

How Decentralized Blockchain and the Web 3.0 It Enabled Can Better Empower Feminist Movements by Deconstructing Traditional Power Structures--Iteration of the World Wide Web and Increased Gender Equality Opportunities Over Time

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Abstract: By referring to the past two major iteration stages of the World Wide Web (Web 1.0 and Web 2.0), together with the technical context and applications of blockchain technology based on qualitative analysis, this article introduces the advantages of blockchain and the Web 3.0 it enabled in empowering gender equality movements in the new web era. While many are skeptical and even disparaging of the potential of blockchain and Web 3.0 nowadays due to the uncertainties of the technology, the superiority of decentralized web iteration still carries great possibilities, especially in promoting the causes of equality and social justice. This article aims to analyze, summarize, and emphasize the increased opportunities that blockchain and Web 3.0 it enabled could bring to deconstruct traditional unequal power structures and empower web-based feminist movements, calling for more attention to the importance of this technology and web iteration in promoting gender equality.

Keywords: Component, Feminism, Media History, Gender Equality, History of World Wide Web

1. Introduction

Commonly known as the first stage of Web iteration started in the 1990s, the “Web 1.0” stage was built on Hypertext Markup, therefore is “read-only”, according to Tim Berners-Lee, the inventor of the World Wide Web [1]. In a typical Web 1.0 user scenario, users would log in to web portals like Sina, Sohu, Netease, etc. to access information. At this stage, information is presented in a way similar to digital newspapers, where traditional text in printed ink and section categories are replaced by online text and hyperlinks. Meanwhile, the advent of the World Wide Web supported knowledge to be shared across geographies, women also had access to knowledge that previously might have been monopolized by men. However, because of the technical skills required of content publishers at this Internet development stage, most women were not capable of posting their own content for others to view. As a result, Web 1.0, which was still primarily occupied by men, did little to help support the feminist movements and promote gender equality.

Then came the second stage of Web iteration, Web 2.0, which has a significantly advanced “read-write” feature [1]. At this stage, the web becomes more accessible, as everyone with smart devices can post their own thoughts on social media, regardless of their technical background. Web 2.0 is

recognized as introducing a “full social web circle with the likes of Skype, TikTok, Google, and Youtube” [2]. Due to the superiority of content sharing and social networking, Web 2.0 has played a significant role in supporting feminist movements. For example, social media-based hashtag activism like #MeToo is used to fight against sexual abuse and sexual harassment. More and more women can then publish their own content and unite women’s power to speak out against gender inequality and the oppression that female experiences under traditional patriarchal power structures. However, at this stage, social media platforms are mainly dominated by technology giant companies. Different companies and the social or political environment behind them have their own interests. As a result, some feminist-related topics and content will be considered sensitive and reactionary, and then censored.

Unlike the previous two Web iteration stages, Web 3.0, a concept proposed by Gavin Wood, the co-founder of Ether and creator of Polkadot in 2014, is no intermediary. Generally, Web 3.0 is “a decentralized online ecosystem based on the blockchain” [3]. Blockchain, as a “public distributed ledger” [4], provides fundamental support to Web 3.0, which further extends new possibilities for the development of a web-based gender equality movement. In the centralized Web 2.0, our trust relies on the authentication of centralized institutions. For Gavin Wood, the essence of “trust” is “belief”, by blindly believing in trust, we actually “give some power to other people or an organization” who “will be able to use that power in some arbitrary way” [3]. When we rely on a centralized institution to conduct system operations, the institution is simultaneously granted the authority to arbitrarily manipulate individual power. This kind of unequal power dynamic is analogous to the decision-making process in a centralized state while also reflecting traditional patriarchal power. Therefore, information systems developed based on unequal power dynamics can hardly contribute to the fundamental promotion of movements that seek equal rights, and may even be counterproductive. However, in the highly anticipated Web 3.0 iteration, with the support of blockchain, everyone can participate in confirming the authenticity of the information, instead of relying on a certificated centralized institution. This is “less trust, more truth” as expected by Gavin Wood [3].

