*Digitally Framed Bodies: The Role of Habitual Interfaces in Designing Aesthetic Perceptions in Digital Fitness*

Key terms: habitual interfaces, digital fitness media, body image perceptions, identity, design innovation, technology, and culture

**Introduction**

In the contemporary cultural landscape, the fusion of technology and lifestyle through digital fitness media has become a critical area of inquiry for scholars within design, innovation, and techno-cultural studies. This study focuses on the American context, where digital fitness media has become ubiquitous in daily life, influencing a broad spectrum of users across the Global North. Central to this investigation is 'habitual interfaces'—a term defined in this paper as elements within the technological design that drive repeated patterns of user behavior, sculpting cognitive and physical habits over time. These interfaces are not mere touchpoints but are intricately woven into everyday life, echoing Heidi Cooley's insights in "Finding Augusta: Habits of Mobility and Governance in the Digital Era" (Cooley, 2014). This study aims to unravel how these interfaces influence body image perceptions, identity formation, and the overarching discourse of design innovation within the tie of technology and culture.

The genesis of digital fitness media can be traced back to an era when televised fitness programs began to enter the homes of millions, signaling the start of a broader trend that would eventually lead to immersive digital fitness culture. This cultural shift was notably marked by the popularity of Jane Fonda's workout VHS tapes in the 1980s—a critical milestone that would pave the way for the fitness DVDs of the early 2000s and, eventually the personalized, interactive fitness content facilitated by the internet's rise (Jenner, 2023). As the first decade of the 2000s ended, the proliferation of smartphones catalyzed a significant transformation, amplifying the reach and depth of digital fitness media. Apps like Fitbit, Strava, Myfitnesspal, and many more emerged, transforming fitness into a socially connected experience, with interfaces meticulously designed to foster community and personal progress through tracking, virtual coaching, and social sharing—a testament to the power of habitual interfaces (Hillier, 2021; Ruckenstein, 2014).

These habitual interfaces have become a foundation of digital fitness media, serving as gateways that offer tailored fitness experiences and propagate specific beauty norms and body image perceptions. The content propagated by these platforms is steeped in the cultural definitions of health and beauty, often mirroring and reinforcing societal expectations. This study delves into the implications of such interfaces on individual identity and the collective cultural understanding of the 'ideal' body (Tiggemann & Slater, 2013). Platforms like Instagram and YouTube, rife with fitness influencers, curate content that narrowly defines fitness, setting challenging body standards that users are prompted to aspire to. The gamification features prevalent in many digital fitness platforms further intensify the focus on quantifiable metrics of fitness success, significantly influencing individual body image and self-worth (Ross, 2018).

In exploring these interfaces, the ongoing research engages with current discussions within the field, particularly those questioning how technology can promote inclusive and diverse representations of bodies and how digital design can affect mental health and well-being. Enterprises developing and managing digital fitness platforms in the industry increasingly focus on balancing business objectives and user-centric, health-positive outcomes. The ethical responsibilities of design in influencing user behavior and the role of technology in shaping cultural definitions of health and beauty are of paramount concern (Boepple & Thompson, 2016). The study aims to address the resistance or skepticism that emerges from sectors of the fitness industry and psychological and sociological spheres, where the causal links between interface design and issues like body image will be contested. The primary objective of this methodology is to empirically investigate how habitual interfaces in digital fitness platforms influence user body image perceptions and identity formation. This will be achieved through a mixed-methods approach, combining quantitative surveys with qualitative interviews to capture a comprehensive picture of user experiences and designer intentions. Quantitative surveys are being developed as a structured online survey targeting users of popular digital fitness platforms such as Fitbit, Strava, and MyFitnessPal. The survey will aim to reach a diverse demographic, including variations in age, gender, race, and fitness level, to ensure a broad representation of experiences. Key variables will include frequency and duration of platform use, specific features engaged with (e.g., progress

