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Vulnerability of Cyber Security Is an Unexpected Threat to Global Internet System

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Abstract

At present the world is becoming highly interconnected, and cyber security is essential for the sustainability and development of the global networking. Cyber security is the practice of protecting digital devices, networks, and sensitive data from cyber threats, such as hacking, malware, and phishing attacks that are committed over the internet by technically skilled criminals, who have a wide range of strategies, technologies, and best practices. It is an urgent national and global problem. At present it becomes an incredibly complex and changing policy and important issue in the infrastructure of every company and organization. Data in computer can be lost or destroyed through physical and natural disasters, such as floods, fires, and unexpected catastrophes done by the cyber criminals. The purpose of this study is to discuss the aspects of cyber security for the improvement of the safety and security of cyber space.

Keywords: cybercrime, cyber security, information security, network

1. Introduction

At present the world is becoming increasingly digital, and more than 5.4 billion people worldwide use internet for the personal, economical, commercial, cultural, social, and governmental activities (Li & Liu, 2021). Our life is fully dependent on cell phone, computer, information technology (IT) infrastructures, power grids, air traffic management systems, industrial manufacturing, and banking sectors (Iqbal et al., 2020). The growth in e-commerce, digital payments, digital transformation initiatives, internet and mobile usage, and cloud computing adoption has modernized the world (Lehto & Neittaanmäki, 2015). In 2023, global retail e-commerce sales are estimated at \$5.8 trillion, and it is estimated that by 2027 it will reach to \$8 trillion (Mouna & Yassine, 2024). In 2025, the digital transformation market may reach to \$1,009.8 billion, and it is estimated that it will reach to \$3.9 trillion by 2027 (Danturthi, 2024).

Cyber security is the wide range of protection of computer system meant little-to-no security and the data security on various types of networks that they are stored and accessed by users. It consists of practices, analysis, and technologies that assist to keep computer systems and digital data secure. It is the combination of methods, processes, tools, and behaviors that protect computer systems, networks, and data from cyber-attacks and unauthorized access (Belapure & Godbole, 2011). It remains one of the serious and widespread challenges for financial institutions around the world. It is the field of technologies, processes, and activities designed to protect the individuals from hackers, viruses, and malwares. It is the idea of engineering that continues to function correctly against a malicious attack. Sometimes it depends on people related to its operation, such as human error, negligence, and lack of awareness (Kumar et al., 2018).

Elements of cyber security are network security, application security, endpoint security, data security, identity management, database and infrastructure security, cloud security, mobile security, disaster recovery, etc. There

are three levels of security as, basic, enhanced, and critical (Cabaj et al., 2018). According to Forbes, the global cyber security market reached to \$75 billion for 2015 and about \$170 billion in 2020. Some of the dangerous cybercrimes are cyber-stalking, cyber-terrorism, email spoofing, email bombing, cyber pornography, cyber-defamation, etc. (Goni, 2022; Mohajan, 2025a). Various tools that can be used for preventing the hacking are Honeynet, anti-viruses, patches, password crackers, vulnerability scanners, and wireless sniffers. By following best practices, staying informed, and adhering to security protocols, individuals can play a crucial role in preventing breaches and can keep networking systems safe (Moore, 2005).

2. Literature Review

A literature review is an overview of previously published works on a particular topic that is a comprehensive summary, analysis, and synthesis of existing scholarly works on a specific topic (Bolderston, 2008). It is a vital part of a research project, paper, and thesis that shows how to organize and synthesize information, and demonstrates the ability to write any kind of research article (Torraco, 2016). A good literature review has a proper research question, a proper theoretical framework, and a chosen research methodology (Baker, 2000). The main types of narrative reviews are evaluative, exploratory, and instrumental (Creswell, 2013a). Mohammad Nur Nabi and Muhammad Tanjimul Islam have realized that with the rapid spread of information and communication technology (ICT) worldwide, cybercrime appears to be a potential threat for confidential computer data and systems, and Bangladesh is under risk of cybercrimes that threatens the national security of the country due to lack of advanced cyber technologies and lack of awareness (Nabi & Islam, 2023). Deepansh Kumar and his coworkers have shown that the rising growth of the internet and computer technology has brought many good and proficient things for people, such as e-commerce, email, cloud computing, and data sharing. But it also has dark and hidden sides, such as network hacks, computer hacks, mobile breach, backdoors, etc. The cybercrime is one of the common practices made by the computer experts and is increasing rapidly in numbers that is responsible for disrupting the organization networks, stealing valuable data, documents, and hacking bank account. They have discussed the types of hackers, and the categories of different IT networks with their weaknesses (Kumar et al., 2018).

