

Augmenting Self-Presentation: Augmented Reality (AR) Filters Use Among Young Adults

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Abstract. The rise of real-time camera enhancements, particularly on social media platforms like Instagram, Snapchat, and TikTok, has reshaped self-presentation within youth culture. While previous research has explored avatars and technology-mediated identity, a knowledge gap exists regarding the motivations, perceptions, and implications of augmented reality (AR) filters. This study investigates the impact of AR filters on self-presentation among young adults on Instagram. The study engages 12 young adults, aged 18 to 25, through semi-structured interviews, revealing strategies of online persona curation for targeted groups of followers, a growing societal acceptance of augmented online appearances, and a delicate balance between presenting an authentic and ideal self. Participants use AR filters to enhance creative expression for their own sake as well as mediated appearance for meaningful connections and social engagement. The findings indicate the dynamic role of AR filters in shaping online self-image, emphasizing the need for a nuanced understanding of users' intentional curation and the evolving social norms surrounding AR filter usage on social media.

Keywords: Augmented reality · AR filters · Self-presentation · Social media · Young adults

1 Introduction

AR filters, real-time camera enhancements, have increasingly gained substantial popularity across social media platforms, notably Instagram, Snapchat, and TikTok, particularly within youth culture [1]. While AR filters offer a lower sense of self and embodiment compared to avatars, they hold the potential to enhance self-image satisfaction [2, 3] and foster creativity for self-expression [4]. Previous research efforts have explored the relationship between avatars and technology-mediated identity [5–9], yet a knowledge gap persists concerning the influence of AR filters on self-presentation among young adults, including motivations, perceptions of mediated self and others, and their implications [10].

Even within the domain of AR, AR face filters are notably different than other types of AR technologies. AR headset devices, such as Microsoft HoloLens, and mobile-based AR games, such as Pokémon Go, predominantly focus on augmenting the external environment [11]. This augmentation involves overlaying

virtual objects, like a Pokémon, into the user’s surroundings through AR-enabled devices. In contrast, AR filters primarily enhance the appearance of the users, modifying facial features or adding virtual elements to the face, which create visual effects augmented on the device’s screen [12].

While research has contributed insights into, for example, the use of social media, user experience of AR technologies, AR filters for health and well-being, and avatars’ mediation of self-presentation, a significant gap remains in understanding the multifaceted influence of AR filters on young adults’ perceptions of self. This study bridges this gap by exploring current AR filter practices among young adults aged 18 to 25, specifically within the context of the Instagram platform, given its emphasis on the concept of self. Through qualitative exploration, the study uncovers young adults’ perceptions when using AR filters, particularly self-concept and expression on social media. Therefore, this study explores the following research questions:

RQ1. How do young adults use and perceive AR filters on Instagram?

RQ2. What are the underlying motivations of young adults in their utilization of AR filters for self-presentation?

1.1 The Use of AR Technologies and Filters

The adoption and usability of AR headsets has been extensively investigated in the current literature, reflecting the growing interest in and exploration of AR. AR headsets have showcased the potential to revolutionize various industries, including gaming, education, and healthcare, by overlaying interactive 3D information in the real-world environment. For instance, in gaming, AR headsets offer immersive experiences that blend the virtual and physical worlds together, enhancing satisfaction, engrossment, and gratification [13]. In education and workspaces, these headsets provide interactive learning environments and a creative space to augment the physical surroundings, enabling users to visualize complex concepts and productively engage in their tasks [14]. Additionally, in healthcare, AR headsets have been explored for applications like visualizing medical data and patient-specific anatomy to support surgeons and medical students [15, 16]. Despite these areas of use cases, AR headset technology is still very much under development. Challenges related to device size, field of view, simulator sickness, and usability are actively being addressed by researchers in both social sciences and computer science.

