Wearing Many Avatars: How Users Express, Shift and Perceive Identity Across Contexts in Social VR

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Abstract

In Social Virtual Reality (VR), people use avatars to express identity. But how different social contexts influence the weighting of identity aspects people attribute to avatars, and the potential impact on avatar switching to their perception of identity consistency, remains unclear. To address this gap, our study employed a questionnaire-based survey with 100 participants. We found that people place greater emphasis on expressing their age, aesthetics and culture through avatars, relative to other identity aspects. Whereas attributes, such as one's physical disabilities and mental health, are consistently hidden. Education and social status are context-dependent. Beyond adjusting these components, users also employed complete avatar switching as a strategy to meet social expectations and protect privacy. Furthermore, although people perceived a change in identity when switching avatars, their core identity was considered stable. This study advances knowledge of identity practices in digital spaces and offers insights for designing inclusive Social VR platforms that support multi-context identity expression.

CCS Concepts

• **Human-centered computing** → **Virtual reality**.

Keywords

Digital identity, identity expression, social virtual reality, avatar customisation, avatar switching.

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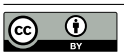

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1 Introduction

Social Virtual Reality (Social VR) has arisen as a growing ecosystem of commercial platforms in shared virtual environments [14]. It breaks the physical boundaries of everyday socialisation, allowing users to communicate in an immersive way via headsets [48, 55]. Typically, users start their experience on the platform by creating an avatar, which can move, gesture, and interact with others, thereby serving as their digital representation [39].

Currently, avatars are highly customisable, allowing users to adjust their facial features [29], body shape [27] or skin colour [54] as they wish. Alongside this increasing capacity for visual expression, avatars not only expand aesthetic choices but also mediate how users want to express their identity to others. Prior work has explored how the avatar personalised customisation process is influenced by users' self-awareness [19], self-presentation [22, 35, 44], and perception of virtual interaction [22]. Yet, often overlooked is the context-dependent nature of avatar customisation, as well as the potential impact of switching across avatars on users' sense of identity consistency.

This gap is important as Social VR platforms are increasingly used for diverse activities (e.g., work meetings, social events, gaming) [14, 47]. However, they are often designed under the assumption that users maintain a relatively stable identity when embodied in avatars [58], lacking support for cross-contextual avatars and identity management [32, 40]. This leads to a series of practical challenges when users transition between different social contexts, including identity misalignment in context collapse [40, 58], increased complexity in privacy management [40, 41]. Moreover, if users choose to redesign their avatars for each context, they will incur substantial time costs and experience greater cognitive load from constant decision-making [40, 74]. Therefore, understanding how users spontaneously navigate these challenges is crucial for building the next generation of human-centred Social VR Platforms.

Although prior works examined various aspects of user-avatar relationships, like how avatar resemblance fosters body ownership and trust [1, 4], how they support identity continuity [35, 58] and how they allow self-presentation in Social VR [22, 35, 43], it is still unclear a) which aspects of users' real-world identity shape avatar customisation, b) how users' identity perception changes

when switching avatars in different contexts and c) how identity expression in Social VR differs from traditional platforms like social media and gaming [40, 51]. To address these gaps, we investigate three research questions:

RQ1 In Social VR, what real-world aspects of identity do users consider and express when customising their avatars?

RQ2 Informed by RQ1, how are these considerations influenced by different Social VR contexts?

RQ3 How do users manage and switch between avatars across contexts, and how does this affect their sense of identity?

We conducted a questionnaire-based survey (N = 100) to examine how users select, adapt and switch avatars to express identity in Social VR. We further investigated the decision-making strategies they use when updating avatars across different contexts and how their identity perceptions change when switching between avatars.

Our results demonstrated that, through the avatar customisation, people express certain components of their real-world identity, such as aesthetics and personal goals, and that users often favour idealised avatars rather than literal versions of themselves. These priorities also shift across contexts: age, aesthetics, and cultural identity are consistently important, education and religion are more pertinent in formal settings, while hobbies and gender are more relevant in informal ones. Users switch avatars primarily to adapt to different communities, experiment with different identities, and manage privacy, yet they maintain a stable core identity and treat avatar management as part of identity management.

Identity is a multifaceted topic that includes a lengthy and diverse history [24] as a self-informative understanding, grounded in the meanings people attribute to themselves and enact through performances in specific social contexts [25, 62]. Looking at the avatar-driven identity work in Social VR, our study makes the following contributions:

First, we extended Goffman's dramaturgical theory [25] to the context of embodied digital identity in Social VR. We suggest that Social VR does not merely provide a new platform for identity performance. Instead, Social VR reconfigures how identity is enacted by turning Goffman's frontstage (public self) and backstage (private self) from a self-negotiation process into a technically operable mechanism, realised through real-time avatar customisation.

Second, we clarified how identity expression takes shape differently in Social VR compared to non-immersive environments. Although certain practices (e.g., idealised identity expression) re-emerge, we conceptualised avatar switching as a form of contextual identity regulation rather than tool management; users actively switch avatars to meet situational norms and privacy demands, while sustaining a coherent core identity over time.

Third, we argue that the practical limits of the avatar-switching function can constrain the identity aspects users feel able to express and hide. Based on this view, we outline design improvements for Social VR platforms and encourage developers to treat the avatar customisation function not merely as personalisation tools, but as infrastructures that support rich identity expression and mediate social inclusion and recognition.

2 Related Work

Our work builds on prior work in three domains: first, the interdisciplinary history of identity theories and how they have been expanded in digital environments; second, avatar-based identity expression in non-immersive environments; and third, how avatars serve as a medium for identity in Social VR.

2.1 The Cross-disciplinary Evolution of Identity Studies

Identity research has its roots in sociology and psychology, where scholars have long explored how people understand and express their identities in various social and cultural contexts. Goffman, in his book The Presentation of Self in Everyday Life, conceptualised identity as a performance in which individuals manage impressions to align with social roles in specific contexts [25]. He distinguished between "frontstage", where people present a carefully managed public identity to an audience, and "backstage", where they can step out of that identity, relax their role, and prepare or repair impressions before returning to the public. Bourdieu built on this theory to propose that identity emerges not merely from individual choice but also from cultural capital, influenced by education, class, and access to social resources [6]. This social concept, coined habitus, guides individuals' perceptions and actions, enabling them to navigate changing environments and thereby giving rise to a multitude of possible identities. Butler later extended these implications to include the perspective of gender in shaping how people form their identity [8]. They emphasised that gender identity is not a priori or a set of floating attributes, but a process of continuous construction through repeated behaviour in a specific social context. Building on this foundation, Jenkins' dialectical approach further deepens this understanding of how identity emerges through mutual recognition ("who we are" shaped by "others' understanding"), while crystallising fluid selves into fixed categories through bureaucratic power (e.g., ID cards) [33]. These theories position identity as an ongoing process negotiated not only by an individual's social role but also within power-laden social boundaries.