Rohit Kalakuntla and his coauthors have shown that cyber security is a significant worry to all nations. They have emphasized on cyber security and cyber terrorism (Kalakuntla et al., 2019). Aleksandra Kuzior and her coworkers have tried to analyze the global trends in cybercrime to form a global, open and safe cyberspace, protect the population from cyber threats and cyber fraud, increase the effectiveness of financial monitoring procedures, and control over transactions in cyberspace (Kuzior et al., 2024). Ibrahim Sisaneci and his coworkers have shown that broader use of digital technologies in all aspects of our lives, exponential expansion of cyberspace, along with complex and advanced cyber threats, cyber security becomes important and essential (Sisaneci et al., 2013). Mohan V. Pawar and J. Anuradha have described the network security confidentiality vector, network security integrity vector, and network security availability vector. They have realized that protection of computer and network security are critical issues, because many types of attacks are increasing day by day (Pawar & Anuradha, 2015).

Buket Erşahin and Mustafa Erşahin have shown how security flaws of web applications can threat information security, and also have focused on how web developers can already prevent security problems during the development life cycle (Erşahin & Erşahin, 2022). Hamed Taherdoost has provided various definitions of cyber security and information security with their differences. Both are related to the security of data aiming to defend data against different types of cyber threats, but they should not be used interchangeably. Information security means protecting information system from unauthorized access, use, disclosure, disruption, modification, and destruction. On the other hand, cyber security is the wide range of protection of computer system meant little-to-no security (Taherdoost, 2022). P. K. Paul and P. S. Aithal have stated that cloud security is the set of policies, technologies, applications, and control utilized for virtual infrastructure that includes hardware, software, and application. It is very close to computer security, IT security, and information security. They have described different areas of cloud security (Paul & Aithal, 2019). Mohamed Litoussi and his coauthors have shown that Internet of Things (IoT) dramatically influences our daily lives in several domains, ranging from teeny wearable devices to large industrial systems. Although IoT enhance quality of human life, it is vulnerable to various cyber-attacks, and needs challenging techniques to achieve their security (Litoussi et al., 2020). Mychael Maoeretz Engel and his coauthors have contributed to the academic and practical side of mobile device, and can guide future research for system development related to its security (Engel et al., 2022).

3. Research Methodology of the Study

Research is the search for knowledge that is closely related to the object of study. It is a systematic inquiry to describe, explain, predict, and control the observed phenomenon (Babbie, 2009). It is the creation of new knowledge and the use of existing knowledge in a new and creative way for generating new concepts, methodologies, and understandings that involves inductive and deductive methods (Groh, 2018). There are two

major types of empirical research design: qualitative research and quantitative research (Mohajan, 2017). Researchers choose any one of these according to the nature of the research topic they want to investigate. Qualitative research involves collecting non-numerical data and identifying patterns in language, theme, and structure, among other features to understand human experiences. Instruments for qualitative research include questionnaires, interviews, and observations (Creswell, 2013b; Mohajan, 2018b). Quantitative research involves collecting numerical data and conducting mathematical analyses to observe trends, make predictions, run experiments, and test hypotheses (Mohajan, 2020; Ghanad, 2023).

A methodology is a branch of knowledge that deals with the methods of a particular discipline (Mohajan, 2018a). It is the system of methods followed consistently that refers either to a method, the field of inquiry studying methods, and philosophical discussions of background assumptions involved (Bryman, 2008). It describes how the research is conducted. The goal of methodology is to increase the credibility of the research by making process transparent and reproducible of the researcher (Howell, 2013). Research methodology is a systematic approach that details how a researcher will conduct the study to find a reliable and valid answer to a research question. It describes and explains the techniques and procedures used to identify and analyze information regarding a specific research topic (Shields & Rangarjan, 2013). In this study, I have discussed the cybercrime in briefly. I have stressed on the types of cyber security in some details. There are many types of cyber security in the cyber space. I have discussed twelve types of cyber security i) network security, ii) application security, iii) information security, iv) internet of things (IoT) security, v) cloud security, vi) operational security, vii) mobile security, viii) operational technology (OT) security, ix) GenAI security, x) secure access service edge (SASE), xi) zero trust security, and xii) endpoint security (Pawar & Anuradha, 2015).

