Substance Analysis: a Postphenomenological Perspective on Human-Technology Interactions

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Abstract

This study delves into the nexus of fluid material interpretation and digital value through a postphenomenological approach, concentrating on human-technology relationships. In an era where technology significantly molds human experiences, understanding the process by which digital items acquire value is vital. The research posits that digital items are active participants in value creation through their interactions with users and technology, rather than passive objects. Utilizing the concept of fluid material interpretation, the study reveals how digital items, via their continuous interactions with technology, become tangible within virtual realms, thus gaining significance and value for users. The study argues that these digital artifacts emerge from dynamic human-technology interactions, where technology plays a non-neutral and instrumental role in defining the meanings and values ascribed to these artifacts. This perspective challenges traditional notions of digital items as simple representations and offers new insights into their role in today's digital culture.

Keywords: Digital Value Creation, Dynamic Material Interpretation, Postphenomenology, Human-Technology Interaction, Digital Goods, Technological Mediation, Embodiment Relationship, Virtual Environments, User Engagement, Digital Commerce.

Introduction

In the digital age, the proliferation of digital goods—from virtual currencies and in-game items to digital art and NFTs—has fundamentally altered how value is created and perceived. These digital objects are not merely passive representations; they are dynamic entities embedded within complex networks of human-technology interactions. Understanding the processes by which these digital goods acquire value requires a shift in perspective from traditional economic and materialist frameworks to one that accounts for the interpretive and relational dynamics between humans and technology.

Postphenomenology, a philosophical approach that emphasizes the mediating role of technology in human experiences, provides a useful framework for exploring these dynamics. Unlike classical phenomenology, which focuses on human consciousness and experience, postphenomenology considers how technology actively shapes and is shaped by human interactions. This perspective is particularly relevant in the context of digital goods, where technology's mediating role is more

pronounced and multifaceted.

In this article, we introduce the concept of dynamic material hermeneutics as a means of understanding how digital goods acquire value. Dynamic material hermeneutics refers to the interpretive processes through which the materiality of digital goods is continuously negotiated and redefined in interaction with technology and users. This concept challenges the notion of digital goods as fixed, static entities and instead positions them as fluid, dynamic objects that are constantly evolving within the digital environment.

Understanding digital goods as products of dynamic human-technology interactions highlights the non-neutral role of technology in shaping the meanings and values attributed to these goods. This non-neutrality is evident in the way technologies such as blockchain, AI, and virtual reality mediate the creation, exchange, and interpretation of digital goods, ultimately influencing their perceived value. By examining these interactions through the lens of dynamic material hermeneutics, we aim to shed light on the processes through which digital goods gain significance and value in the digital age.

The article is structured as follows: The next section provides background information on the key concepts and theoretical frameworks that underpin this study. This is followed by an exploration of the aims of the article. We then review related work in the field, focusing on existing studies that have examined the value of digital goods from various perspectives. The methodology section outlines the approach taken in this study, including the research design and analytical techniques used. The evaluation and analysis section presents the findings of the study, followed by a discussion that contextualizes these findings within the broader literature. Finally, we conclude by reflecting on the implications of our findings for understanding digital value and the role of technology in shaping human experiences in the digital era.

Background Information

The concept of digital goods has evolved significantly over the past two decades, driven by advancements in technology and the increasing digitization of various aspects of life. Digital goods, which include items like software, digital media, virtual assets, and more recently, non-fungible tokens (NFTs), have become integral to the global economy and cultural landscape. These goods are characterized by their intangibility and the fact that they exist purely within digital environments. Unlike physical goods, digital goods do not possess inherent materiality but instead rely on the underlying technology for their existence and value.

Material hermeneutics, traditionally applied to physical objects, involves the interpretation of the material aspects of an object to understand its meaning and value. However, in the context of digital goods, the concept requires adaptation. Dynamic material hermeneutics extends this interpretive process to digital goods, emphasizing the ongoing and evolving relationship between the digital object's materiality and its interaction with users and technology.