In psychology, identity is viewed as an integral part of personal development and motivation. Deci and Ryan's Self-Determination Theory posits that people develop an identity through feelings of autonomy and competence [12]. Erikson's theory of psychosocial development described identity formation as a key part of growing up, especially during adolescence, to avoid role diffusion and identity confusion [17]. Narrative identity theory adds that people make sense of identity by telling stories that give coherence and meaning to their self-image [46].

With the rise of digital media, identity research has expanded into online environments, where many digital platforms serve as new sites for constructing identity. Earlier work by Nakamura and Turkle showed that due to the characteristics of disembodied and relative anonymity, online space allows users to explore flexible identities. However, it can also reflect existing biases related to race, gender, and power from the real world [49, 70]. In parallel, digital identity has also been found to be shaped not only by users themselves, but also by platform design. For example, on social media platforms, rules and algorithms could decide which aspects of a person's identity are revealed more prominently (e.g., on LinkedIn,

professional identity is emphasised) [71, 72]. Similar patterns can be observed in online games, where in MMORPGs (Massively multiplayer online role-playing games), identity work is also guided by level systems, character classes, skill trees [11, 23, 34].

These perspectives demonstrate that identity is not fixed but continually evolves, constructed by personal factors and social context, and is now increasingly affected by digital environments and platform characteristics. However, Social VR offers greater immersion and embodiment than social media and other digital contexts. Interesting questions then arise about how users express and negotiate their identity in these spaces with avatars, and whether prior theories on self-presentation apply to future VR systems.

2.2 Avatars and Identity Expression in Non-immersive Media

Before the advent of Social VR, many studies had already explored how avatars support identity expression within non-immersive applications, particularly in online games, virtual worlds such as Second Life, and social media.

Works on MMORPGs have shown that game avatars support rich forms of identity expression, as players could easily change their avatars' roles and equipment to experience in-game fantasies that are difficult to express in real life [5, 13]. In these settings, identity expression primarily revolves around role-playing, and the relationship between users and their avatars is sustained through imagination [65]. However, these avatar choices are always bound by game-specific roles and narrative backgrounds, so they do not always accurately reflect players' real-world selves [11, 65].

Beyond this, Second Life provide more flexible conditions for ongoing identity expression [45]. Second Life offers greater freedom in avatar appearance choices than traditional gaming, yet residents often retain core elements of their offline identities and engage in activities that closely resemble their everyday lives [42]. Meanwhile, the social environment and community norms in Second Life create powerful boundaries that shape which avatar styles are seen as acceptable or desirable [45]. Users carefully craft their avatars' appearance, clothing and accessories to express identity between community expectations and a desired virtual self [50]. On other non-immersive platforms, such as social media, avatars are often associated with users' profile "stickers" [77]. Users deliberately employ stylised avatars to signal who they are [75, 77]. Sometimes, these avatars reinforce consistency with users' offline identities [20, 21], and at other times, people want to preserve ambiguity and a sense of safety [57].

To conceptualise user–avatar relationships in these digital environments, Kanamgotov et al. [35] introduced a framework comprising three forms; the first of using avatar as an alter ego, which differs from the user's offline self; the second avatar as a medium, acting as a bridge between the user and the digital environments; and the third using the avatar as a tool, serving functional purposes in virtual interaction without much emotional connection. Building on this, Praetorius et al. [56] describe an avatar as a symbiote relationship, which captures the fluid nature of the relationship between self-representation and the avatar as a distinct entity. In this view, users combine personal traits with avatar characteristics in an ongoing process of identity negotiation and meaning-making, resulting in a cooperative approximation of who they are or wish to be [56]. Hamilton further deepened that avatars are not merely instruments for disclosing or concealing identity, but also tools for self-exploration and experimentation [28].

2.3 Avatars as Mediums for Identity in Social VR

Social VR has emerged as a shared digital space that reshapes how people interact online [22, 43]. Compared to previous 2D settings, users meet in three-dimensional environments and communicate in real time through embodied avatars [22]. These avatars allow users to interact, navigate, and even simulate eye contact with others, creating a strong sense of presence that mimics face-to-face interaction [22]. Avatars in Social VR are often highly customisable, and users routinely edit their avatars to manage how they present themselves to others [39, 51].

The way users customise avatar appearance in Social VR has been studied to reveal how people understand their virtual selves [39]. A wide selection of customisation features enables users to accurately convey (or intentionally obscure) their identities, while a lack of such options forces visual homogeneity [51]. Additionally, experienced users often customise avatars as alter egos or false identities that diverge from their offline selves [22]. In this respect, avatar appearance has been positioned as a key instrument for selective self-presentation, enabling users to negotiate how much of their identity to disclose or conceal in different Social VR contexts [22, 44]. Findings from Kang et al. [36] further extended this work, showing that users' perceptions of appropriate avatar appearance depend on personality traits and social context. These include Machiavellianism [36], which relates to the tendency to manipulate one's image to achieve personal goals [9], and self-monitoring, which involves adapting behaviour and appearance based on the social environment [61].

Avatars can also feed back into how users experience identity in VR. Studies on the Proteus Effect show that avatar appearance can influence not only behaviour but also how users evaluate themselves. For example, users with taller or more attractive avatars often exhibit greater confidence and sociability in virtual settings [76]. Meanwhile, the embodiment features of the avatar in VR can promote emotional connection and facilitate more natural social interactions [3, 26, 60], when users experience a sense of body ownership, agency, and self-location through their avatars in VR, they feel more like their avatar is truly their own body [37, 59, 60].

As Social VR has evolved, users can now create multiple avatars across platforms, rather than maintaining a single, consistent one [40]. While prior work has shown that avatars support self presentation [22], little is known about which identity aspects users choose to incorporate into their avatars (RQ1), how Social VR scenarios affect these decisions (RQ2) and how switching across multiple avatars in relation to the perception of identity consistency (RQ3).

3 Method

To address the aforementioned research questions, we conducted a questionnaire-based study and measured three core constructs, as detailed in Figure 1 and Section 3.1. Pairs of 5-point Likert-type scales (1 = Strongly Disagree, 5 = Strongly Agree), open-ended

prompts capturing the reasons behind their choices, plus one rank-ordering task constituted the three main question formats.