In contrast, AR filters are easily accessed through AR-enabled devices, such as mobile devices and, at times, laptop devices. In addition to their accessibility, AR filters can be designed using platforms like Meta Spark Studio, owned by Meta, and launched on Instagram and Facebook for public usage. These real-time filters serve multiple specific purposes related to social interaction on technology-mediated platforms, including drawing attention, content engagement, and initiating social interactions [17, 18].

1.2 AR Filters and Mental Well-Being

AR filters have the potential to influence mental well-being in diverse directions, depending on their use and users' understanding toward social media. On one hand, virtual modification of one's appearance through AR filters may introduce negative consequences related to unrealistic body image expectations conveyed by social media and perpetual social comparison [10, 19]. The real-time and realistic nature of AR filter modifications can exacerbate negative self-esteem and perceived body distortion, with extreme cases even leading individuals, especially women, toward cosmetic surgery [20].

On the other hand, AR filter modifications can act as social lubricants, attracting forms of online social interactions, such as additional comments and likes, that increase a sense of social acceptance and connectedness. This aligns with prior literature establishing a strong link between social activities and personal well-being [21] as using these filters on social media can provide users such benefits. In addition, a similar study [18] indicated that using AR filters for social media engagement purposes can have positive effects on mood. As AR filters are mainly used on social media for content-sharing purposes, the process of using them can positively influence mental well-being by allowing individuals to present hidden aspects of themselves or explore their identity [22].

1.3 Technological Mediation of Self-Presentation

Within the literature of technology-mediated self-presentation, researchers have spent years researching the use and effects of avatars for their mediation of users' digital personas, behaviors, and interactions, commonly within virtual environments such as virtual reality (VR) [5–7, 9, 23]. The affordances of avatars provide users the possibility to shape their self-presentation, prompting inquiries into the alignment between these constructed digital representations and users' authentic identities [8, 24].

While avatars mediate interactions and identities within virtual environments, AR filters introduce an overlay of digital elements onto users' lived experiences. The differences between these two forms of mediation lies in their primary spatial contexts: avatars operate within the virtual space, whereas AR filters augment real-world visuals. In the case of AR filters, the interplay between digital augmentation and real-world identity introduces unique considerations, such as the perceived coexistence of virtual and tangible self-perceptions [25]. Although this body of avatar research has initiated the understanding of virtual self-presentation, the emergence of AR filters as a distinct mode of technological mediation introduces new dynamics that need empirical investigations into their effects on perceptions of self and interactions with others.

2 Methods

2.1 Participants

A total of 12 participants with ages ranging between 18 to 25 years ($M = 20.75$, $SD = 2.38$) participated in this study. Among the 12 participants, six self-identified as Cis Woman and the other six as Cis Man. Four participants reported that they used AR filters on Instagram approximately four to five times per week, while the remaining eight reported using AR filters more frequently, exceeding five times per week. It is noteworthy that all participants had set their Instagram accounts set as public. Table 1 provides a summary of the demographic characteristics of the participants.

Participants were recruited using a snowball sampling method, starting with the first author posting on a personal Instagram Story. Only a few participants ($n = 4$) mutually followed the first author’s Instagram account but had no direct interactions with the author prior to the study, ensuring that there were no pre-existing personal relationships to minimize biases.

Table 1. Demographic information of participants.

ID	Gender Identity	Ethnicity	Age (years)	Account Setting	Usage Frequency (per week)
P1	Cis Man	Asian	22	Public	More than 5 times
P2	Cis Man	White	19	Public	More than 5 times
P3	Cis Man	Asian	23	Public	4 to 5 times
P4	Cis Woman	Asian	24	Public	4 to 5 times
P5	Cis Man	Asian	19	Public	More than 5 times
P6	Cis Man	White	20	Public	4 to 5 times
P7	Cis Man	Asian	25	Public	More than 5 times
P8	Cis Woman	White	19	Public	More than 5 times
P9	Cis Woman	White	20	Public	More than 5 times
P10	Cis Woman	Black	22	Public	More than 5 times
P11	Cis Woman	Asian	18	Public	More than 5 times
P12	Cis Woman	White	18	Public	4 to 5 times

2.2 Interviews

We conducted in-depth, semi-structured interviews with the participants, in which most of the interview questions asked them to reflect on their past experience and usual behaviors. Interviews were conducted via Zoom with either audio

or video chat, depending on participants' preferences. All the sessions were transcribed using Zoom automatic audio transcription feature for cloud recordings. The average interview duration was 45 minutes. This study was approved by the University's Institutional Review Board (IRB).

