in the research and requirements gathering phase. I then utilized the idea of socially informed research to suggest improvements for the existing research methods and concluded that UX designers must view technology processes from a human perspective in order to intimately design for marginalized communities. If technology will ultimately have a significant amount of interaction with humans, we must prioritize designing these technologies with the same care and attention we extend towards humans themselves. This involves surveying various groups within the Black community, acknowledging the true wants of the community as it exists now, and testing the final product to make sure it aligns with the elicited requirements.

Where my research is limited, however, is in what setting and what extent UX designers should reflect Black culture in their design. Although this community should be represented, further research would need to be done to identify the best way to ensure resources in powerful technology organizations are being used in a way that is effective, efficient, and prioritizes the usability of all intended audiences. Future researchers may find it useful to use my analysis as a baseline for analyzing the representation of other communities in the design field.

A counterargument to my conclusion is that attempting to focus on catering specifically to a few communities can be destructive in ensuring that a product is truly usable for everyone. I would rebut by stating that although there are obvious merits to ensuring that everyone has a

positive experience with technology systems, it's important to recognize that due to historical discrimination against marginalized communities, there needs to be a more intentional effort when collecting data and understanding the needs of these communities, in particular. It's also important to dissect the definition of "universal" usability; attending more to certain communities because of a deficit of information about their culture will ultimately increase the overall usability of a product.

Despite this need of improvement in UX/UI methodology across the board, the increase in members of marginalized communities who pursue degrees and thus jobs in technology indicates that the future of technology design is in better hands than in previous years. A more diverse HCI field will hopefully promote a design community equipped to elevate and comfort all communities.

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