First, to find participants, we distributed the survey online through Social VR communities and forums, including Discord servers (e.g., Virtual Reality, VRChat), Meta forums, the UK XR Community and other university-affiliated VR research groups. These platforms were selected to target participants with familiarity and varying degrees of engagement in Social VR. The participants were required to be 18+ years old, have used at least one social VR platform and have personally participated in multiple avatar creations. We had these requirements to ensure participants could discuss their previous experiences across platforms and avatars. Participants could optionally take part in a lottery for one of two £20 Amazon vouchers. Our study was approved by the University of Glasgow Ethics Committee (No. 300240058).

3.1 Survey Instrument

At the beginning of the questionnaire, we gathered participants' demographic (e.g., age, gender, geographical location) and VR usage experience (e.g., VR frequency and scenario of use). This data serves to contextualise our findings and characterise the background of our participant pool.

Construct 1: Identity expression through avatar customisation in Social VR. First, participants listed at least three real-world factors that shaped their avatar customisation through an open-ended question. They then rated, via two Likert items, how much their avatar reflected their real or ideal identity. Then, they described which appearance feature they modified to express their identity and why, followed by two further Likert items on their satisfaction with the customisation process, how the final avatar met their expectations, and how difficult the customisation was.

Construct 2: Context-dependent priorities in avatar customisation. We used a ranking task to address the second construct. Based on responses to Construct 1 in the pilot study (n = 10), in which participants listed real-world factors that shaped their avatar customisation, we grouped their responses into ten commonly referenced identity aspects (e.g., age and lifestyle). Participants then ranked these aspects (1 = highest, 10 = lowest) for the Social VR scenarios they had previously reported using.

Construct 3: Avatar switching triggers and sense of identity measurement. The final construct examined avatar switching and its relationship to identity consistency. A filter question first asked whether they switched avatars across social scenarios. For those who did, we invited them to describe the reason. They then completed paired Likert items on whether switching was perceived as identity management or tool management, and how it affected their sense of identity consistency, followed by open-ended questions probing the reasons behind these experiences.

3.2 Participants

We collected 238 responses. After data cleaning (detailed in Section 3.3), 100 valid responses were retained. Participants were primarily from the UK (n = 49), China (n = 22), and the USA (n = 13), with the remainder from 12 other countries (1–3 participants each). The mean age was 26.8 years (σ = 5.9). Of the participants, 44 identified as male, 51 as female, and 5 preferred not to disclose their gender. Most participants were new to VR, with responses concentrated in the "less than 1 year" and "1–2 years" categories, reporting that they used VR for gaming and socialising, with smaller groups mentioning watching movies, education, or work.

3.3 Data Analysis

We cleaned the data in SPSS. Firstly, three researchers reviewed exclusions to reduce subjective bias. As our study focused on participants who had customised more than one avatar for switching, we added a screening question and excluded 117 respondents who did not meet this criterion. Secondly, incomplete responses, failed attention checks, and nonsensical responses were removed to ensure data quality (n = 21). This resulted in a final dataset of 100 valid responses. Quantitative data were analysed in R Studio, including preprocessing, visualisation, and basic statistical tests. Qualitative responses were analysed thematically using QCAmap [1].

For the quantitative data, we first summarised responses using descriptive statistics. As outlined in Section 3.1, this included paired Likert items and rank responses. For the former, we report the median and interquartile range (IQR), as well as response percentages. We analysed each item separately rather than combining them into composite scales, so no additional scoring was applied. Following this, we applied Shapiro–Wilk tests to each Likert item to examine their distributions [18] and found that they deviated from normality ($p < .05$ for all items), which supported our decision to use non-parametric tests. To assess differences in participants' views between the paired Likert items (e.g., avatars designed to resemble participants' real identities vs. idealised versions), we used Wilcoxon signed-rank tests. We report the test statistic V and associated two-sided exact p-values, interpreting $p < .05$ as statistically significant, to assess whether one option was consistently rated higher than the other [18]. For the ranking questions in Construct 2, we computed median ranks for each identity aspect between six scenarios. Finally, for Construct 3, we used Kruskal–Wallis tests [18] to compare ratings of perceived identity change across independent user groups defined by VR usage duration. When the omnibus test was significant, post-hoc Wilcoxon rank-sum (Mann–Whitney) tests were conducted with Bonferroni-adjusted p-values to identify which experience groups differed, and effect sizes were quantified using Cliff's delta [18].

Thematic analysis was conducted in two phases, following an inductive, reflexive approach as outlined by Braun and Clarke [7]. This method is often used to identify patterns and themes in participants' subjective experiences in depth [7], which aligns with the exploratory nature of our study. First, two authors independently coded the open-ended responses and developed initial themes. An inter-coder reliability (ICR) analysis was conducted to ensure objective coding by our two independent coders. Cohen's kappa of 0.75 revealed substantial ICR for the coding scheme [10]. In a second cycle, codes were refined and grouped into broader categories. These included familiarisation with the data, initial coding, theme development, review, definition, and final reporting. After that, all authors collaboratively refined the themes through six weekly

[1] https://www.qcamap.org/

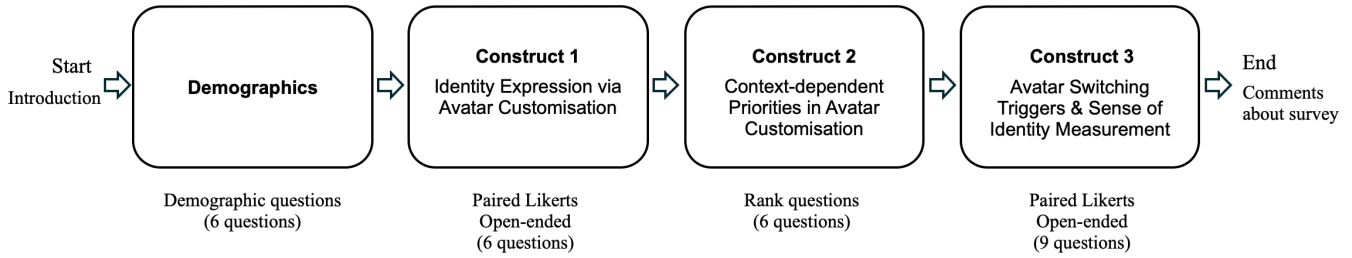

Figure 1: Overview of the survey instrument and measured constructs.

meetings. Themes were retained based on recurrence across responses and conceptual coherence, and coding continued until no new categories emerged.