Ever since the concept of blockchain became popular in 2014, its superior decentralized nature has been constantly highlighted in economic-related areas like financial services, cryptocurrency, and smart contracts [5]. However, its social implications, especially the role it plays in promoting social equality, are rarely mentioned. Therefore, in this article, a lesser noticed but far-reaching topic will be tackled: how blockchain can help deconstruct the traditional unequal patriarchal power structure and promote the gender equality movements based on the latest web iteration, Web 3.0.

2. Four Aspects of Blockchain and Web 3.0 Empowering Gender Equality

2.1. Decentralized Blockchain Helps Women Gain Equal Access to the Property and Economic Rights

As emphasized in Sustainable Development Goal No.5 proposed by United Nations, it is important for women to have “equal rights to economic resources, property ownership, and financial services” [6]. Because the ownership, management, and inheritance of property are important indicators of women’s status and rights in the household. However, under the oppression exerted by traditional patriarchal power, women, especially in developing countries, face considerable obstacles in obtaining their properties and accessing financial services [7]. Though relevant laws and regulations have been gradually improved in recent years, it doesn’t represent real emancipation of people’s main and actual improvement of the status quo. In a society dominated by patriarchal power, hidden rules and folk customs are ubiquitous. Due to the lack of legal literacy, the coercion of male relatives in the family, and the vulnerable nature of traditional paper contracts in destruction and modification, some women continue to feel insecure about holding land and property [8]. Studies conducted in rural

areas of various Chinese provinces revealed that many rural women think that females should not have the right to inherit from their parent's estate after they are married [9]. As a result, many married women choose to voluntarily give up on property inheritance. Even though some women still claim the legal inheritance, they find it difficult to resist the opposition of the male group in the family [9]. Nowadays, with the advance in blockchain technology, this situation can be ameliorated and even solved.

With technical characteristics such as traceability, immutability, and multi-participation, blockchain can essentially be understood as a shared database among users, with all contents copied to various databases for multiple users to access [10]. This is significantly different from traditional centralized information storage methods such as paper records and single server storage, and is also less vulnerable to information modification hacked by unauthorized users. With such superiority, women can store documents related to property inheritance and proof of real estate in blockchain, therefore protecting property ownership from violation with permanent storage.

Similar to the current situation of women's property ownership in vast rural areas of China, in India, even in the state of Haryana, which borders the capital New Dehli, women have almost zero control over finances and need to ask for consent from their fathers and even sons for support [11]. In developing countries, "4 in 10 women do not have a financial account of any kind" and therefore can not benefit from inclusive financial services and find it difficult to address the lack of funds they often face [12]. This situation is likely to worsen with the closure of many financial institutions due to the impact of the epidemic. In traditional financial markets, money always flows to those with financial power and authority, and these populations tend to be male, thus further entrenching the unequal power structures of the past. However, if a woman is able to have separate personal accounts, she will have greater autonomy and control over her own life. Because it will be difficult for family members to directly take away a woman's right to discretionary property by taking away noncash, women will also have a greater opportunity to gain greater economic opportunity by taking advantage of online financial investment opportunities. A study conducted by Better Than Cash Alliance showed that in garment factories that adopted digital payroll, there were 69% fewer employees who claimed that their family members controlled their paychecks and were unable to save money [12]. This indicates that fintech has become more significant than many people think in dismantling traditional patriarchal power structures and advancing women's liberation and gender equality.

The development of technology and the innovation of traditional financial services have created the necessary conditions for enhancing financial inclusion, and the emergence of blockchain has played a pivotal role in this. Blockchain can not only use its decentralized nature to remove intermediaries and improve transparency in conducting business, but also effectively avoid corruption in government and related functions and establish an economic foundation for gender equality. Roya Mahboob, an Afghan female tech entrepreneur and the founder of Digital Citizen Fund, introduced bitcoin and the concept of decentralized transactions to her employees after realizing the potential of blockchain in bringing "security, privacy and peace of mind" [13]. This is a major attempt to reform fintech based on the decentralized blockchain in developing countries.