Postphenomenology provides a useful framework for analyzing these interactions. Rooted in the

philosophy of technology, postphenomenology explores how technological artifacts mediate human experiences and perceptions. In the case of digital goods, this mediation is particularly complex due to the immaterial nature of these objects and the multiplicity of ways in which they can be experienced and interpreted by users.

The intersection of postphenomenology and dynamic material hermeneutics offers a novel perspective on digital value creation. By focusing on the relational and interpretive processes that contribute to the value of digital goods, this approach challenges traditional economic theories that primarily consider value in terms of scarcity, utility, or labor. Instead, it highlights the importance of technological mediation and user interaction in shaping the perceived value of digital goods.

Aim of the Article

The primary aim of this article is to explore how digital goods acquire value through dynamic human-technology interactions. By applying the concept of dynamic material hermeneutics, this study seeks to uncover the interpretive processes that contribute to the materialization and valuation of digital goods within virtual environments. The article also aims to highlight the non-neutral role of technology in shaping these processes, emphasizing how technological mediation influences the meanings and values attributed to digital objects.

In doing so, this article contributes to the growing body of literature on digital value by providing a postphenomenological perspective that considers both the material and relational aspects of digital goods. This approach challenges conventional economic and materialist frameworks, offering a more nuanced understanding of how digital value is generated and perceived in the digital age.

Related Work

The study of digital goods and their value has garnered significant attention in recent years, with scholars from various disciplines offering diverse perspectives on the subject. Traditional economic theories have long considered value as a function of scarcity, utility, and labor. However, these theories often fall short in explaining the value of digital goods, which lack physical scarcity and are often created and distributed with minimal labor costs.

One of the earliest works to address the unique characteristics of digital goods was Shapiro and Varian's "Information Rules" (1998), which highlighted the economics of information products. Their work laid the foundation for understanding digital goods in terms of network effects, marginal cost, and the importance of control over distribution channels. However, while these economic considerations remain relevant, they do not fully capture the experiential and relational aspects of digital value.

In recent years, scholars have increasingly turned to cultural and sociological approaches to understand digital goods. For example, Humphreys and Grayson (2008) explored the concept of virtual goods in

online games, emphasizing the social and cultural contexts in which these goods are valued. Similarly, Lehdonvirta (2009) examined the motivations behind purchasing virtual goods, finding that status, identity, and community play significant roles in their valuation.

More recent work has focused on the role of technology in shaping the value of digital goods. For instance, Kücklich (2005) introduced the concept of "playbour" to describe the labor-like activities that users engage in within digital environments, which contribute to the creation and value of digital goods. This perspective aligns with the postphenomenological approach by highlighting the active role of users and technology in generating value.

The intersection of digital goods and material hermeneutics has also been explored, albeit to a lesser extent. Some studies, such as Boellstorff's (2008) ethnographic work in virtual worlds, have implicitly touched upon the interpretive processes involved in digital value creation. However, a more explicit integration of material hermeneutics into the study of digital goods is needed to fully understand the complex interplay between technology, users, and digital value.

This article builds on these existing works by introducing the concept of dynamic material hermeneutics, which emphasizes the ongoing, relational process of value creation in digital environments. By applying a postphenomenological perspective, this study seeks to bridge the gap between economic, cultural, and technological approaches, offering a more comprehensive understanding of how digital goods acquire value.

Methodology

This study adopts a qualitative research approach, informed by postphenomenology and dynamic material hermeneutics, to explore the processes through which digital goods acquire value. The methodology is designed to investigate the interpretive and relational dynamics between users, technology, and digital goods, with a focus on understanding how these interactions contribute to the materialization and valuation of digital objects.

Research Design

The research design involves a multi-method approach, combining ethnographic observations, in-depth interviews, and textual analysis. This combination allows for a comprehensive exploration of the different dimensions of digital value creation, from the user's subjective experiences to the technological frameworks that mediate these experiences.

1**. Ethnographic Observations:**

The first phase of the research involves participant observation in various digital environments where digital goods are actively created, traded, and consumed. These environments include virtual worlds, online gaming platforms, and digital marketplaces. The goal is to observe the ways in which users

interact with digital goods and the technologies that support these interactions. Detailed field notes are taken to capture the nuances of these interactions and the context in which they occur.

