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Motivations for Collecting Digital NFT Fashion

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A Uses and Gratifications Theory Approach for Understanding Digital NFT Fashion Collectors' Behavior

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ABSTRACT

Non-fungible tokens (NFTs) allow individuals to demonstrate ownership of digital and physical assets. NFTs are scarce, unique, and authentic; three properties known to be key for determining perceived value. Whilst previous research has primarily focused on NFTs as a source of economic value, here we assess the psychological motivations of collectors of digital fashion NFTs. Specifically, NFTs related to digital fashion are particularly relevant to HCI researchers as they sit at the intersection between business, culture, and self-expression. Here, we survey 19 users of a digital avatar fashion company, Genies, to understand the gratifications users derive from collecting digital NFT fashion. Results demonstrate that the primary motivations for collecting fashion NFTs are self-expression and utility and that motivations associated with value are secondary. We make design recommendations based on these results, indicating that developers should distinguish between expression-based motivations and value-based motivations.

CCS CONCEPTS

• **Human-centered computing** → Human computer interaction (HCI); HCI design and evaluation methods; User Studies; • **Emerging technologies**; • **Applied Computing** → Law, social and behavioral sciences; Psychology;

KEYWORDS

non-fungible tokens, digital fashion, avatars, uses and gratifications theory

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1 INTRODUCTION

Whilst avatars and avatar fashion have existed for decades [11, 14, 42], it is only more recently that non-fungible tokens (NFTs) have allowed users to 'own' rather than just 'use' digital fashion items. Previous work has suggested that the ownership of once unownable items, e.g., moments in an NBA game [61] or publicly accessible digital artwork [30], challenges traditional notions of value [5, 6, 24, 61]. The key characteristics of NFTs, uniqueness, authenticity, and rarity, are known to determine the value of fashion in the offline world [3, 26, 56], yet online, digital fashion remains largely unstudied (although see [22]). This is despite fashion brands being some of the highest earners in the NFT space, with Nike reporting a total revenue of over \$185 million in NFT sales in August 2022 [43, 58]. By assessing motivations for collecting digital fashion NFTs, we can understand how value is constructed within this emerging industry. This is relevant to HCI researchers as it informs product development in terms of important technological affordances of NFTs.

Genies is a leading avatar technology company which allows users to collect digital fashion items for avatars. Founded in 2017, Genies have received \$267M in funding and were valued at over \$1B in April 2022. Their platform allows users to collect avatar fashion which can be used across multiple Web 2.0 and 3.0 domains. In this project, we explore users' motivations for using the Genies platform to collect and create digital fashion for online avatars. Currently, little is known about how users interact with novel NFT technologies for self-expression online and thus this research provides a first step to understanding users' interactions with novel NFT fashion collectibles.

2 RELATED WORK

2.1 Non-Fungible Tokens

NFTs are unique tokens that are stored on a blockchain and are used to represent ownership of physical or digital assets. Blockchains are publicly accessible distributed ledgers with append-only blocks. The append-only and distributed nature of blockchains allows for transparency of ownership and is believed to render blockchains

secure from tampering [8, 20]. Previous research has explored how the features of NFTs and blockchain technology have transformed the way that companies interact with customers [10, 24, 52], however, we suggest that NFTs also have the potential to transform self-expression and digital identities online and thus are of key interest to HCI researchers.

Primarily, research on NFTs has focused on financial stakeholders, legal challenges, and economic analysis (e.g. [1, 2, 5, 39]). However, more recently scholars have begun examining the social aspects and consequences of NFT ownership [30, 35, 61]. For example, Zaucha and colleagues [61] explored how Dapper Labs “NBA Top Shot”, a website which allows consumers to purchase an NFT representing a moment in an NBA game, serves to commodify the idea of fandom. They suggest that by commodifying and selling moments in time, this encourages consumers to evaluate their lives and interactions through a lens of investment rather than enjoyment. Here then, we can observe how NFTs have the capability to change consumers’ social perceptions of previously unownable phenomena.