We acknowledged the inherent complexity and sensitivity surrounding the infrequently discussed topic of self-presentation and self-concept. Engaging with interviewees in an ethical and thoughtful manner was our paramount intention, given the potential for this research to investigate the interplay between AR filter and digital self-perception. Therefore, we encouraged participants to freely share as much detail as they felt appropriate and comfortable regarding their personal experiences and perceptions with the use of AR filters.

2.3 Data Analysis

We conducted reflexive thematic analysis [26] with an inductive coding approach to analyze the interview data. Given the single-researcher process, we employed triangulation reviews involving both authors and memoing techniques [27] in lieu of inter-rater reliability (IRR) and agreement [28]. This approach followed established best practices in HCI to ensure the systematic analysis of meaningful qualitative insights [29].

We used the following analytical procedures. First, the first author closely read through the interview data to acquire the sense of the whole picture. Second, the first author coded the data line by line, reflecting single ideas, and assigned codes to capture shared ideas [30]. Third, the initial codes were then used to develop the code book, which was refined based on initial themes derived from the codes. Fourth, the first author re-coded interview data using the final set of codes from the code book, while writing analytical memos during the process. Fifth, the first author read through and iteratively refined the memos to develop key findings from the observed themes. Last, both authors engaged in a triangulation review to examine and refine themes, along with our description and interpretation regarding young adults' motivations to use AR filters, thus enhancing the validity and robustness of the analysis.

3 Findings

In this section, we identify four main themes to report participants' perception and underlying motivation in using AR filters on Instagram.

3.1 Strategic Online Persona Curation for Targeted Audience

Participants described the multifaceted nature of their Instagram usage, involving both self-promotion and relationship maintenance with their followers. They intentionally employed various engagement strategies to enhance their social media presence and capture a large follower base, which includes both personal acquaintances and unfamiliar individuals. As mentioned by a participant, "*right*

now, I have just over 2,000 followers. They mostly [started following my Instagram account] from my previously Reel videos. Some are my friends, though” (P1). Another participant highlighted, “my followers are both my friends and people whom I don’t know personally. I believe they follow me because of my lifestyle and content” (P11). This belief that their followers are interested in their lifestyles and content served as a motivating factor of their commitment to maintain and strengthen these online relationships.

To maintain their follower base, participants tried to engage with them through various types of content, such as selecting positive and visually appealing images for their posts, sharing glimpses of their daily lifestyle in Stories (i.e., posts that only last 24 hours), and showcasing their talents and emotionally-evoking content through Reels (i.e., short-form videos). This engagement calculation aimed to capture and maintain the interest of their followers as well as encourage a sense of connection. P4 explained the specific approach they used to increase followers’ interactions.

“For posts, I post pictures that have a positive presence like pictures [of myself] at festivals or at a beach. For stories, I post my daily lifestyle [content], like me getting a cup of coffee or asking my followers to participate in a Q&A game. For reels, I post videos to promote myself, like singing and dancing videos from my classes.” (P4)

Participants recognized the impact of their reputation on Instagram and the potential benefits it could bring. They “valued having endorsements from influencers in elevating their credibility and reputation” (P7). Additionally, participants with a significant number of followers were able to attract “business opportunities, such as product reviews” (P7).