We then organised the qualitative findings in relation to the constructs (Section 3.1) and integrated codes into two overarching themes. The first theme, real-world aspects of identity that shape avatar customisation and how these priorities shift across Social VR contexts (RQ1, RQ2). The second theme, strategies for avatar management across different social contexts and the resulting changes in identity perception (RQ3). When presenting themes, we report the percentage of participants whose responses were coded to a given theme. These counts are used to indicate relative prevalence rather than as the basis for inferential claims. These themes are detailed in the Results section. The anonymised codebook is available in the supplementary materials.

4 Results

The findings are organised around the two overarching themes introduced above.

4.1 Real-World Factors Influencing Avatar Customisation and Identity Construction

When customising avatars, users often draw inspiration from their real-world identities (an evoked motivational state that compels the realisation of ideas [67]). Participants were influenced by five main categories: Aspects of Self, Aesthetic Preference, Aims, Physical Attributes, and Social Environment. Among these, Aspects of Self was the most prominent one, referenced by 77% of participants. Here, "self" refers to how users perceive enduring traits, roles, or internal states (e.g., age, gender). Aesthetic preference followed with 44 mentions, while Aims (18%), Physical attributes (17%) and Social Environment (5%) were less reported.

Within the Aspects of Self category, the most frequently mentioned factors were Hobby and Interest (25%), Personality (20%), and Mood or Emotion (15%). Other relevant codes included Demographic and Professional Identity. Most users described these self-related aspects using short phrases or single words, directly providing brief explanations. For example, P29 referred to *"a background story that shapes or tells my personality (or what I want people to assume)"*. P87 mentioned *"emotional state"* as a reference point, while P32 cited *"ethnic"* and P3 noted *"professional roles"*. These aspects reflect users' long-term perception of their inner selves.

Aesthetic Preferences played a central role, with participants citing Fashion and Style (24%), Aesthetic Taste (16%), and Colour (8%) as important drivers of customisation. For example, P2 described designing avatars based on *"what I think is cute"*, which reflects his fashion style. Similarly, P58 referred to a *"sense of beauty"* as a guiding principle of visual taste.

Personal Aims included Aspirations (6%), Playability (4%), Comfort (3%), as well as more psychological motivations such as Confidence (2%), Recognition (2%), and Escapism (1%). For instance, P76 mentioned: *"My intention to catch more eyes on me"*. This indicates that some participants customised avatars with specific personal goals in mind, beyond reflecting aspects of their existing identity.

Interestingly, only 17 participants referred to Physical Attributes in their avatar design, followed by Hairstyle (7%), Skin Tone (7%), Body Shape (5%), and Facial Features (5%). This indicates that physical resemblance may not be a primary concern for most users, as discussed further in the following subsection.

Finally, a small number of participants (5 out of 100) commented that their social environment influenced their avatar design, such as adapting to a particular community (4%) or Surroundings (2%).

> **Finding 1:** Avatar customisation in Social VR primarily reflects individuals' real-world identities from aspects of self, aesthetic preferences and personal aims.

Participants reported using specific avatar features to express their real-world identity. Physical Attributes (78%), Accessories (55%), Aspects of Self (23%), and Colour (15%) were the most popular features. Among physical attributes, Facial Features and Expressions (34%), Skin Colour (24%), Hair (29%) and Body Shape (21%) were their top considerations. These choices reflect how participants prefer to appear when embodying their avatars.

Accessories, meanwhile, were also highly important to users, with Clothes (41%) and Props (19%) being frequently mentioned. Others felt that features such as gender and favourite colour were also important. They further explained the reason, with the three main reasons being to reflect aspects of self, increase socialisation, and enhance their VR experience.

Many participants explained that these features helped to reflect their perceived identity in Social VR. For example, one participant said, *"[My] avatar represents who I think I am"* (P61), while another stated, *"They should reflect myself and my own preferences in reality" (P47)*. Continuity in gender identity was also considered important: *"I feel proud and confident when avatars have the same gender as myself"* (P16). Some responses were playful, highlighting the enjoyment of creating similarities between real-life appearance

Category	Proportion	Category Reason	Codes	Proportion
Aspects of Self	77%	Reflect the users' enduring traits of self in terms of personality, emotions, interests and other internal dimensions.	Hobby or Interest	25%
			Personality	20%
			Mood and Emotion	15%
			Age	14%
			Professional Identity	11%
			Cultural Background	11%
			Gender	10%
			Ethnicity	6%
			Self-Image	6%
			Life Experience	5%
			Social Status	5%
			Belief and Value	4%
			Sexual Orientation	3%
			Education	1%
Aesthetic Preference	44%	Reflect the users' aesthetic preference in terms of fashion, style and colour.	Fashion and Style	24%
			Aesthetic Taste	16%
			Colour Preference	8%
			Visual Element	7%
			Design Idea	2%
Aims	18%	Reflect the users' goals and pursuits in Social VR and show motivation for avatar customisation.	Aspiration	6%
			Playability	4%
			Comfort	3%
			Recognition	2%
			Special Ability	2%
			Confidence	2%
			Escapism	1%
			Creativity	1%
Physical Attributes	17%	Reflect the users' physical attributes such as body shape, skin, etc.	Hair Style	7%
			Skin	7%
			Body Shape	5%
			Facial Feature	5%
			Sound	2%
Social Environment	5%	Reflect environment consideration	Community	4%
			Surrounding	2%

Table 1: The codebook of real-world identity aspects influencing avatar customisation in Social VR. The most frequently mentioned aspects were Aspects of Self (77%), Aesthetic Preference (44%), and Aims (18%). Percentages do not add up to 100% because participants can mention multiple factors, and each value reflects the proportion of users who referred to that aspect.

and avatars: *"It's just fun to create an avatar close to your personal physical traits and style"* (P13).

Increasing socialisation was also brought up 23 times across participants' responses. Participants believed that customised avatars could help others quickly get recognised and form positive first impressions. For instance, one said, *"That could help others quickly find out I'm an interesting man"* (P70), while another commented, *"It's the way people know each other for the first time"* (P19). Users also hoped that customised avatars would attract others or enhance interactions, as illustrated by the comment: *"Because they reflect the character I desire to use to interact with other people"* (P77).

Finally, some participants mentioned that these avatar appearance features could enhance their overall Social VR experience. For example, *"It's the fastest way for me to feel ownership of my avatar"* (P50) or *"They help tie me into my avatar"* (P38), clearly reflecting that they felt these components of avatars could improve their sense of connection and engagement in Social VR.

> **Finding 2:** Most Social VR users consider avatar appearance features like physical attributes, accessories and props important, as they help them to express a new perceived identity, improve social interaction and enhance sense of engagement and embodiment.