2.2 Digital Fashion

Vogue Business have suggested that “Few digital technologies have been embraced with as much relish by luxury brands as non-fungible tokens (NFTs), whose exclusivity and status align so closely with the industry.” [55]. Fashion brands are currently using NFT technology to release limited numbers of digital fashion items which have been minted on the blockchain. By minting these items on the blockchain, purchasers can prove items’ authenticity, thus ensuring that the product maintains its value should the customer wish to resell it later [7, 55]. Additionally, demonstrating ownership of fashion NFTs can grant the owner tangible benefits such as entrance to exclusive events [50], physical fashion items that replicate their digital counterparts (“phygital” products) [51] or priority access to future product drops or experiences [12]. In this way, NFTs can bridge the physical and digital realms [22].

Digital fashion represents an interesting lens through which to study NFTs, as fashion sits at the intersection between business, culture, and self-expression [9, 16, 18, 36]. Further, with optimistic forecasts about the future metaverse [58], avatars and digital representations are becoming more popular amongst young people [45, 49]. In the metaverse, it is predicted individuals will use avatars to interact with their environment and with other users. Resultantly, much research has focused on the psychological functions that avatars serve [17, 25, 60]. However, previously, avatar design has been devoid of limits; individuals can choose any fashion item they desire, with no material differences between them. But, as NFTs enable the *ownership* of digital items, the perceived value of the items changes. This change in value may impact how individuals choose to represent themselves digitally.

2.3 Genies

Genies is a social platform which develops tools which enable users to represent their identities in avatar formats. They have recently introduced features such as the ability to edit avatar accessories, create non-anthropomorphic avatars including ‘Zen teacups’, and a ‘Warehouse’ where users can buy avatars and avatar accessories

that have been developed by creators, fashion brands and celebrities. They have collaborated with companies like Warner Music Group and Universal Music Group, and have worked with artists like Justin Bieber, Rihanna, and Shawn Mendes [40, 53]. Genies offers the ability for celebrities to sell exclusive, limited edition, digital wearables for Genies avatars (i.e., clothing, masks, or tattoos), allowing fans to memorialize events such as album releases [53].

In this research, we employ uses and gratifications theory to explore how the Genies platform is used to satisfy the psychological needs of their users via the collection of digital fashion items [48]. Uses and gratifications theory has been used to identify the sociopsychological motives that drive individuals’ uses and motivations of various new media including social media [21, 52], the internet [31, 41, 48], mobile phones [19], emails [13], and online blogs [28, 32, 33]. Broadly speaking, the theory enables researchers to explore users’ goals when engaging with new technologies and how the users’ goals are fulfilled by different uses of the technology. Importantly, uses and gratifications theory proposes that individuals are active audiences; they actively choose particular media forms to fulfill their needs [27, 48]. In the present study, we employ both a bottom-up approach where we ask users to generate their own motivations for using Genies [4, 21, 48] and a top-down approach where we ask users to review and prioritize pre-established motivations [29, 33].

3 METHOD

All data are publicly available at <https://osf.io/qv8pn/>. The method used for this study was approved by the University of Bath Psychology Ethics Committee and the REPHRAIN ethics committee.

3.1 Participants

19 participants were recruited from the Genies community (‘Geneva’). A link to an online survey was distributed by a Genies employee in December 2022. We employed a survey approach to develop a general overview of motivations for collecting digital fashion NFTs. The sample consisted of 17 male participants and 2 female participants with a mean age of 33.6 years ($SD = 9.56$). The participants reported a range of nationalities; 6 were from America (32%), 6 from Asia (32%), 5 from Europe (26%) and 1 reported a mixed nationality (5%; German, South African, Taino). The participants resided globally; 8 participants lived in the US (42%), 4 in Japan (21%), 2 in the UK (10.5%), 2 in Russia (10.5%), 1 in Canada (5%), 1 in Croatia (5%) and 1 in Taiwan (5%).

3.2 Materials

The survey consisted of demographic questions (age, gender, nationality, country of residence), questions relating to engagement with the Genies community (total time in the community, number of weekly visits, time spent per day), questions relating to use of the Genies app (number of visits per week, average time per visit, amount of money spent), and questions relating to digital fashion (number of: items owned and edited, and outfits created).

In line with prior uses and gratifications methodologies, participants were asked to answer 4 questions on their use of Genies [48]: i) What is the first thing that comes to mind when you think about what you enjoy most when using Genies?; ii) What other words

describe what you enjoy about using Genies?; iii) Using single, easy-to-understand terms, what do you use Genies for? and; iv) What uses of Genies are most important to you?