To increase their chances of connecting with like-minded individuals, especially in the same age group, they intentionally targeted specific interest groups or demographics: “I think I want to reach the same type of audience, potentially around the ages of 18 to 25, so that we can easily connect through the same lifestyle, content, and vibes since we’re in the same generation” (P2). Additionally, some participants expressed a desire to boost their popularity and increase their reach, stating that “it would be ideal to reach a wider audience, including a younger audience, (...) just for the sake of popularity”. (P11)

3.2 Social Acceptance of Augmented Online Appearances

Participants recognized a shift in societal norms and the increasing use and acceptance of augmented appearances facilitated by AR filters on social media platforms where it is expected that AR filters are used or to be used. This acceptance is perceived as a new shifted reality where technology leaves positive impressions, while exerting influence on social engagement and interactions. As P8 pointed out,

“Using AR filters leaves good impressions on my followers. I don’t think that [my followers] care who has or does not have AR filters on because

most of our pictures posted are either augmented with AR filters or edited in some way, if not baked with makeup. It's a new reality now that people accept others visually even with AR filters on. I think using it doesn't damage your branding or others' impressions." (P8)

P10 also added that “[using] filters could make my selfies more playful and authentic, and people may (...) decide to start a conversation with me. It's like showing another side of myself that makes me seem less serious as a personal brand.” Participants are aware of the evolving perceptions and expectations surrounding augmented appearances on social media. This shift represents a “new reality” (P8) where augmented technology is no longer perceived as deceptive but rather as a means to showcase different aspects of their personality.

However, participants strongly preferred using AR filters for their Instagram Stories, primarily due to the its ephemeral nature in which the content posted disappears after 24 hours. This preference stems from the perception that “AR filters used in posts make it less authentic” (P2). Notably, while participants readily embraced apparent AR filters when used in others' posts, they viewed AR filters in their own permanent posts as diminishing authenticity, demonstrating their desire for an authentic presence while maintaining a non-judgmental stance toward others.

3.3 Balancing the Presentation of Authentic and Ideal Self

Engagement of participants with AR filters encompasses their desire for self-presentation and social connection. By using filters that make them appear cute, playful, or resemble animals, participants sought positive emotional responses and affection from others (see Fig. 1), as noted by P3:

“Personally, I love dogs; they are very cute. I really like Golden Retrievers and I am also a bit of a needy person. So, I think if I use a dog filter, people will see me as cute and playful, just like a dog.” (P3)

These filters serve as a form of self-expression, allowing participants to convey their desired image and evoke specific reactions. The desire to be seen as adorable reflects participants' need for validation and acceptance, as well as their expectations of positive interactions. Furthermore, the use of AR filters to “conceal pimples and smoothen my skin” (P1) can cover these, so-called, imperfections and “increase confidence in [own] appearance” (P12) as participants believed that “viewers would be more likely to approach [someone] if that person looks good in their pictures or videos” (P5). They perceived and used AR filters as a means to construct their ideal self-image, which includes attributes such as enhanced attractiveness and improved physical features.

For some, their real-world insecurities can be addressed through the use of AR filters for positive mediated self-perceptions, like the following statement: “I like using dog filters because they make my face look slimmer. I wish my face was this slim in real life. Make me look less ugly, which is honestly a life goal” (P3). However, the long-term use to attain a certain desired look that aligns with