4. Objective of the Study

In 2015, cybercrime cost the world \$500 billion, \$3 trillion, and \$6 trillion in 2015, 2018, and 2021 respectively. Cyber security indicates that computers and network systems are protected from threats and vulnerabilities, and these systems work efficiently (Zhang et al., 2021). Passwords are important aspects of computer security, and a poorly chosen password may result in unauthorized access (Taherdoost, 2022). Network security, database security, online security, cloud security, etc. are all closely connected to cyber security. Without an effective cyber security strategy organizations become easy targets for cybercriminals (Nabi & Islam, 2023). Main objective of this study is to discuss the aspects of global cyber security. Other minor objectives of the study are as follows:

- 1) to highlight on cybercrime, and
- 2) to discuss the types of cyber security.

5. Cybercrime

There is no universally accepted definition of cybercrime. It is a widespread and lucrative illicit activity and a major threat to the society that uses a computer as its main means of commissioning or theft, which involves code-imposed offences, such as network intrusions and computer virus distributors, and web-based forms of traditional crimes, such as identity theft, harassment, intimidation and extremism that have become a major problem for individuals and nations (Iqbal et al., 2020).

At present cybercrime is a crucial topic due to the widespread and evolving nature of cyber threats, the growing dependency on digital systems, and the significant impacts on economic, personal, and national security (Kuzior et al., 2024). It is a criminal activity that occurs at all levels of society and takes many forms, from investment fraud to phishing and the creation of bogus entities (Mohajan, 2025d). It has numerous targets, such as email fraud, spamming, hacking, malware, online gambling, child exploitation, phishing, ransomware, social media crime, denial of service, ATM fraud, fraud credit card, misinformation, social engineering, identity theft, Trojan, data theft, cyber-stalking, cyber bullying, cyber harassment, fake call, online transactions fraud, insurance fraud, cyber terrorism, etc. (Sang & Trung, 2022).

It can be characterized into two different categories: cyber-dependent crimes, and cyber-enabled crimes. Cyber-dependent crime is any crime that can only be committed using computers, computer networks or other forms of information communication technology that targets ICT systems and are typified by hacking, ransomware, and malware (Murphy, 2024). Cyber-enabled crime is traditional crimes facilitated by the internet and digital technologies that has evolved in scale and form through the increased use of the internet and communication technology, such as fraud through phishing, piracy, and counterfeiting (Shahidullah et al., 2022).

6. Types of Cyber Security

Cyber security is a convergence of multiple approaches that cover several strategies and practices. It encompasses specialized areas protecting digital systems, networks, and data. It remains one of the top concerns facing individuals, businesses, and governments (Schmidt, 2014). In this section, I have discussed twelve

essential types of cyber security i) network security, ii) application security, iii) information security, iv) internet of things (IoT) security, v) cloud security, vi) operational security, vii) mobile security, viii) operational technology (OT) security, ix) GenAI security, x) secure access service edge (SASE), xi) zero trust security, and xii) endpoint security (Feruza & Kim, 2007).

6.1 Network Security

The world is becoming more interconnected of the internet with new networking technology. Modern internet technology protects confidential data, employee information, business models, and identity and resources. Actually, there exists a “communication gap” between the developers of security technology and developers of networks (Pawar & Anuradha, 2015). Network security is the policies, technologies, practices, controls, and procedures used of protecting the integrity, confidentiality, and accessibility of computer networks and data from unauthorized access, misuse, modification, data breaches, network-accessible resources, denial of a computer network, and other network-based threats (Krawczyk-Sokołowska & Caputa, 2023). It safeguards communication infrastructure, such as devices, hardware, software, and communication protocols. It covers a variety of computer networks, both public and private that are used in everyday jobs for conducting transactions and communications among businesses, military, government agencies, and individuals (Macfarlane et al., 2012). It protects data integrity, confidentiality, and availability as information travels over a network and between network-accessible assets. It is a main issue of computing because many types of attacks are increasing day by day. It is a challenge for network operators and internet service providers to prevent it from the attack of intruders (Ghansela, 2013).