tracking, social sharing, gamification), perceived impact on body image and self-esteem, and any changes in health and fitness behaviors. Statistical analysis will be conducted to identify patterns and correlations between habitual interface engagement and body image perceptions. Techniques such as regression analysis will be employed to determine predictive relationships, while factor analysis will uncover underlying dimensions of user experience. On the qualitative interviews, semi-structured interviews will be conducted with two groups: (a) users of digital fitness platforms, selected based on their survey responses to ensure a range of experiences are represented, and (b) designers and developers behind these platforms, aiming to understand the rationale behind interface decisions. For users, the interview questions will focus on personal narratives regarding their fitness journey, the role of digital platforms in shaping their fitness identity, and their perceptions of body image in relation to platform use. For designers, the focus will be on design principles, the intended purpose of specific features, and user diversity and mental health considerations. A thematic analysis will be used to identify common themes, discrepancies between user experiences and design intentions, and insights into the relationship between habitual interface design and body image perceptions. Additionally, in-depth case studies of specific digital fitness platforms will be collected, and their design, user engagement strategies, and community feedback will be analyzed. These case studies will provide concrete examples of how habitual interfaces function in practice and their impact on users. This approach aligns with the work of scholars in the field, such as Lalmas, O'Brien, and Yom-Tov, who emphasize the importance of measuring user engagement through diverse methodologies (Lalmas et al., 2022).

The implications for innovation and social change stemming from this research are significant. The study attempts to inform a new generation of design strategies in digital fitness media, emphasizing inclusivity and positive body image. It arrives at a critical juncture as society grapples with the mental health impacts of social media and seeks to redefine the metrics of fitness success. The goal is to leverage digital fitness platforms as tools for health and wellness, fostering environments that respect and celebrate the diversity of human bodies (Ruckenstein & Schüll, 2017). This study seeks to bridge the gap between interface design and user body image perception. Through this lens, the research will advocate for innovation that honors the diversity of human bodies and contributes to a

fitness industry that promotes health and wellness while supporting a broad spectrum of body images by maintaining a consistent focus on habitual interfaces and digital fitness media.

**Literature Review**

In disentangling the intricate web that connects digital fitness media with user identity and body image perceptions, it becomes essential to anchor the discussion in robust theoretical frameworks. Social comparison theory, introduced by Festinger in 1957, has been seminal in understanding the psychological dynamics within this space. This theory posits that individuals have an inherent drive to evaluate themselves, often compared to others. In the digital fitness arena, where images of sculpted bodies and personal fitness narratives are pervasive, users find themselves in a constant loop of comparison. The design of habitual interfaces in these media amplifies this effect by curating content that often highlights the most idealized forms, prompting users to gauge their self-worth against these presented standards (Festinger, 1957). Habitual engagement with fitness applications facilitates this process, embedding the act of comparison into users' daily rituals (Myers & Crowther, 2009).

Objectification theory offers a critical perspective on how habitual interfaces can perpetuate the internalization of external judgments. According to Fredrickson and Roberts (1997), constant exposure to idealized body types leads individuals, especially women, to view themselves as objects to be evaluated based on appearance. Digital fitness media, with its relentless emphasis on aesthetic perfection, fosters an environment where users begin to assess their worth through the lens of the very platforms meant to empower their fitness journeys. The habitual nature of these interfaces means that users are repeatedly exposed to objectifying content, reinforcing the narrative that physical appearance is paramount (Fredrickson & Roberts, 1997). The evolution of design innovation is important in shaping how individuals interact with technology. As Hassenzahl (2004) notes, the acceptance and continued use of technological products are influenced by their perceived utility and ability to satisfy emotional and aesthetic needs. The design of habitual interfaces in these apps reflects this, as they often integrate engaging visual elements and user-friendly functionalities that enhance the user experience. These design choices are not merely about

aesthetics; they play a significant role in adopting and sustaining the technology, embedding the digital fitness culture more deeply into everyday life (Hassenzahl, 2004).