Social VR gives users a high degree of personalisation in how they present themselves. When asked whether their avatars resemble their real identity, the Likert responses demonstrated clear differences in users' preferences, 54% agreed or strongly agreed, 12% remained neutral, while 34% of users disagreed or strongly disagreed ($Med. = 4$, $IQR = 2$, where Med denotes the median and

IQR the interquartile range). In contrast, referring to creating an idealised version of identity, a significant 68% agreed or strongly agreed, 18% remained neutral, and only 14% disagreed or strongly disagreed ($Med.$ = 4, IQR = 2), the results of two questions examined by Wilcoxon test showing significant differences [18] (V = 307, p = .003.), indicating that participants systematically rated idealised avatars higher than realistic ones. Thus, users showed a clear preference for customising avatars that represent an idealised version of their real-life identity rather than strictly mirroring it.

> **Finding 3:** Users prefer to customise avatars representing an idealised version of their identity rather than replicating their real-life identity.

Satisfaction with avatar appearance was generally high, though ease of customisation varied. When asked whether their avatar's appearance matched their expectations using a Likert scale, most participants agreed ($Med.$ = 4, IQR = 1), indicating overall satisfaction. However, responses were more mixed regarding the difficulty of achieving their desired appearance (1 = very easy, 5 = very hard), with participants reporting a moderate experience on average ($Med.$ = 3, IQR = 2).

To further understand these results, participants explained their reasons. For those satisfied with avatar customisation, many noted that platforms offered multiple options. One participant stated, *"When creating my Meta avatar, there was a reasonable amount of choice for personalising it"*(P12). Another participant mentioned, *"I just wanna make the avatar look like what I want, and it is easy to choose a suitable appearance"* (P97). Some users noted that, although they were able to design an avatar, the limitations of the customisation experience persisted. For example, *"Platform provides limited choices, but still works"* (P64), or *"Some humanoid avatars are easy to make, but non-human avatars are hard"* (P19).

Dissatisfied participants, however, helped to highlight the specific scenarios where these limitations were. Some users faced difficulties matching their idealised appearance with currently available options, as one user said, *"It's difficult since some features do not match my appearance"*(P20). Others highlighted mobile accessibility challenges, such as P25, who noted that *"there isn't a tool that allows me to customise my avatar from my phone"*.

> **Finding 4:** Most users feel their avatars match their desired appearance, but there is still a lot of potential to improve tools for non-humanoid avatar and mobile-based customisation.

Social VR scenarios influence avatar customisation prioritisation. The heat map (Figure 2) shows the distribution of median ranks across six scenarios, with darker cells indicating higher priority. Overall, age or life stage consistently ranked high across all scenarios. This indicates that users consider age as a fundamental part of their identity. Aesthetic preference and cultural heritage or ethnicity also remained relatively important, though their rankings varied slightly across scenarios. Specifically, users placed greater emphasis on aesthetic preferences in casual contexts, such as playing games, but slightly less during formal events, such as work.

The importance of educational background shifted notably depending on the scenario. Education ranked highly in professional contexts such as work and official events, which may be because these contexts often involve showcasing expertise, credibility, or professionalism, but it received lower priority in casual interactions. On the other hand, hobbies or fandoms showed the opposite trend, becoming more important in casual scenarios such as gaming or watching movies and less important in professional settings.

Gender or sexual orientation also showed differences, with greater importance in informal interactions such as casual chats but considerably lower rankings in formal contexts such as work. Religious or spiritual identity similarly fluctuated, with greater priority during official events and lower priority during casual situations. People also ranked physical disability and mental health lower than average in the overall rankings. This trend suggests that most participants may not personally relate to these traits or may have subconsciously avoided expressing potentially sensitive aspects. Further research is needed to understand how users with specific needs related to physical disability or mental health navigate identity expression in VR.

> **Finding 5:** Real-world aspects hold different priorities across Social VR contexts, with age, aesthetics, and cultural heritage being consistently prioritised. Education and religion gain importance in formal contexts, while hobbies and gender identities become more salient in informal contexts that encourage personal expression.

4.2 Strategies for Avatar Switching and How Identity Perception Changes

To explore user strategies for avatar switching, participants who regularly switched avatars (n=76) gave their reasons and explained how they adapt them across different Social VR scenarios.

The most common reason was contextual adaptation (47%), meaning users changed avatars to fit different social situations (37%) or due to compatibility issues across platforms (12%). Participants noted the importance of matching their avatar to the specific atmosphere or context, for example, *"to match the 'vibes' of each environment"* (P29), or because *"avatars do not transfer over across games"* (P91).

Experience (32%) was another significant factor driving avatar switching, including mood-based changes (13%) and seeking novelty or freshness (12%). One participant stated, *"I always change my mood, so I make different avatars"* (P70), while another expressed, *"Sometimes I'm tired of the same one"* (P47). A smaller proportion switched avatars simply for fun (3%) or to enjoy experimenting with personalised designs (1%).

Self-expression also emerged as important (20%), with participants frequently switching avatars to express different identities or personas (5%), various aspects of themselves (5%), or different social appearances (4%). For instance, a participant explained, *"I want to have a different identity and connect with a different group of people"* (P50). Additionally, some users changed avatars due to shifts in personal tastes or preferences resulting from personal growth (3%).

Notably, smaller proportions cited social motivations such as increasing socialisation (7%), where avatar switching was intended to appeal to different audiences, and privacy concerns (5%), in which avatars helped users conceal their real identities. As one