2.2. DAO, a Completely Open and Transparent Web 3.0 Organization

Decentralized Autonomous Organization, commonly known as DAO, is a basic organizational form of Web 3.0. DAO has received more and more attention mainly because "there is no central authority or management hierarchy" in a flat, bottom-up DAO, as opposed to the traditional centralized organizational form [14]. DAOs are often established to accomplish a common goal. Since DAOs run transparently under operating standards and collaborative models jointly defined by their stakeholders, it is easier to build trust and consensus within the organization [14]. Based on these advantages, the emergence of DAO brings new opportunities to promote gender equality. Zebpay, an Indian

cryptocurrency exchange, launch the first female-led DAO in the world to “empower women globally to take part in the crypto world” [15]. Similarly, H.E.R. DAO is also an excellent representative of female-led DAO. With the letters H, E and R standing for “holistic”, “emancipation” and “resource” respectively, H.E.R DAO dedicates to promoting gender diversity in blockchain and the Web 3.0 ecosystem [16].

In the past, while there were various opportunities for women to participate in female-led organizations based on the group chat function on different social media platforms to participate in web-based feminist movements, inevitable difficulties still exist in better regulating the organization as it continued to expand and grow. How determine ownership, management systems, and rules have been a hindrance to the development of many organizations. The emergence of DAO provides a clear and effective governance structure for establishing transparent web-based autonomous organizations. This is because “all management and operational rules of the organization depend on collaborations and group decision-making are encoded on temper-resistant blockchains” and therefore cannot be changed [14]. All the rules will operate continually and autonomously as designed until community members change them through a set voting process. This decentralized and borderless nature increases the operational efficiency of DAO. Meanwhile, since the data of a DAO is stored on the blockchain, every activity, financial income and expenditure of the organization can be checked on the chain. The open nature of the organizational data greatly reduces the possibility of corruption within the organization, and therefore can better promote equality-related welfare based on openness and equality.

In addition to providing a transparent platform for women to freely exchange relevant topics and promote gender equality, the emergence of female-led DAOs also provides strong financial and technical support to women at the early stage of the development of a new web iteration, helping them to grasp rights and priority in Web 3.0. For example, RiseDAO, as a nonprofit DAO aiming at “giving women residing in developing economies better opportunities to establish themselves in the tech/NFT space”, provides various support for women to access Web 3.0, such as programming training and grants that cover gas and mining fees [17].

2.3. Women-led NFT PFP: Feminist Communities Based on Avatars

PFP, abbreviates for “profile picture”, is an NFT for online avatars that people can use to represent themselves on social media [18]. As one of the most popular types of merchandise on the NFT market nowadays, NFT PFPs are usually released in series, with each series having its own distinctive thematic features. While the most popular NFT PFPs on the market today include both males and females, such as CryptoPunks and Bored Ape, female-led NFT projects such as World of Women, Crypto Chick, and Crypto Coven are also gaining attention and support.

People would argue that the highly regarded female-led NFT PFPs are using consumption to “exploit the voice of women who are already in a weak position”, as “the aesthetic trend of PFP the project shows a more and more centralized trend” [19]. However, this view is actually one-sided and focuses merely on the design style of female PFPs, ignoring the importance of the emergence and development of feminist NFT in building a new feminist community. Tracing the development of one of the most popular female-led PFPs, Crypto Coven, we can understand what motivates designers Aletheia and Nyx and many other female designers to choose to release their own female-themed NFT PFP was the lack of NFT projects in the market that could represent female tech practitioners, which reflects the unequal gender structure in the crypto space [20]. This kind of lopsided gender structure in the crypto market is also reflected in the discriminatory prices sold for CryptoPunks avatars with different characteristics: PFPs with a male gender tend to be priced higher than those with female gender, with white men commanding the highest prices and black women the lowest.