Donald Norman's work further explains the significance of design in user experience. Norman (2004) argues that well-designed objects and interfaces are more pleasurable to use and promote a more profound emotional connection with the technology. This emotional dimension is critical when considering habitual interfaces in digital fitness media, as it affects how users perceive and feel about their bodies. Positive design elements empower users and promote body positivity, while designs emphasizing unrealistic fitness goals negatively affect body image (Norman, 2004). Cooley's exploration of the seamlessness with which digital interfaces integrate into daily life lays a foundation for recognizing the subtle yet profound influence these technologies exert on personal routines and self-perceptions (Cooley, 2014). Through their repetitive nature, these interfaces foster a form of engagement that goes beyond conscious interaction, entering the realm of habit. This process transforms using digital fitness platforms from a deliberate choice to an almost automatic behavior. Building upon Cooley's insights, the field of captology, introduced by Fogg et al. (2007), examines how computers can change people's attitudes and behaviors. Captology reveals how app designs—through notifications, rewards, and social connectivity—create a persuasive environment that encourages users to maintain their engagement with the app. This persuasive technology is not neutral; it embodies design choices that guide user behavior in specific directions, often toward greater frequency and intensity of engagement with the fitness interface (Fogg, 2007). Stibe, Agnis, and Harri Oinas-Kukkonen (2014) elaborate on the persuasive nature of habitual interfaces and discuss how these technologies leverage social influence and reciprocation to engage users. When users log their activities and share their progress, they track their fitness journey and participate in a social exchange contributing to a sense of community and accountability. These design features are not incidental; they are deliberate innovations intended to enhance user experience and engagement, and their impact extends to forming user identity within the culture of health and fitness. Lupton (2015) adds depth to this discussion by examining how quantified self-movement, enabled by digital fitness media, encourages users to monitor and regulate their bodies through data. The habitual interface of logging, quantifying, and reflecting on personal fitness data leads users to develop a more data-

driven understanding of their bodies, influencing their perceptions of physical well-being and attractiveness. The datafication of fitness, as facilitated by these interfaces, represents a significant cultural shift in how bodies are perceived and valued.

These habitual interfaces also intersect with broader cultural narratives around health and beauty. They do not merely reflect cultural standards but also actively participate in their construction and reinforcement. As users engage with these apps, their perceptions of what it means to be fit or beautiful are continually shaped by the content and design of these platforms. This influence raises questions about the role of technology in reinforcing or challenging existing beauty norms and how design innovation might promote more inclusive and diverse representations of bodies within digital culture. As this review progressed, it became increasingly clear that habitual interfaces are critical where design innovation, technology, and culture converge to shape user identity and body image perceptions in the digital fitness media landscape and hence calls for a deeper inquiry into how these interfaces are crafted and the broader implications of their integration into daily life, emphasizing the need for ethical design practices that recognize and respect the diversity of user experiences and body types.

Tiggemann & and Slater's work in 2013 presented how social media platforms, as a subset of digital media, sculpt body image concerns, particularly among young women. This research has been critical in recognizing the impact of media consumption on self-perception. The omnipresent nature of digital fitness media, replete with images of idealized physiques and narratives of transformation, significantly influences user behavior and self-image. These users are often presented with goal-oriented interfaces, which, while designed to motivate, can inadvertently lead to a focus on aesthetic results rather than holistic well-being, potentially fostering dissatisfaction with one's body (Fardouly et al., 2018). The gamification elements within it, including points, badges, and leaderboards, are designed to tap into users' competitive instincts. While such features can motivate, they can also establish a framework in which body image is implicitly tied to performance metrics. This conflation of achievement with physical appearance engenders a competitive environment rife with comparison and rivalry, contributing to the potential for negative body image perceptions. Lewis & Neighbors (2005) suggest that this competitive drive,

exacerbated by the habit-forming nature of these interfaces, intensifies concerns over body image as users strive to meet or surpass the achievements of their peers.

Despite the insightful explorations into the impacts, there still needs to be more literature that specifically addresses the role of habitual interfaces within digital fitness media. These interfaces—designed to promote user engagement through repeated interactions—have not been thoroughly examined for their direct impact on body image perceptions and identity formation. Hillier's research in 2021 calls attention to the need for more nuanced studies that consider how the design elements of these interfaces interact with users' self-perceptions and cultural norms of beauty and health. Moreover, the current body of research often needs to look at the heterogeneous experiences of users from varying socio-demographic backgrounds. The question of how habitual interfaces may reinforce or challenge entrenched biases in representations of health and beauty needs to be addressed. Grabe et al. (2008) highlight the importance of considering the diverse experiences of users who engage with digital fitness media, suggesting that the impact of these interfaces on body image perceptions may differ widely across different populations. Tylka (2011) advocates for creating digital fitness environments that celebrate body diversity and foster positive body image perceptions, challenging the prevailing norms.