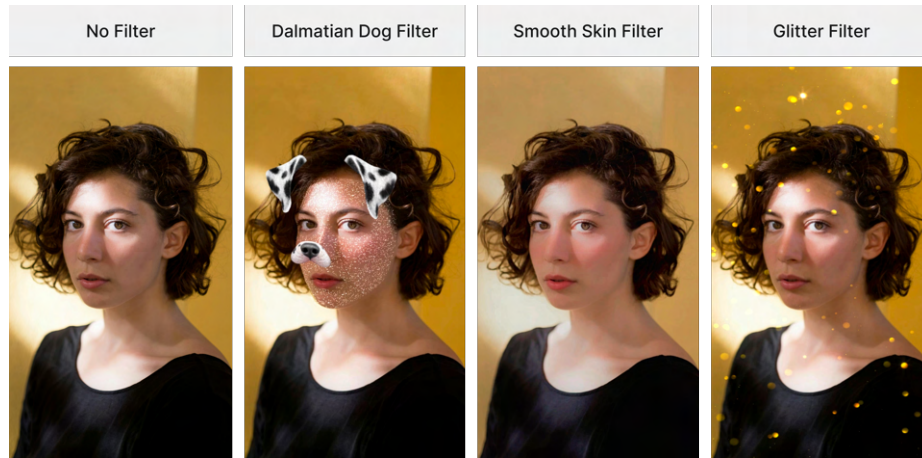


Fig. 1. Examples of the AR filters used by participants, including a sample portrait with no AR filter (left), dalmatian dog filter (left-center), smooth skin filter (right-center), and dynamic glitter filter (right). Each filter type is applied to the same image for illustrative purposes.

their personal standards of attractiveness may negatively affect their perceived real-life appearance. For others, they used these AR filters to maximize their satisfaction of self, for example, P5 mentioned:

“Applying this [smooth skin filter] represents a version of me that I want to look like when I hold up a phone camera to check on my face. With this on, I am more confident with how I look and believe that others like me more this way as well. With it on, I am the better version of myself, appearance-wise.” (P5)

By using filters that enhance their appearance or convey specific traits, participants believed they are more likely to attract attention and be approached by others. The perception that good-looking individuals are more likely to be approached highlighted participants’ understanding of the social dynamics at play on social media platforms. They recognized the role of filters in influencing others’ perceptions and strategically used them to create a favorable impression and encourage interaction. In addition, participants showed intention to shape their perceived persona on social media through the use of AR filters. They used filters to project specific qualities, evoke positive reactions, and control the overall tone of their posts.

In addition to appearance enhancement, participants also pointed out that using AR filters make them “*look more approachable as the selection of these filters reflects [the user’s] interests and personality*” (P9). By aligning filters with their unique characteristics, participants aimed to attract like-minded individuals and foster connections based on shared traits or interests. The use of filters as a reflection of personality and interests signified participants’ desire to establish

a sense of identity and to connect with others who appreciate and resonate with those aspects of themselves. For instance, P3 showed that they were self-aware of their traits and wanted to highlight those sides by communicating through an AR dog filter:

“I really like using that dog filter. I feel like I’m starting to become identified as a person who is also mischievous because of my own kind of playful tendencies. It’s like using that particular filter emphasizes this aspect of myself, and now when other people look at me, they just see someone who is mischievous and playful. It’s become a symbol that’s associated with me.” (P3)

They also showed intention to shape their social media persona and create a favorable impression. To illustrate, P2 mentioned that they usually went for an AR dog filter because “*I want people to see me as a dog sometimes because it is adorable. I want my head to be patted. I want to be loved.*” As mentioned, participants tended to use filters in projecting specific qualities and controlling emotional perception of their content while intentionally balancing their authentic and ideal self-presentation.

3.4 Creative Expression for Own Sake

Participants expressed a preference for AR filters that surpass static visuals. They valued filters with interactive-like effects and moving components as these additions imbued their Instagram Stories with a sense of liveliness. For example, a participant described their preferred AR filter as “*it just has the glitter effect. I think when it comes to stories, I appreciate things that are more dynamic like it’s moving*” (P9). However, it is not for the purpose of capturing their followers’ interests, building personal brand, or increasing social interactions but rather for creative expression of their own preference and satisfaction. This choice reflects their aspiration to not only actively posting content for others but also passively “*enjoying the creative process of both selecting which AR filter to use and seeing different visual elements layered on top of the picture*” (P8). Additionally, adding these dynamic elements is more than just aesthetic enhancements; it emphasizes the desire for augmented elements that bring pictures to life, as P6 stated:

“I appreciate AR filters that move—you know, those that don’t simply put stickers on my face but rather include visual elements that give my picture life. [For example], there’s this filter projecting heartbeams from your cheeks. The heart illustrations on my cheeks have a continuously resizing loop where they start off small, become bigger and bigger, and then go back to being small again. That filter makes my selfies less boring; it’s more fun, so I just personally enjoy it more. I guess it’s my way of making my selfies uniquely mine.” (P6)