Network security should detect, monitor, and block attacks that seek unauthorized access to the network that is done by using VPNs, intrusion detection and prevention systems, and firewalls. It starts with authentication, commonly with a username and a password that uses a combination of letters, numbers, special characters, and a space, and it is sometimes termed one-factor authentication. Sometimes two-factor authentication, such as security token, ATM card, and a mobile phone are used. Also, three-factor authentication, such as fingerprint and retinal scan are also used (Pawar & Anuradha, 2015). Networking faces three categories of attacks: active attack, passive attack, and advance attack. Active attack happens when an intruder initiates commands to disrupt the normal network operation. Some active attacks are spoofing attack, wormhole attack, modification, denial of services, fabrication, sinkhole, and sybil attack (Dowd & McHenry, 1998). Passive attack happens when a network intruder intercepts data traveling through the network. Some passive attacks are traffic analysis, eavesdropping, and monitoring. Advance attacks are black hole attack, replay attack, byzantine attack, and location disclosure attack (Chahar, 2022). Anti-virus software, intrusion prevention system helps to detect and inhibit the action of malware. Honey pots are placed at a point in the network where they appear vulnerable and undefended (Patnaik, 2021).

6.2 Application Security

Application software is one of the important components that fuel the so-called third-platform, which is congregation of social, mobile, analytics with big data, and cloud computing technology (Rajendran, 2015). Google Play has 3,553 million, Apple App Store has 1,642 million, and Amazon App Store has 483 million applications (Danturthi, 2024). As Apps become more ubiquitous, interconnected, and complex; finding and fixing the growing volume of vulnerabilities just gets more challenging. There are mainly two types of applications: mobile applications and web based applications (Chandrasekaran, 2024). Mobile devices are being used to access a range of services from social networking, banking, ticketing, and shopping to corporate applications, such as email, enterprise resource planning, customer relationship management, and calendar and address book applications (Shin & Williams, 2008). A web App is application software that is created with web technologies and runs via a web browser. It is a branch of information security that deals specifically with the security of websites, web applications, and web services. It is emerged in the late 1990s and allowed for the server to dynamically build a response to the request, in contrast to static web pages (Hoffman, 2020). Evolution of the World Wide Web (www) has created web applications with greater abilities, and fast growing and evolving web environment brings up its own risks (Erşahin & Erşahin, 2022).

Secure controls, such as strong authentication, granular permission, and data encryption can help to lower the risk of data leaks and unauthorized access. Application security (AppSec) is all tasks that introduce a secure software development of the whole life cycle from requirements analysis, design, implementation, verification as well as maintenance to development teams (Shuaibu et al., 2013). It involves secure coding practices, processes, tools, regular software updates and patches, and application-level firewalls that help prevent data breaches and protect applications. It refers to the technologies, policies, procedures, process of identifying and repairing vulnerabilities in application software to prevent unauthorized access, modification, or misuse. Use of secure coding rules and practices is necessary to create strong and reliable applications (Li & Xue, 2011).

The AppSec is necessary to effectively eliminate, reduce, and mitigate the overall risks from the application

attack surface, for the overall development, security, and operations process. It involves a combination of mitigation strategies during application development and after deployment. A strong AppSec program improves the security posture of organizations and helps them proactively find, fix, and prevent security issues in their applications (McDonald, 2020). About 62% of cyber security professionals are at best moderately confident in their organization's application security posture. Most of the Apps that we use on our cell phones are secured and work under the rules and regulations of the Google Play Store (Das & Johnson, 2021).

6.3 Information Security

We use the internet looking for information, doing social networking, banking, shopping, and lots of other online functions (Mohajan, 2025b). Nowadays living without access to the information of interest at any time and any place through countless types of devices has become unimaginable (Alhassana & Adjei-Quayeb, 2017). Information technology is the vehicle that stores and transports information that is a most valuable resource of a company (Reid & van Niekerk, 2014). It may be electronic soft copy, hard copy, delivered in conversation and films, and any other sensitive data, such as documents, personal photos, emails, conversations, and important numbers (Santos, 2020). Confidentiality of information ensures that only those with sufficient privileges may access certain information. When unauthorized individuals can access information, confidentiality is broken (Susanto & Almunawar, 2022).