Next, participants were asked to review how 8 attributes impacted their likelihood of collecting digital fashion items. These attributes were derived from prior market-based research [44] and were: item brand, style, utility, cost, the item artist or creator, the fame or reputation of the item artist or creator, rarity, and contribution to overall collection. These attributes were rated on a 10-point scale of 'not at all' to 'very strongly'.

Finally, participants were asked to rate the importance of 10 potential gains of collecting avatar fashion. These were generated from qualitative market research [44] and discussions with a Genies employee. These were: social status, avatar functionality, social belonging in a community, ability to express oneself, utility, financial gains from future resale, not missing out on being an initial adopter of the next big technology, demonstrating fandom to an artist or brand, financially supporting a fashion creator or artist, and access to fashion that is inaccessible in the physical world. These were rated on a 10-point scale ranging from 'not important' to 'very important'.

4 ANALYSIS

4.1 Descriptives on the collection of digital fashion

All nineteen participants reported spending money through the Genies platform on digital fashion. Seventeen participants reported the amount of money they had spent on the platform; the average amount was \$932 (SD = \$1001, ranging from \$30-\$3000). All participants reported owning more than 7 items of fashion, and seventeen participants said they owned more than 10 items. Nine participants had edited more than 10 items of fashion, seven reported editing between 4 and 9 items, one reported editing between 1-3 and two said that they had not edited any pieces of digital fashion. Additionally, seven participants reported making over 10 full outfits, seven reported making less than 10 outfits and four said they had not made any outfits.

4.2 Bottom-up Uses and Gratifications

The responses to the open-ended questions from [48] were coded via content analysis (Table 1). The codes were agreed upon by two authors who manually assessed the responses to the four questions.

The most common codes relate to individual motives of self-expression, customization, and style. Several items were associated with usage: platform integration, future uses, collecting, financial gain and accessibility. Finally, some items were more focused on social benefits, such as building community and collaborating with brands.

4.3 Pre-identified motivations and gains

We also analyzed how pre-identified motivations (item attributes and potential gains) were prioritized by users.

4.3.1 Descriptive analysis. In Tables 2 and 3, we outline how the motivations identified from previous market research [44] are prioritized by users. We find that style, branding, utility and social

community were particularly important to those collecting digital fashion. Financial motives, including supporting creators and the future resale value were less important.

4.3.2 Exploratory factor analysis. We conducted an exploratory factor analysis to assess how item attributes cluster into purchasing themes. Bartlett's Test of Sphericity indicated that the 8 features influencing purchasing decisions were suitably related for factor analysis ($p=.004$). Using the principal axis factoring extraction method and varimax rotation, the analysis yielded two factors explaining 58.8% of the variance (Table 4). Factor one relates to expression-focused features and explained 32.8% of the variance (with an eigenvalue of 2.61), and factor two related to value-focused features and explained 25.9% of the variance (with an eigenvalue of 1.45). The communalities of the variables were mixed, with three variables showing small variance (<40%). This is due to the low sample size ($N=19$) and thus these results should be interpreted cautiously. We did not use EFA for the potential gains from collecting avatar fashion (Table 3), as Bartlett's test of sphericity suggested the features were not suitably related ($p=.240$).

4.4 Predicting Genies Use

Finally, we ran several Spearman's rank correlations to assess the relationship between users' reported behaviors and the strength of the different motivations. Due to our low sample size, we have chosen to report only the significant correlations with a statistical power of greater than 0.8 (based on a sensitivity analysis).

When looking at the associations between user motivations and money spent on digital fashion, we found a positive relationship between total spent and item cost ($r_s = .619, p = .018$). This suggests that those who are more concerned with the cost of the item are those who spend more money. This finding is in line with principles of Veblenian economics whereby demand increases as cost increases (contrary to traditional laws of demand) [3]. We also found a positive relationship between the number of digital items that users edited and the creator's fame or reputation ($r_s = .735, p < .001$). Finally, we found that users who visited the community more also prioritized item brands ($r_s = .643, p = .005$), item style ($r_s = .646, p = .005$) and avatar functionality ($r_s = .700, p = .003$).

5 DISCUSSION

The results suggest there are two distinct motivational clusters for collecting digital fashion: one associated with immediate usage and expression (style, branding, creator, and utility) and one associated with the perceived value of fashion items (rarity, cost, and fame of the creator). Importantly, self-expression through customization, functionality across platforms, and social community are stronger motivations for collecting digital wearables than financial motives. This is the first study to find two distinct motivations for the collection of NFT fashion items. Here, we discuss what these results mean for design recommendations in the digital fashion NFT space.