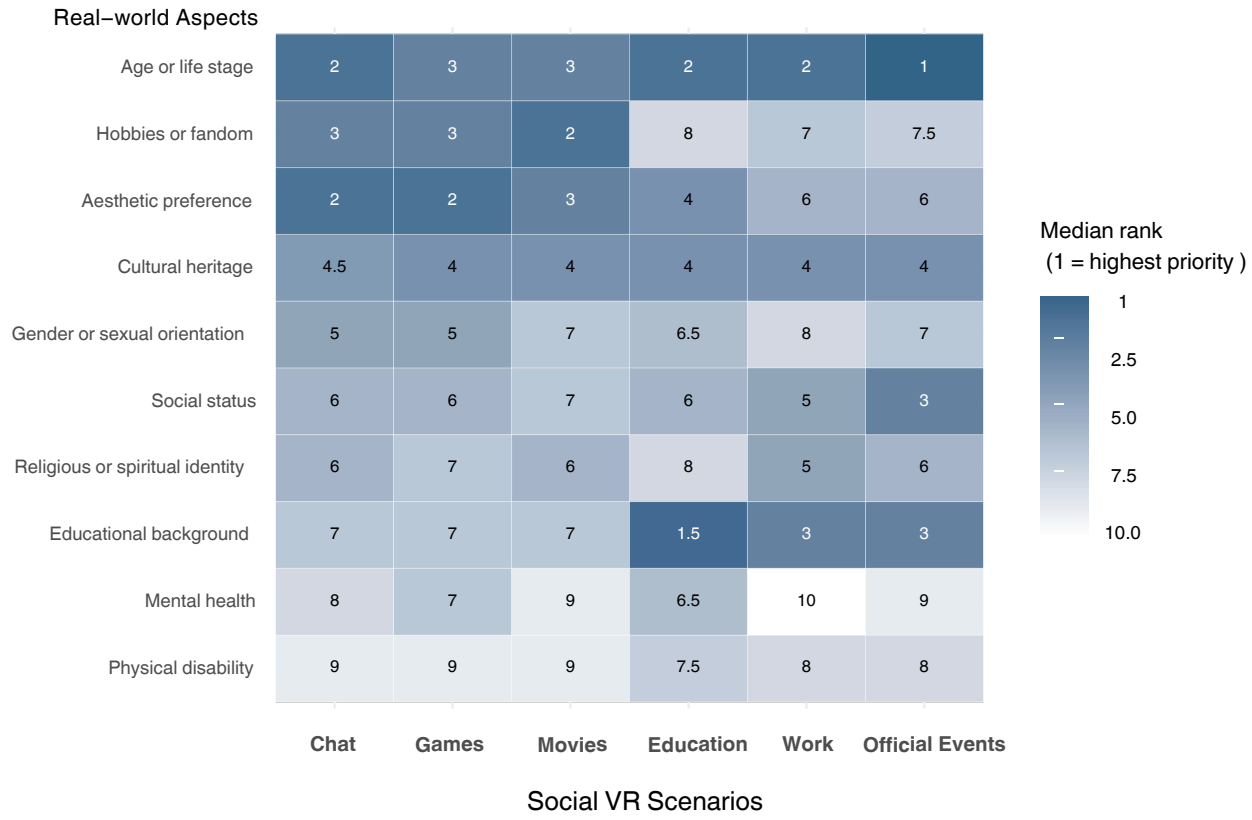

Figure 2: Median rankings of identity aspects across six Social VR scenarios: chat, playing games, watching movies, education, work, and official events (1 and darker colours = highest priority). Results highlight consistently high priorities (age, aesthetics), context-dependent shifts (education, hobbies), and consistently low-ranked sensitive traits (health, disability).

participant stated, switching avatars *"prevents recognition by close friends, protects privacy"* (P30).

Participants also described specific strategies for adapting avatars to different contexts. The most common strategy was explicitly adapting avatar styles to the social scenario (58%), such as changing avatar style types (24%) or using distinct formal and informal avatars for different situations (21%). One participant shared, *"Each scene has a different tone, so I made my avatars to adapt to these contexts"* (P23). Others adjusted clothing (14%), facial expressions (8%), accessories, and hairstyles (4% each) depending on social situations, explaining that choices were *"mostly based on professionalism and social acceptance of the situation"* (P29), or varied between using *"decent avatars for work social contexts"* and *"cartoon or funny ones"* for informal ones (P35). It is worth noting that some participants (15%) indicated uncertainty or context-dependent decision-making based on the audience (13%) or their current mood (8%). Additionally, although a small proportion (4%), privacy concerns also influenced avatar choices, as some users selected random avatars to maintain anonymity.

Finding 6: Most users switch avatars to align with the social dynamics of specific Social VR contexts, express different identities, and enhance their VR experiences. They adjust style and visual details accordingly, or maintain distinct avatars for formal and informal situations. Privacy concerns also motivate some users to switch avatars to obscure their identities.

Another key factor influencing users' experience with avatar switching is how smoothly the process can be carried out. Overall, nearly half of the participants (47%) agreed that switching between avatars felt smooth, while 21% disagreed. Those who found the avatar-switching process smooth mainly reported familiarity with Social VR platforms. However, others noted difficulties, stating: *"Not every platform allows users to switch their avatars."* (P23). Some pointed out that switching to new avatars required a lot of effort each time, particularly in terms of embodiment: *"Hard to tell, because sometimes you have time to switch into another role."* (P68). One possible explanation is that switching avatars is not merely cosmetic; it involves adopting a different persona, thus demanding extra cognitive effort. Occasionally, such difficulty discouraged

users from doing so, and instead, they chose to design a new avatar from scratch: *"I hardly ever change; I always design a new one. So I think the change is not smooth, so I choose to design a new one rather than switch."* (P54). Even participants who found avatar switching easy noted a learning curve: *"The operation on the platform is convenient, but sometimes I need to take the time to learn how to operate to change."* (P17)

> **Finding 7:** The lack of platform function supporting avatar switching, the time cost to adapt to new avatars, and the effort to learn how to switch influence the users' process of avatar switching.

Participants also shared mixed perceptions about whether switching avatars affects their sense of identity change. They responded to Likert questions about whether their identity changes with avatar switches or their core identity remains stable. The distribution of these responses is illustrated in Figure 3.

The majority of users (64%) agreed or strongly agreed that their core identity remains stable despite this change ($Med. = 4, IQR = 1$). Many of them emphasised that avatars were only partial reflections or extensions of themselves rather than complete shifts into a new identity. For example, one user explained, *"In essence, my identity is who I am, and they are only a partial reflection of who I am"* (P16). Another participant echoed this sentiment by saying, *"I feel that I am still myself and represent myself rather than role-playing another character from my avatar"* (P29).

However, nearly half of the participants (51%) also agreed or strongly agreed that this process changed their perception towards identity ($Med. = 3, IQR = 2$). They regarded each avatar as a symbolic expression of a distinct identity or a reflection of personal development stages. For instance, one user described, *"Changing avatars allows me to showcase shifts in my tastes, moods, or life phases, symbolising how my identity evolves over time"* (P44). Another participant similarly noted, *"Avatars symbolically represent different aspects of me, signal social roles to others, and reflect my personal growth and exploration"* (P58).

Additionally, users expressed diverse perspectives on the relationship between their real-world and digital identities. Some saw avatars primarily as tools for wish fulfilment rather than identity alteration, stating, *"I use my avatar to suit my desires and not allow myself to be modified by my persona"* (P38). Others differentiated between stable real-world identities and more fluid digital identities, noting, *"My real-world identity won't change, but the digital identity has always been changing"* (P70).