Often cyber security and information security are used interchangeably, but there are differences in each concept. Information security is concentrated to protect information everywhere, whereas cyber security is specifically focused on information in cyberspace (Taherdoost, 2022). Information security (InfoSec) is the security of computer systems to protect them against disclosure, subjective modification, unauthorized access, harassment, and destruction that aim to ensure integrity, confidentiality, and availability of information (Wendy & Wang, 2019). It refers to the tools and processes for preventing, detecting, and remediating threats to sensitive information, whether digitized or not. It is an attempt to create a framework for ensuring confidentiality, integrity, and availability of information (Andress, 2014). Also, the preservation of authenticity, privacy, accountability, non-repudiation, auditability, and reliability are essential for information security (Layton, 2007). Information security indicates the protection of information against different threats that aim to minimize the risk of business activities, maximize return on investments, exploit business opportunities, and ensuring continuity of business (Dhillon, 2007). Various supportive tools are used to InfoSec, such as anti-virus, anti-spyware, software, windows and applications updates, firewalls, content filtering, parental control, smart encryption codes and techniques, methods, and advices related to security (Feruza & Kim, 2007).

Information security is the practice of protecting sensitive information from unauthorized access, disclosure, modification, alteration, disruption, and destruction of information security management, computer and data security, and network security. It includes encryption, access controls, data classification, and data loss prevention (DLP) measures (Joshi et al., 2017). It also prevents or reduces the probability of unauthorized access to data for the unlawful use, theft or vandalism, disclosure, power failures, disruption, deletion, corruption, modification, natural disasters, adverse environmental conditions, inspection, recording, and devaluation of information (Daniel & Titman, 2006).

6.4 Cloud Security

Cloud computing is one of the most popular information technologies that is used to reduce its operating costs, increase revenue, and develop fast-growing IT industry; and the key point in them is cloud computing security (Malallah et al., 2023). It is considered as a modern generation in the information technology revolution that provides a wide range for sharing services through the internet, such as data storage, servers, databases, networking, and software (L'Esteve, 2023). It has three components: clients, distributed servers, and data centers. It has revolutionized the way of storing, processing, and managing data; offering unprecedented levels of flexibility, scalability, and efficiency (Ang'udi, 2023). The cloud computing can be implemented in four deployment models as (Rittinghouse & Ransome, 2009): i) a public cloud is made available to the general public or large industry group and is owned, managed, and operated by a business, academic, or government, where third-party providers deliver computing resources, such as servers, storage, networking, and applications (Velev & Zlateva, 2011), ii) a private cloud is operated entirely for a single customer or organization that may be managed by a third-party provider that offers superior control, security, and customization compared to public clouds (Gupta et al., 2019), iii) a community cloud is owned, managed, operated, and shared by several organizations; and supports of a specific community that have common goals, security requirements, or regulatory needs and may be managed by the organizations or a third party (Mondal et al., 2020), iv) a hybrid cloud combines and unifies public cloud, private cloud and on-premises infrastructure to create a single, flexible, cost-optimal IT infrastructure (Reese, 2009).

Cloud computing faces serious security risks, such as data loss, privacy violations, financial damages, distributed denial of service, and erosion of user trust that require careful attention (Singh & Chatterjee, 2017). Moreover,

dynamic and scalable nature of cloud services complicates the task of ensuring consistent security across different service models and deployment models (Seifert et al., 2023). Cloud security is a multifaceted discipline that refers to the technologies, policies, controls, procedures, applications, and services that protect the vast array of data, applications, and infrastructure of cloud environments. It is very close with the network security, database security, web security, etc. (Malik et al., 2023). It uses various cloud service providers, such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), Amazon Web Services (AWS), Azure, Google Cloud, etc., to ensure security against multiple threats (Srinivasan et al., 2012). It enhances privacy if configured and managed correctly and saves data on the cloud, making it accessible from any device with proper authentication (Butt et al., 2023). It is crucial for the safe, secure storage of data and other items in cloud systems. It is applicable in different types of organizations and institutions including government organizations and bodies. It has become a popular option over the last decade (Paul & Aithal, 2019).