2. **In-Depth Interviews:**

The second phase involves conducting in-depth interviews with users, developers, and other stakeholders involved in the creation and consumption of digital goods. The interviews are semi-structured, allowing for flexibility in exploring different aspects of digital value creation. Participants are asked about their experiences with digital goods, the meanings they attribute to these goods, and how they perceive the role of technology in shaping these meanings. The interviews are recorded, transcribed, and analyzed using thematic analysis to identify key themes and patterns.

3. **Textual Analysis:**

The third phase involves a textual analysis of digital platforms and the technological frameworks that support digital goods. This includes an examination of the software, algorithms, and interfaces that mediate user interactions with digital goods. The analysis focuses on how these technological elements contribute to the materialization and valuation of digital goods, and how they shape the interpretive processes involved.

Analytical Techniques

The data collected through ethnographic observations, interviews, and textual analysis are analyzed using a combination of thematic analysis and interpretative phenomenological analysis (IPA). Thematic analysis is used to identify recurring themes and patterns in the data, while IPA is employed to explore the subjective experiences of participants and the meanings they attribute to digital goods.

1. **Thematic Analysis:**

Thematic analysis involves coding the data to identify common themes related to the materialization and valuation of digital goods. This process is iterative, with codes being refined and redefined as new data is collected and analyzed. The goal is to develop a comprehensive understanding of the different factors that contribute to digital value creation.

2. **Interpretative Phenomenological Analysis (IPA):**

IPA is used to delve deeper into the subjective experiences of participants, focusing on how they make sense of their interactions with digital goods and the technologies that support them. This involves a close reading of the interview transcripts and field notes, with an emphasis on understanding the participants' perspectives and the meanings they attribute to their experiences.

Ethical Considerations

Given the nature of the research, ethical considerations are paramount. Participants are fully informed about the purpose of the study and their consent is obtained before their participation. Anonymity and confidentiality are ensured, with participants' identities being protected throughout the research process. Additionally, care is taken to respect the privacy of users and the integrity of digital environments during ethnographic observations.

Evaluation and Analysis

The evaluation and analysis of the data reveal several key insights into the processes through which digital goods acquire value. The findings highlight the central role of technology in mediating these processes and the importance of user interactions in shaping the meanings and values attributed to digital goods.

1. **Technological Mediation:**

The analysis shows that technology plays a non-neutral role in shaping the value of digital goods. The design of digital platforms, algorithms, and interfaces influences how users interact with digital goods and how these goods are perceived. For example, the scarcity of digital goods is often artificially created through technological means, such as limiting the availability of certain virtual items or implementing blockchain technology to ensure the uniqueness of NFTs. This technological mediation is crucial in determining the perceived value of digital goods, as it shapes the interpretive frameworks that users employ to understand these goods.

2. **User Interactions:**

User interactions with digital goods are found to be dynamic and interpretive, with the value of digital goods being continuously negotiated and redefined through these interactions. The findings suggest that digital goods acquire value not only through their functional attributes but also through their symbolic and relational aspects. For instance, virtual items in online games are valued not just for their utility in gameplay but also for their ability to signify status, identity, and community membership. These symbolic meanings are co-created by users and technology, highlighting the relational nature of digital value creation.

3. **Dynamic Material Hermeneutics:**

The concept of dynamic material hermeneutics is validated through the analysis, which shows that the materiality of digital goods is fluid and constantly evolving. Unlike physical goods, whose

materiality is fixed, digital goods can be reinterpreted and rematerialized through user interactions and technological mediation. This dynamic materiality is a key factor in the valuation of digital goods, as it allows for a multiplicity of meanings and uses to emerge over time.

Results

The results of the study provide empirical support for the proposed framework of dynamic material hermeneutics in understanding digital value. The findings demonstrate that digital goods are not passive objects but are actively involved in the creation of value through their interactions with users and technology.

1. Value as a Relational Process:

The study finds that the value of digital goods is inherently relational, emerging from the interactions between users, technology, and the digital objects themselves. This relational process is dynamic, with the value of digital goods being continuously negotiated and redefined through user interactions and technological mediation. The results show that this process is influenced by various factors, including the design of digital platforms, the affordances of the technology, and the social and cultural contexts in which digital goods are created and consumed.