**The Perpetuation of Narrow Beauty Standards by Habitual Interfaces**
The design and functionality of habitual interfaces in digital fitness media are not simply neutral conduits for health information; they are active agents in propagating narrow and often unattainable beauty standards. This claim is substantiated by Tiggemann and Slater's (2013) work, which defines the pernicious effects of social media on body image concerns. Extending their findings to digital fitness, the meticulous design of app interfaces that prioritize tracking every aspect of physical activity and diet fosters an obsessive fixation on achieving specific body metrics. While ostensibly designed to enhance health and fitness, these features inadvertently shift the focus toward achieving an idealized physique at the expense of holistic well-being. The granular emphasis on metrics such as calories burned, steps taken, and weight lost can transform fitness apps into echo chambers of the thin ideal, reinforcing a culture where the worth of a workout, and by extension, the person undertaking it, is measured against a rigid standard of beauty (Fardouly et al., 2018).

The persuasive power of these habitual interfaces is further highlighted by their omnipresence in users' daily routines, lending them an outsize influence over body image perceptions. The interfaces do more than track and motivate; they subtly suggest that pursuing fitness is synonymous with following a specific body type. This insinuation, woven into the user experience, leads to heightened body surveillance among users, where each glance in the mirror is an assessment against digitally mediated beauty norms. The continuous feedback loop these apps provide, praising users for meeting targets aligned with these norms, deepens body image concerns, particularly in individuals prone to social comparison (Myers & Crowther, 2009).

Acknowledging the counterargument that digital fitness platforms serve as motivational tools, critically evaluating the kind of motivation being fostered is essential. While the aim of such platforms is to encourage healthier lifestyles, the underlying message often emphasizes a narrow definition of health and beauty. This restrictive representation can have a counterproductive effect, especially when the diversity of bodies and health journeys is not adequately reflected. Boepple and Thompson (2016) assert that digital fitness media must offer a more inclusive array of body types and fitness goals, thus enabling a broader spectrum of users to feel represented and validated in their health endeavors, however, is a complex issue that requires a multifaceted response. While digital fitness media can motivate users, focusing on idealized outcomes can eclipse the celebration of individual progress and diverse body types. This emphasis on a singular beauty ideal leads to a homogenized view of health that disregards the richness of human diversity. The social comparison theory informs this argument by suggesting that constant exposure to and interaction with these narrow standards can worsen feelings of inadequacy and dissatisfaction with one's body. By presenting a singular, often unattainable body type as both the norm and the goal, these apps contribute to a distorted body image among users, underlining the need for design innovation that promotes a more inclusive and holistic approach to fitness and body positivity (Myers & Crowther, 2009).

It is crucial to acknowledge the potential benefits of digital fitness platforms and examine their design principles and the reasoning behind their interface features. By critically

assessing how these platforms influence users' body image perceptions and identity, we can advocate for a shift in design philosophy—one that not only motivates health and fitness but also fosters a positive, inclusive, and diverse representation of bodies, challenging the prevailing narrow beauty norms and contributing to a healthier cultural discourse around body image. To address the challenge of habitual interfaces in digital fitness media perpetuating unreasonable beauty standards, a multifaceted approach to design innovation is required—one that is grounded in the culture of inclusivity and bolstered by technology that prioritizes diversity. A realistic and achievable solution involves reimagining the core functionality of these platforms, transforming them from mere quantification tools to catalysts for positive identity formation and body image perceptions.