6.5 Internet of Things (IoT) Security

The Internet of Things (IoT) is a vast network of interconnected devices, objects, and services that collect and exchange data to improve efficiencies and create new opportunities in various industries. These aspire to connect anyone with anything at any point of time at any place, and provide the connectivity between objects timelessly (Najar, 2019). These devices have attracted considerable attention during the past few years. These range from everyday household appliances, such as smart thermostats and lighting systems to large-scale industrial machineries, such as manufacturing equipment and transportation vehicles (Tawalbeh et al., 2020). These create a new era in which all technologies and appliances are connected to the internet, and users can use them together to complete complex operations easily. The IoT world has a huge variety of devices, such as smartphones, personal computers, PDAs, laptops, tablets, and other hand-held embedded devices (Said & Zolkipli, 2022). The term "Internet of Things" was originally coined by Kevin Ashton, British technology pioneer and a co-founder of the Auto-ID Center at the Massachusetts Institute of Technology (MIT) Auto-ID Centre in 1999 (Kramp et al., 2013). At present the number IoT devices worldwide are 19.8 billion in 2025, and it is expected to be more than 40.6 billion by 2034 (Kalsi et al., 2023).

The IoT security is the technology segment focused on safeguarding connected devices and networks in the IoTs, such as smart home gadgets, industrial sensors, medical equipment, and wearable technology from cyber threats (Rao & Haq, 2018). It focuses on protecting, monitoring and remediating threats related to these devices, and ensures that these devices do not become entry points for hackers to exploit networks and steal sensitive data. It refers to a network within which information from all connected devices can be gathered, processed, and modified to offer new services (Litoussi et al., 2020).

The IoT promises technical advances, improves efficiencies, provides greater revenues, and enhances customer experiences. This clearly indicates that IoT is becoming mainstream and representing a significant opportunity for the global economy, society and business. However, this expansion heightens security as a major concern (Miorandi et al., 2012). It also faces various security and privacy issues and challenges, and the majority of the security threats are related to leakage of information and loss of services that are related to confidentiality, integrity, authentication, etc. Hence, a secure mechanism is needed to protect the personal information (Ziegeldorf et al., 2014). It is of three-layer architecture, and its security principles should be enabled at each layer for the proper and efficient working of the applications. The era of IoT has enhanced the life quality our living styles by connecting various smart devices, technologies, and applications. The IoT is applied in healthcare, transportation, lifestyle, smart home, smart city, retail, supply chain, agriculture, smart factory, emergency, user interaction, culture and tourism, environment and energy (Geneiatakis et al., 2017).

6.6 Operational Security

Operational security (OPSEC) is a strategic process and policy that is used to protect sensitive information from falling into the wrong hands by identifying critical data, assessing threats and vulnerabilities, and implementing countermeasures with internal threats and human errors (Vick, 2015). It refers to the choices, technologies, and activities through which information assets as well as sensitive systems are protected and handled (Mohajan, 2025c). It involves identifying critical data, assessing threats, analyzing weaknesses, and implementing countermeasures. It maintains the confidentiality of the information only to authorized users and detects any unusual behaviors that may expose malicious activities. It was originally developed by the US military during the Vietnam War to protect mission-critical information (Gentry & Gordon, 2019).

At present it is widely adopted across the business world to prevent data leaks, sabotage, and unauthorized access. The five steps of it are identifying critical information, analyzing threat, analyzing vulnerabilities, assessing risk, and applying countermeasures (D'Amore, 2022). It has access controls, risk management, vulnerability management, protective monitoring, incident management, configuration and change management, employee training, and monitoring activities to prevent data leaks and security breaches (Michnowicz, 2006). It is an analytical process that military, law enforcement, and government and private organizations use to prevent

sensitive or proprietary information from being accessed inappropriately (Athey, 2020).

6.7 Mobile Security

Mobile devices are smartphones, tablets, and laptops that are used not only to communicate, but also to plan and organize the works and lives. The technology evolves very rapidly, and the usages of mobile devices are increasing everyday life bringing various benefits, such as time savings, the ability to work without being tied to a specific position, and increased productivity. Mobile devices primarily contain access to corporate data, so businesses are highly prone to instant messaging attacks, phishing, and malicious apps (Rogers, 2013). People sometimes store sensitive information in mobile device, such as contacts lists, credit cards numbers, bank account number, passwords, and other important documents. Their chosen data are easily available on these devices, and attackers are focusing their efforts on mobile devices (Chan & Hong, 2016).