To further investigate how perceptions of identity change differ by VR usage, we examined ratings of perceived identity change when switching avatars across VR experience groups (e.g., 'Less than 1 Year', '1–2 Years' and '2–3 Years'). A Kruskal–Wallis test showed a significant effect of VR experience on perceived identity change, $H(4) = 14.43$, $p = .006$. Post-hoc Wilcoxon tests were conducted afterwards, and we found clear differences between groups regarding the extent to which users perceived identity changes upon switching avatars (Cliff's δ = -0.58, a large effect according to standard guidelines [18]), specifically between the 'Less than 1 Year' and '2–3 Years' user groups ($p = .003$, Bonferroni-corrected). We found that users with 2–3 years of VR experience were more likely to perceive identity changes when switching avatars compared to users with less than 1 year of experience. These group differences may indicate a transitional phase around 2–3 years of VR usage, during which users become more attuned to identity shifts in Social VR. Over time, however, they may settle into more stable digital identities as the novelty of avatar switching may wear off.

> **Finding 8:** While most users perceived their core identity as stable when switching avatars, many recognise that changing avatars symbolically reflects changing aspects of their identity, persona, or social roles in Social VR.
>
> **Finding 9:** The sense that switching avatars brings a shift in identity is weaker among new users but intensifies with experience, peaking around 2–3 years, then gradually fades with longer-term engagement in Social VR.

Participants differed in how they conceptualised avatar management, with a majority viewing it as a form of identity management rather than purely tool use. Specifically, 62% of participants agreed that avatar management was a form of identity management ($Med. = 4, IQR = 1$). In contrast, fewer (38%) considered it as a form of tool management ($Med. = 3, IQR = 1$).

> **Finding 10:** Users viewed avatar management as closely related to identity management rather than tool management.

4.3 Limitations

We acknowledge several limitations of this study. While efforts were made to recruit a diverse range of participants, the final sample showed limited diversity, with most respondents based in the UK, China, and North America, and minimal representation from other regions. Identity itself is a metaphysical and abstract concept [63], and cultural interpretations of identity may differ across backgrounds [52]. The age distribution was also skewed toward younger participants, with only two respondents aged 50 or older. Furthermore, our findings may primarily reflect end-user perspectives rather than those of platform designers. Future work could compare participants across regions and incorporate the perspectives of Social VR designers to examine how background differences and design perspectives shape avatar-mediated identity practices.

In addition, we collect responses from experienced users, particularly those who have switched between multiple avatars, which means we did not capture the view of newer users (49% of initial respondents were excluded; see Section 3.3 for details). Furthermore, while our sample primarily reflects participants who were willing to complete a relatively long survey, those with lower literacy or weaker English proficiency are likely underrepresented. Another concern is the lack of clarity regarding whether avatar switching occurred within or across platforms. Future work could shorten the survey, offer translated versions, and more clearly distinguish between platform contexts to better understand how platform-specific features shape identity-related practices.

Finally, because our results relied solely on online self-report surveys, we did not observe how participants behaved in real time

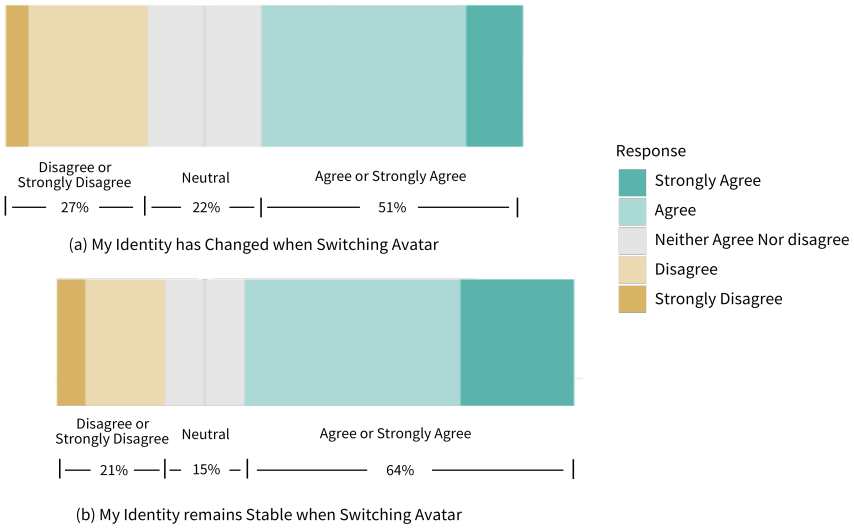

Figure 3: Participants' attitudes toward identity perception when switching avatars. Over half of responses (51%) agreed that their identity changes ($Med.$ = 3, IQR = 2). However, 64% thought that their core identity remains stable ($Med.$ = 4, IQR = 1).

while embodied in avatars. As prior work suggests, avatars in immersive applications can subtly alter users' behaviour and perceptions outside of their awareness [76], meaning that some of the dynamics we describe may be amplified, dampened, or manifest differently across different methods. Future research could therefore invite users to customise avatars in real time with controlled VR lab experiments and combine behavioural measures with self-reports.

5 Discussion

While some identity-related practices have been observed in earlier digital spaces, our findings extended prior work to the context of immersive media. We reflected on the uniqueness and limitations of identity expression in Social VR compared to other contexts and identified future directions for Social VR platform development.

5.1 Identity Expression in Social VR Compared to Other Contexts

The ways of identity expression vary with the contexts through which it is performed. Specifically, in real life, identity results from the interplay between individual characteristics (e.g., age, gender, and appearance) and socially constructed roles (e.g., culture, profession, and social status) [31, 53], whose backstage/frontstage dynamic negotiation process [25] is often accompanied by role coordination pressure. Social media platforms reconfigure this process to enable selective presentation and segmentation of identity [68]. However, these presentations of self are still within the structures of what these platforms facilitate, e.g., profile picture, username, etc. Likewise, in video games, players often operate with pre-designed characters and narrative arcs, through the roles' identities could be significantly different from their real-world identities [66, 69]. In the case of Social VR, research has largely focused on the avatar's affordances for positive self-presentation, without examining how these identity practices unfold in detail [22, 43, 78].

In Finding 1, we identified a small set of recurring identity aspects that are drawn upon during avatar customisation, in particular, aspects of self, aesthetic preferences, and aims. (RQ1). This echoed prior research on Second Life [45] and social media studies[73]. However, Social VR allows users to adjust their identity in an immersive and embodied way, enabling identity dimensions to be rendered and updated in real time through avatars, rather than remaining static profile attributes. This, in turn, guides users to flexibly select, emphasise or suppress certain components of their identity, moving beyond purely acting.