Firstly, these platforms must broaden the definition of success beyond traditional metrics like weight loss and body measurements. Encouraging users to set and pursue personalized goals that focus on strength, endurance, flexibility, mental well-being, and overall health can help shift the emphasis from appearance to functionality and well-being. For example, apps could use AI algorithms to create customized fitness journeys that account for individual body types, fitness levels, and personal objectives rather than prescribing one-size-fits-all routines. Secondly, implementing features highlighting the diversity of bodies achieving various fitness milestones counteract the narrow portrayals of success. This could include showcasing success stories from many users providing a platform for underrepresented bodies and fitness journeys. Social features could be designed to foster communities around shared experiences and challenges rather than competition, providing a support network that facilitates individual progress (Fardouly et al., 2018).

In addition, these apps must be conscientious in using imagery and content. Instead of an over-reliance on photos and videos of idealized bodies, platforms can integrate various media that depict a realistic range of body types engaging in fitness activities. This approach aligns with universal design principles, ensuring that the platforms serve a broad user base and promote a culture of inclusivity (Sanford et al., 1998). Another avenue for change is the development of interfaces that prioritize educational content over aesthetic display. By providing users with diverse body type knowledge about nutrition, exercise science, and the psychological aspects of fitness, digital platforms can empower users to make informed

decisions about their health. This educational focus can help dismantle the myths of quick fixes and miracle transformations that often contribute to negative body image perceptions (Markula et al., 2006). From a regulatory perspective, guidelines and standards for these apps could be established, ensuring they promote healthy body image perceptions and not exploit user insecurities. This could involve collaboration with mental health professionals, fitness experts, and user experience designers to create a set of best practices for the industry (Hassenzahl et al., 2010). Further, the research community can contribute to this by conducting longitudinal studies on the impact of these redesigned interfaces on body image perceptions and identity. This research can provide empirical evidence to guide further design innovation, ensuring that digital fitness media evolves in a direction supporting users' mental and physical health (Lupton, 2015).

Any solution to perpetuating narrow beauty standards by habitual digital fitness media interfaces is complex. It requires a concerted effort from designers, developers, industry leaders, and researchers to forge a new path. By redefining success metrics, prioritising diversity, focusing on education, and establishing industry standards, digital fitness platforms can become tools that improve physical health, foster positive body image perceptions, and support the formation of a healthy identity. This future-oriented approach to design innovation in digital fitness media influences the broader cultural context, creating a more inclusive and supportive environment that reflects the true diversity of society.

**The Role of Design Innovation in Promoting Inclusive Body Image Perceptions**
The principle of diversity and inclusivity extends beyond the mere representation of different body types. It involves a nuanced understanding of how various demographic groups—distinguished by age, gender, race, and socioeconomic status—interact with and are impacted by habitual interfaces. This expanded analysis delves into the multifaceted experiences of these groups, underlining the importance of intersectionality in shaping user experiences and perceptions within digital fitness environments.

Younger users, particularly those belonging to Generation Z and younger Millennials, often exhibit a high level of digital literacy, enabling them to navigate complex interfaces with ease. However, their engagement with digital fitness media can significantly influence their

body image and self-esteem, given their developmental stage and susceptibility to social comparison. In contrast, older adults may seek functionality that supports age-related fitness goals, such as flexibility, balance, and joint health. They prefer interfaces with simplified navigation and personalized workout recommendations considering physical limitations or chronic health conditions. For example, older adults tend to prioritize health information accuracy and ease of use in digital health platforms over competitive features, suggesting a need for age-adaptive interface. Another example is of gender stereotypes. Women's content frequently focuses on aesthetics and weight loss, while men's content emphasizes muscle building and strength. This gendered content not only reinforces narrow beauty standards but also neglects the diversity of fitness goals across genders. The proliferation of female-focused fitness apps that emphasize slimming and toning workouts, as opposed to strength and muscle-building programs, contribute to a one-dimensional portrayal of women's fitness goals, overlooking the growing interest among women in weightlifting and high-intensity interval training (HIIT). Another based on racial and cultural representation is crucial for fostering an inclusive environment where users from all backgrounds feel represented and valued. The lack of diversity in fitness models and the cultural bias in dietary recommendations can alienate users from non-Western backgrounds or those with diverse cultural practices. Including fitness instructors of various racial and ethnic backgrounds and offering workouts that acknowledge cultural diversity limitedly enhance the appeal of these platforms to a broader audience. Intersectionality—the interconnected nature of social categorizations such as race, class, and gender as they apply to a given individual or group—plays a critical role in how users experience digital fitness platforms. For example, a low-income, middle-aged woman of color may face unique challenges in finding digital fitness content that resonates with her specific health needs, cultural background, and financial constraints. Designing interfaces that allow users to filter content not just by fitness goals but also by instructor diversity, cultural specificity, and affordability can create a more personalized and inclusive digital fitness experience. Incorporating these considerations into the design and development can significantly enhance their inclusivity and accessibility. By acknowledging and addressing the diverse needs and experiences of various demographic groups, digital fitness media can promote a healthier, more inclusive approach to fitness, where every user feels represented, supported, and empowered to achieve their fitness goals. Hence, design innovation is