Based on this market reality, the emergence and existence of female NFT PFPs can create an avatar-based feminist community for women with similar concerns and awareness in Web 3.0, as they will share a sense of intimacy based on the same set of NFT narratives. This interpersonal trust and the ensuing community culture based on unique identifiers is not possible with the first two Web iterations. Notably, with the rise of the female NFT PFPs, another kind of viewpoint has emerged, which considers that gender is not necessary for Web 3.0, and that identity and ID are also not unique identifiers. People who hold this opinion think that as long as there are wallets and passwords, it is easy to separate people from real social attributes, thus gender discrimination will no longer exist and the emergence of female-led NFT PFPs is not necessary at all for the Web 3.0 era. This view presupposes an idealized gender-neutral situation in the decentralized crypto world. However, while this may be the ultimate form and purpose of Web 3.0, the significance of the active web 3-based feminist movements is to change people's past unequal mindsets, rather than passively erase all gender-related information. Therefore, the importance of female-led NFT PFPs still needs to be emphasized to empower gender equality.

2.4. Solarpunk, an Allegory of a Promising Future of Equality

Web 3.0, as a developing web iteration, is essentially a community with an optimistic and hopeful outlook on a decentralized and equal future. Such a web iteration echoes a concept that emerged in the early 21st century: solarpunk. Having a central goal to integrate advanced science and technology with social development for improving social, economic, and environmental sustainability [21], solarpunk's expectation is to empower a better future with technology, which is in line with the idea of empowering gender equality with the help of blockchain and the Web 3.0 it enabled. Solarpunk can be viewed as one of the goals and destinations of the endeavors of deconstructing centralized power structures in gender relationships. Though the word "punk" has some counter-cultural and anti-social connotations, if today's cultural and social environment is too pathetic, self-centered and power imbalanced, then "punk" culture can also become a culture of hope and empathy. In this sense, the act of promoting gender equality and building a promising future of equality through blockchain technology and the Web 3.0 ecosystem is filled with the spirit of solarpunk.

For people in Web 3.0, many are "striving to figure out how we can shed the baggage of or at least better examine historical power structures", using blockchain technology and the new web ecosystem brought by Web 3.0 to promote crypto philanthropy related to gender equality is one way to do that [22]. The spirit and narrative of solarpunk give hope and encouragement to many who are striving in this area, inspiring those working on gender equality-related undertakings to explore the potential of technology and use it to build the future they want. People who don't believe in blockchain technology and Web 3.0 tend to dismiss their potential outright, considering these as tools of marketing hype and scams rather than meaningful tools for social change. While there is no complete guarantee that blockchain technology and Web 3.0 will accurately lead us to a promising future like what is predicted in a solarpunk narrative, at least for now we have a better solution compared to relying on the previous two web iterations.

3. Conclusion

By analyzing the strengths and weaknesses of the two web iterations prior to the emergence of Web 3.0 in promoting gender equality and the empowerment of women, and by introducing and emphasizing the potential and opportunities that blockchain and Web 3.0 bring to support feminist movements, this article aims to call for more people, especially those who wish to contribute to promote gender equality, to pay attention to and join Web 3.0. In this article, four aspects of blockchain and Web 3.0 that are empowering gender equality are summarized and highlighted, which

are “decentralized blockchain helps women gain equal access to the property and economic rights”, “DAO, a completely open and transparent Web 3.0 organization”, “Women-led NFT PFP: Feminist communities based on avatars”, and last but not least, “Solarpunk, an allegory of a promising future of equality”. Although blockchain technology and Web 3.0 are being questioned by some because they are in the early stages of technological development, their potential to empower gender equality cannot be denied. Therefore, this article also provides a positive and open perspective to encourage everyone to embrace and appreciate the efforts of blockchain and Web 3.0-based feminists and those who are working for gender equality.

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