Meanwhile, we found clear contextual differences in how identity aspects are prioritised (RQ2). As illustrated in Figure 2, users selectively foreground or downplay different identity dimensions depending on situational expectations. Through iterative avatar customisation, users felt they could achieve a self-satisfying avatar or gain an identity that is recognised by the target social community (Finding 6). This process in Social VR not only deepens our understanding of Goffman's multidimensional identity signalling and impression management, but also facilitates our understanding of the role of avatars in constructing digital identity.

5.2 Avatar Switching Enables Continuous Identity Performance

In everyday life, managing or altering one's identity requires time and resources, but even then, some aspects of presentation, such as skin tone or adding in fantasy aesthetics like a tail, remain hard to realise. In addition, societal expectations often constrain how people present themselves [31]. To meet social norms, people always feel compelled to play different roles, but this management of identity demands considerable emotional labour [25]. Social VR alters this

performing behaviour through avatar management. Users do not have to play multiple roles in a single body. Instead, they can express identity differently through different avatars (Finding 6), replacing a single front/back stage distinction with context-specific role presentation (RQ3). Identity signalling, therefore, becomes more intense; people can instantly switch how they look and interact at once to express who they are. This contextualised self-representation reflects a new strategy of identity management.

Beyond this, we found that avatar switching also served as a proactive and protective privacy mechanism (Finding 6). Users no longer have to choose between staying anonymous and being socially engaged in "face-to-face" contexts. For some, simply using a non-human form was a way to withhold personal information, which is particularly relevant for those who experience social anxiety or marginalisation in the real world. However, this flexibility may also introduce a novel form of digital labour. The pressure to maintain multiple avatars for different contexts could itself become a source of anxiety (Finding 7). Further research is needed to investigate this potential downside and inform platform designs that empower users without overwhelming them.

5.3 Societal Pressures Leak from The Real World into Social VR

Across diverse social contexts in our study, we observed that participants rarely chose to express sensitive aspects such as religious beliefs, physical disabilities, or mental health status when customising their avatars (Finding 5). While many platforms offer features that could reflect these identity traits (e.g., tattoos, wheelchairs and hearing aids), most users did not utilise them. Similar patterns also have been reported in other contexts, where social media users tend to conceal attributes that might be judged negatively and idealise their appearance [73], and Second Life residents prefer to choose avatars with "socially acceptable" appearances, often white humanoid skin to fit local group norms [45].

Thus, avatars in Social VR may also be shaped by people's prior experiences with social judgment [15], cultural stigma [38], and marginalisation [16]. These experiences could lead to subconscious adherence to traditional norms or to a preemptive effort to avoid anticipated exclusion or harassment in virtual environments. Even though users often feel comfortable sharing personal experiences in Social VR, they still make careful decisions about revealing identity-related information [44, 64]. As a result, they may intentionally choose not to disclose these aspects, which renders these factors persistently less prioritised. Future work could explore whether avatar management and emerging social norms in Social VR leak back into users' selves, creating a new form of social pressure.

5.4 The evolution of identity perception in Social VR

Finding 3 indicated that most users in Social VR tend to reflect a more idealised version of themselves. This tendency has been observed in previous digital contexts and aligns with self-discrepancy theory [30], which suggests that individuals are motivated to reduce the perceived gap between their actual and ideal selves. Meanwhile, it also reflects the psychological process of self-expansion extending into Social VR, wherein avatars allow users to feel that their identity and capabilities are continuously evolving [2]. In this process, avatars are no longer merely social symbols or tools but become new perceived identities of users, and they experience different facets of identity being expressed through avatar switching, even though this does not fundamentally alter their overall sense of identity consistency (Finding 8).

Furthermore, we also observed this identity consistency in Social VR changing over time. Users with longer-term engagement, especially those active for two to three years, often became more aware of how avatar switching reflected shifts in their identity. As users spend more time in it, their motivations for customising avatars shift. What begins as an experiment gradually becomes a pursuit of stability and self-consistency. This likely reflects hedonic adaptation [2]; as novelty in avatar switching fades, they tend to seek a more stable identity (Finding 9).

5.5 Implications for Social VR Design

Taken together, these findings point to several design implications for how Social VR platforms can better support broader forms of identity expression.

Diversity and inclusion in avatar customisation. To make it safer for marginalised groups to express their identities, we encourage Social VR developers to proactively integrate diversity into the avatar customisation interface. For example, by avoiding signalling that one's "socially acceptable" body and skin colour is the default template for others to follow. Meanwhile, Social VR platforms need clear reporting and moderation tools for harassment that targets appearance, which lowers the disclosure burden associated with real-world identity cues. These protections should be explicitly communicated in onboarding and community guidelines.

Smoother avatar switching and management mechanisms. Our Finding 7 demonstrated that Social VR platform mechanisms for avatar switching remain challenging in practice. We therefore encourage platforms to integrate personal avatar libraries that allow users to store and organise their avatars for different purposes, and to support swift avatar switching during interaction. Meanwhile, to alleviate identity confusion resulting from a sudden change of embodiment, one possible design direction is a 'ghost mode', in which users temporarily remain invisible to others after avatar switching. Once users have mentally settled into their new bodies, they can become visible and begin socialisation. Future studies could further examine user responses to such a feature.

Non-human avatar customisation development. Social VR platforms now focus their avatar customisation system more on human-like avatars, which leaves clear room for improvement in supporting non-human forms (Finding 4). We encourage developers to take these needs and to invest in more accessible customisation interfaces for non-human bodies, which can better support the wide range of identity expressions.

6 Conclusion

This paper investigated how users express and perceive identity through avatar customisation and switching in Social VR. Based on a questionnaire study, we found that real-world aspects of identity, especially self, aesthetics, and personal goals, affect the process

of avatar customisation. Furthermore, people actively switch their avatars across different social contexts, consciously taking situational demands into account and highlighting or downplaying specific identity features to support better virtual socialisation. Our findings demonstrated that in Social VR, users express different identity facets through different avatars, thereby extending Goffman's account of identity performance. While previous research in digital media has reported similar patterns of identity exploration and expression, our study extends this understanding to an embodied, immersive context. Moving forward, we encourage future studies to validate these findings through lab VR experiments and to investigate how long-term Social VR engagement influences people's avatar choice and identity practices. As Social VR becomes more prevalent in online social spaces, we believe these efforts will provide insights into evolving identity practices and inform the design of more inclusive, adaptable platforms.

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