This specific example of a filter projecting infinite-heartbeams-loop shows that the enjoyment derived from using AR filters is inherently individualistic. Importantly, P6 sees a deeper purpose beyond mere visual appeal—these dynamic

elements are seen as a way of injecting personality into photos, making them more than just static images. Additionally, the act of making selfies "*uniquely mine*" (P6) when the selfies are of yourself suggests a strong desire for a self-expression and individuality. The inclusion of playful and creative features in AR filters contributes to a sense of uniqueness and personalization in social media content.

4 Discussion

In youth culture, social media presentation is important and relates to the users' psychological well-being [31]. In order to meet social expectations, young adults turn to the use of AR filters to visually augment their social media content, including pictures and videos [1]. However, to our knowledge, the underlying motivations behind this behavior has not been formally researched with young adults. In this study, we offer exploratory qualitative insights into the influence of AR filters on social media self-presentation among young adults, aged 18 to 25. The findings reveal the multifaceted role of AR filters in enhancing creative expression as well as fashioning an online self-image, which, in turn, encourages social engagement. Despite evolving social norms increasingly valuing AR filters for positive self-presentation, users balance their ideal self-presentation with an awareness of the potential perception of inauthenticity by others as they seek meaningful online connections.

4.1 How do young adults use and view AR filters?

As AR filters serve as a versatile tool for projecting chosen qualities, participants use them for self-expression, addressing insecurities, enhancing attractiveness, and shaping their perceived online personas. The selection of filters mainly reflects their intention to connect with others and, to a certain extent, control the overall emotional perception of their content. These goals can be achieved while delicately balancing between authentic and ideal self-presentations [23].

Acknowledging a shift in societal norms toward the acceptance and usage of AR filters on social media, participants indicated a preference for using these filters on Instagram Stories due to its ephemeral nature. This choice suggests a temporal pattern in the usage of AR-filtered content. They readily embraced apparent AR filters when used in others' posts, which demonstrates a positive reception of AR-filtered content in the broader social media space. However, they exhibited caution of using AR filters in their own permanent posts and expressed concerns about potential impacts on perceived authenticity.

4.2 Why do young adults use AR filters?

Young adults use AR filters as a means of projecting a specific image while upholding authentic connections with their followers. They engage with AR filters to create a positive online persona that mirrors their ideal self. Despite

the growing acceptance of AR filters, the reluctance to use these filters in their own permanent posts suggests that maintaining an authentic online presence remains a significant social expectation for young adults. The use of AR filters for shaping versions of a mediated self, enhancing appearance, and addressing perceived flaws aligns with the motivation to boost self-confidence and positive self-perception, all of which aligns with previous research [2, 3, 10, 18, 20, 25]. In this context, authenticity does not necessarily imply revealing a bare face; instead, it refers to presenting the best version (i.e., ideal self) of one's true self while ensuring it does not diminish the genuine aspects (i.e., real self) of the individual.

4.3 Limitations and Future Research

This study has a few limitations. We focused only on the use of AR filters on the social media platform Instagram due to its self-centered nature. Future research could consider other platforms, like Snapchat or TikTok, as different contexts of use may produce unexplored findings. In addition, this experience-based interview study demonstrates an initial exploration of the motivation to use AR filters in the context of social media self-presentation. Building upon this work, experimental and longitudinal studies could be conducted to quantify the findings and investigate the long-term use and potential changes in user perceptions. For example, future work could employ netnography to observe performative behaviors involving the use of AR filters on social media as well as archetype creation based on types of AR filters used.

4.4 Acknowledgement

This version of the contribution has been accepted for publication, after peer review but is not the Version of Record and does not reflect post-acceptance improvements, or any corrections. Use of this Accepted Version is subject to the publisher's Accepted Manuscript terms of use¹.

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