5.1 Expression-based motivations

From users' self-generated uses and gratifications (Table 1), we identified that collectors of digital fashion NFTs are primarily concerned with item appearance and using fashion to express identity online. One notable finding was users' desire for item customization

Table 1: Codes and examples of user generated items

Codes	Examples	Number of Mentions
Self-expression and identity representation	Building web3 digital identity Self affirmation and self-expression	26
Creativity and customization	My kids enjoy creating different avatars in many apps and Genies has the most possible customization now Really i'm still blown away by the diy fashion movement	22
Appearance of avatars and fashion	The way they look/rendering, style and fashion. They are unique in their appearance with the caricature-like look. I like the texture of leather and gold, and I am glad that Genies allows me to be concerned with the texture as well as the color.	16
Integration with other online platforms	Ability to use in virtual environments Integration into different social networks for example Instagram	16
Building community	The creative and community-driven uses - sharing a Genies creation in the Discord and getting positive feedback, for example. And seeing others' creations! How cool and lucky i am to be in the Genies community.	12
Future uses and potential	Genies will become a part of life, and everyone will have access to Genies. I'm just excited about what this project could become. It has practical applications for current products and probably tons of things that haven't even been imagined yet.	11
Ownership and collecting	Collection of digital contents I recently crossed the 100 item mark for NFT in Genies!	9
Potential financial gains	Creativity, self-expression and maybe someday profit Community, future, investment	7
Fun	Digital expression, creative inspiration and overall fun! I think Genies are fun because you can paint your own avatar	5
Collaborations with celebrities, brands, and designers	Collaboration with other NFT projects, collaboration with existing IPs, Disney and avatars I enjoy the community and the awesome collaborations that Genies regularly does with creators!	3
Accessibility of fashion	Resolve fashion cravings that I can't in real life. Decentralizing the fashion industry.	3

Table 2: Item attributes influencing purchase of NFT fashion

Item attributes influencing purchase	Mean	SD	Rank
Item brand	8.41	1.85	1
Item utility	8.25	1.75	2
Item style	8.12	1.28	3
Item rarity	8.06	1.71	4
Item artist/creator	7.82	1.89	5
Creator fame/reputation	7.71	2.02	6
Item cost	7.41	1.91	7
Contribution to collection	7.24	2.16	8

and the ability to edit items. The desire for the ability to customize fashion items renders collectors of digital fashion as more active consumers [34]; they enjoy direct involvement in the creative fashion process, rather than simply buying pre-designed items from reputable brands. This trend mimics the transition away from more centralized Web 2.0 technologies, into the decentralized nature of

Web 3.0 technologies where businesses and consumers are involved in more collaborative forms of consumption [23, 38].

The desire to customize and edit digital fashion items presents interesting questions for the role of NFT affordances in this space. Immutable blockchain ledgers allow users to certify the authenticity of the items they collect which in turn may enable users to make edits and adjustments to digital items without affecting the authenticity or value. In addition to this, previous research has identified that creators of NFTs suggest that NFTs are “a revolutionary technology that democratizes content creation and commercialization” [47, p. 9]. Here, we extend this finding to consumers of NFTs as well. Thus, not only can NFTs be used to empower creativity in those who are developing them, but they can also inspire creativity in those who are collecting NFTs. Further, the results of this study found that those who were more likely to edit items were also more concerned with items from reputable artists or creators. This interaction between consumers' customization behaviors and items from reputable artists or brands presents an interesting avenue for future research and product development.

Table 3: Gains associated with collecting NFT fashion

Potential gains from collecting avatar fashion	Mean	SD	Rank
Avatar functionality	8.56	1.58	1
Utility	8.44	1.46	2
Not missing out on being initial adopter of next big technology	8.38	1.11	3
Ability to express oneself	8.35	2.19	4
Social belonging in community	8.00	1.57	5
Access to fashion you might not usually be able to access in the physical world	7.80	1.28	6
Demonstrating fandom to brand or artist	7.67	1.66	7
Ability to financially support creator or artist	7.65	1.49	8
Financial gains from future resale	7.47	2.20	9
Social status	6.86	1.92	10