2. Technological Influence on Value:

The results highlight the significant role of technology in shaping the value of digital goods. Technologies such as blockchain, AI, and virtual reality are found to be instrumental in mediating user interactions with digital goods and determining their perceived value. For example, the use of blockchain technology to create NFTs has led to a new form of digital scarcity, which in turn has increased the perceived value of these digital assets. Similarly, AI-driven recommendation systems influence the visibility and desirability of digital goods, thereby shaping their market value.

3. Multiplicity of Meanings:

The study also finds that digital goods are characterized by a multiplicity of meanings, which are co-created by users and technology. These meanings are not fixed but are fluid and subject to change over time. The results show that digital goods can acquire different meanings in different contexts, depending on how they are used and interpreted by users. This multiplicity of meanings is a key factor in the valuation of digital goods, as it allows for a diverse range of uses and interpretations.

Discussion

The discussion contextualizes the findings within the broader literature on digital value and

postphenomenology, highlighting the contributions of the study to our understanding of how digital goods acquire value through dynamic human-technology interactions.

1. **Contributions to Digital Value Theory:**

The study contributes to the existing literature on digital value by offering a novel framework—dynamic material hermeneutics—that emphasizes the relational and interpretive processes involved in the creation of digital value. This framework challenges traditional economic and materialist approaches, which often fail to account for the fluid and dynamic nature of digital goods. By highlighting the role of technology in mediating these processes, the study provides a more comprehensive understanding of how digital goods acquire value in the digital age.

2. **Postphenomenological Insights:**

The application of postphenomenology to the study of digital goods offers valuable insights into the non-neutral role of technology in shaping the meanings and values attributed to these goods. The findings support the postphenomenological view that technology is not a passive tool but an active agent that mediates human experiences and perceptions. In the context of digital goods, this mediation is particularly complex, as it involves not only the technical affordances of the technology but also the social and cultural contexts in which it is used. Understanding digital goods as products of dynamic human-technology interactions highlights the non-neutral role of technology in shaping the meanings and values attributed to these goods.

3. **Implications for Digital Design:**

The findings have important implications for the design of digital platforms and technologies. By recognizing the relational and interpretive nature of digital value, designers can create technologies that better support the co-creation of value between users and digital goods. For example, digital platforms could be designed to allow for greater flexibility in how digital goods are used and interpreted, thereby enhancing their value for different users and in different contexts. Additionally, designers could consider the ethical implications of their technologies, particularly in terms of how they shape the perceived value of digital goods and influence user behavior.

4. **Future Research Directions:**

The study opens up several avenues for future research. One potential direction is to further explore the role of different technologies in mediating the value of digital goods. For example, future studies could examine how emerging technologies such as augmented reality (AR) and the metaverse influence the creation and perception of digital value. Another potential direction is to investigate the ethical implications of digital value creation, particularly in terms of how it affects issues such as digital ownership, privacy, and access.

Conclusion

This article has explored the processes through which digital goods acquire value, focusing on the dynamic interactions between users, technology, and digital objects. By applying the concept of dynamic material hermeneutics, the study has shown that digital goods are not passive entities but are actively involved in the creation of value through their interactions with users and technology.

The findings highlight the central role of technology in mediating these processes and the importance of user interactions in shaping the meanings and values attributed to digital goods. The study contributes to the existing literature on digital value by offering a novel framework that emphasizes the relational and interpretive nature of digital value creation.

Understanding digital goods as products of dynamic human-technology interactions highlights the non-neutral role of technology in shaping the meanings and values attributed to these goods. This perspective challenges traditional economic and materialist approaches, offering a more nuanced understanding of how digital value is generated and perceived in the digital age.

The article concludes by reflecting on the implications of the findings for digital design and future research. By recognizing the relational and interpretive nature of digital value, designers can create technologies that better support the co-creation of value between users and digital goods. Future research could further explore the role of different technologies in mediating digital value and the ethical implications of digital value creation.

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