crucial in redefining the prevailing narratives around body image in digital fitness media. Designers can dismantle existing beauty norms and cultivate a more inclusive environment by integrating a more comprehensive range of body types and fitness journeys within digital interfaces. Such redesigns can validate a spectrum of body and fitness levels, promoting a healthier and more diverse body image perception among users.

Critics contend that the primary goal of this media is to engage and motivate users, positing that the role of these platforms is not to drive social change. However, this perspective recognizes the responsibility of designers to employ ethical considerations in their work. Engagement must not come at the expense of perpetuating harmful stereotypes or narrow definitions of health and beauty. Hassenzahl (2004) advocates for a conscientious approach to design, where the broader social impact, including the influence on cultural standards of health and beauty, is a critical consideration in the development process. Human-centered design principles offer a solid foundation for reasoning within this argument. Norman (2004) emphasizes the importance of considering all users' real-life contexts and needs, advocating for creating technology that promotes diverse and healthy body image perceptions. This approach demands that digital fitness interfaces be crafted with empathy and an understanding of the varied realities of users' lives. By prioritizing the user's experience and well-being, designers can develop digital fitness solutions that engage and empower users, encouraging them to form a positive and authentic identity that resonates with their personal health and fitness goals.

**Conclusion**

In synthesizing the discussions presented, this essay is a foundational exploration into the intricate dynamics between habitual interfaces in digital fitness media, body image perceptions, and identity formation. It stands at the inception of a broader, in-depth study that delves into these aspects within the context of American society. As digital fitness media increasingly permeates everyday life, its impact extends beyond physical health, influencing how individuals view themselves and internalize societal beauty norms. This study aims to unravel these complex relationships, laying the groundwork for future research that can provide more profound insights into the role of technology in shaping cultural and personal identities. At the core of this investigation are habitual interfaces, a

term that encapsulates the repetitive and engaging elements within digital fitness media that sculpt user behavior and thought patterns. This study suggests that these interfaces, while offering tailored fitness experiences, also propagate specific beauty norms, often mirroring and reinforcing societal expectations. This raises critical questions about the role of technology in shaping user identity and the broader cultural understanding of the 'ideal' body.

This ongoing research presented in this essay acknowledges the transformative potential of design innovation in promoting inclusive body image perceptions. By reimagining the functionality of digital fitness platforms, designers can challenge narrow beauty norms and support a more inclusive approach, as Grabe et al. (2008) suggested. This perspective is crucial in redefining the role of digital fitness media, shifting from a focus on idealized outcomes to a celebration of diversity and individual health journeys. The upcoming field research is poised to delve deeper into these topics, employing a multi-pronged method that includes qualitative and quantitative analyses. By analyzing digital fitness applications, user interaction data, and surveys, the study aims to understand comprehensively how habitual interfaces impact body image perceptions. This study arrives at a critical moment as society grapples with the mental health impacts of social media and the redefinition of fitness success metrics. This research contributes to a broader discourse on health, beauty, and technology by advocating for design strategies emphasizing inclusivity and positive body image. It seeks to bridge the gap between interface design and user body image perception, advocating for innovation that credits the diversity of human bodies and supports a fitness industry that promotes health and wellness for all.

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