Table 4: Factor analysis of NFT item attributes

	Factor loadings		Communality
	1 (Expression)	2 (Value)	
Item artist/creator	0.988		1.0146
Item utility	0.819		0.6709
Item brand	0.678	0.534	0.7449
Item style	0.587		0.3451
Creator fame/reputation		0.961	0.9549
Item cost	0.355	0.571	0.4526
Item rarity		0.546	0.3043
Contribution to collection		-0.449	0.2245

In addition to appearance-based self-expression, users reported the desire for functionality in their digital item ownership. This included both functionalities online (e.g., interoperability across platforms), as well as tangible benefits offline. Previously, fashion brands such as *Coach* have released ‘phygital’ items which tie online fashion item ownership to offline physical fashion item ownership [51], and artists such as *Endless* have released fashion NFTs which allow collectors access into real-world events [50]. By tying together physical experience and digital ownership, fashion designers and NFT platforms may be able to reach a wider market for their NFT creations.

5.2 Value-based motivations

Much NFT research has focused on the financial motivations and investment opportunities associated with NFTs [1, 5], however our results noted that financial incentives were not highly prioritized by collectors of digital fashion. We did however find a positive relationship between the importance users placed on cost and the total spent on digital fashion. Digital fashion items therefore have the qualities of ‘Veblen goods’ [3, 54], products which increase in demand as the price increases. This notion of Veblenian economics has previously been acknowledged as an important determiner of value for NFTs [5, 6]. Conversely, contrary to usual Veblenian economics [54], users reported less interest in social status and luxury conspicuousness. Thus, where consumers are known to purchase Veblen goods to signify social status and wealth [57], these motivations were less important to collectors of digital fashion. Consequently,

fashion NFTs may align more with ideals of luxury inconspicuousness, a type of consumption which entails a dissociation from displays of status of wealth [46, 59].

5.3 Limitations

This first-stage study is limited by its low sample size (N=19); whilst the results are compelling, these conclusions should be interpreted cautiously until further data have been gathered. Of note is the limited diversity of the sample, especially with regards to gender and nationality. More data are needed to ensure that the results demonstrated here are generalizable to a wider population of NFT consumers. Whilst we employed a survey approach for this initial study to develop a general overview of user motivations for collecting digital fashion NFTs, we plan to follow up these results with more focused interviews to enable a greater depth of understanding.

Additionally, the data for this study were collected during a cryptocurrency market low (December 2022) [15] and this may have impacted the motivations of participants in the study. It is possible that collectors who are primarily motivated by financial reasons were less active than they otherwise might have been.

5.4 Design implications

These results have several implications for designers within the NFT digital fashion space. First, we found that digital fashion collectors are active consumers who enjoy partaking in the design of fashion items. Consequently, digital fashion platforms should aim to develop tools which allow collectors to customize their digital fashion

items so they can represent themselves online in more unique ways. This could include novel digital customizations which make the most of digital affordances and would not be possible offline. One example could include the ability combine unique fashion features across different items.

Secondly, the users in this study also desired both avatar functionality and interoperability. By developing utility in fashion items, be this in terms of enhanced functionalities for avatars or the ability to use NFT ownership as a 'ticket' to more tangible benefits, designers can bridge the digital and physical realms. Moreover, it may also benefit platform designers to consider the ways in which certain functionalities of digital fashion items better allow users to express their identities. By combining self-expression and functional benefits, creators of digital fashion have an opportunity to develop more creative forms of self-expression through avatar functionality.

Finally, we suggest that digital fashion designers distinguish between expression and value-oriented motivations. This may involve promoting separate functionalities for these two motivations. For example, where some digital items may be collected for financial reasons and may be celebrated as luxury items (in line with conspicuous consumption [37, 54]), other digital fashion NFTs serve more expressive purposes. Distinguishing between the immediate and longer-term value of digital fashion items may serve different consumer needs.

6 CONCLUSIONS

In this study, we found two distinct motivations for collecting digital fashion NFTs. The primary motivation was associated with self-expression and using digital fashion items to represent identity online. We found that users were active consumers who enjoy partaking in the design of digital fashion items through an ability to customize. A second motivation concerned the perceived value of the fashion NFTs and was associated with traditional notions of value (e.g., rarity, cost, and the fame of the creator). We outline how these findings may be implemented by those working in the digital fashion industry, focusing on novel customization options, tying digital and physical experiences, and distinguishing between immediate and longer-term uses of fashion NFTs.

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