Mobile health (m-health) is the practices of public medical health supported by mobile technology that covers the collection, modification, classification, and transport of health-related data. Although basic telemonitoring m-health services are widely established, still there are difficulties to be resolved, most notably security and privacy concerns (Trigo et al, 2020). The mobile money (m-money) is revolutionizing the lives of vast unbanked population offering various benefits, such as simplicity, dependability, speed, flexibility, and cost. Rural areas and low-income persons can use the m-money system to get various services at a lower cost. This also reduces the security dangers associated with carrying real money, and reduces long queues at banking institutions (Ali et al., 2020).

Mobile security is the protection of mobile devices from threats through the use malicious apps, zero-day, phishing, and instant messaging attacks by the mobile computers and communication hardware (Bishop, 2004). Among the various types of cyber security, extended detection and response (XDR) is becoming an essential solution for modern enterprises that provides a unified approach to detect, respond, and mitigate threats (Engel et al, 2022).

6.8 Zero Trust Security

Actually zero trust is not about removing trust entirely so much as reducing it to the bare minimum necessary and making the trust explicit rather than implicit, and it involves understanding the traditional models it challenges. An operator implements a hard shell around his/her sensitive components. For example, a firewall around the data center can create castle walls, and entities outside the castle are potential threats requiring strict scrutiny, inside data are trusted and safe (KubeCrash, 2023). The conventional method of security is “trust but verify” it, but the zero trust paradigm adopts “never trust, always verify”, and the latter is significance due to various global cyber threats (Ranya & Goda, 2023).

Zero trust security is an IT security model that requires strict identity verification for every person, and device trying to access resources on a private network, regardless of whether they are sitting within or outside of the network perimeter. It assumes that there are attackers both within and outside of the network. It is implemented by establishing identity verification, validating device compliance prior to granting access, and ensuring least privilege access to only explicitly-authorized resources (Rose et al., 2020). It is better suited to modern IT environments than more traditional security approaches. It offers enterprises more network visibility and aids in the timely detection and mitigation of security threats. It assumes that all traffic and incoming data are malicious and need to check at every point-of-time (Pendli, 2025).

The term “zero trust” was coined by Stephen Paul Marsh in his doctoral thesis on computer security at the University of Stirling in April 1994, and later it is popularized by Forrester Research analyst John Kindervag in 2010 (Collier & Sarkis, 2021). Zero trust is a powerful security model that is at the forefront of modern security practices. Organizations are given the visibility and the employees require by zero trust privilege to guarantee ongoing compliance. A properly implemented zero trust privilege strategy can help the organizations to reduce the risk of breach by 50% (Guntaka, 2025).

6.9 GenAI Security

Generative AI (GenAI) has sparked a transformative wave across various domains, such as machine learning, healthcare, business, and entertainment due to its remarkable ability to generate lifelike data. GenAI products are ChatGPT and DALL E from openAI, Github Copilot, AlphaCode from Deepmind, etc. (Shoufan, 2023). It has become an essential pillar for organizations that aims to enhance productivity and innovation. It tempts business leaders to move quickly bypassing implications involving data, compliance, governance, and other risks (Bai et al., 2021).

The GenAI security is a newer type of cyber security that provides protection against the use and integration of securing GenAI applications and ecosystems. It prevents harmful actions, such as unauthorized data manipulation or misuse (Gupta et al., 2023). It encompasses all the measures, technologies, policies, and security

controls that protect organizations from risks associated with the use of GenAI. Some GenAI threats are model vulnerabilities, data risks, misuse scenarios, and compliance and governance risks (Golda et al., 2024).

GenAI security protects the entire lifecycle of GenAI applications from model development to deployment through the implementation of zero trust security, introduction of data protection measures, understanding of AI compliance obligations, and getting strong incident response plans in order (Jovanovic & Campbell, 2022). It helps to protect AI systems and their outputs from misuse, unauthorized access, and harmful manipulation. It improves threat detection, enhances operational efficiency, and personalizes security awareness training (Mohajan, 2025a). Several approaches are being employed to address the privacy and security concerns in GenAI, such as Privacy-Preserving Techniques (PPTs), Adversarial Defense Mechanisms, and Regulatory Measures and Policies (Wu et al., 2020).

6.10 Secure Access Service Edge (SASE)

A secure access service edge (SASE) is a new technology used to deliver wide area network and security controls as a cloud computing service directly to the source of connection rather than a data center (Kaur, 2024). It is the combination of security and networking elements offered in a single unified platform based on cloud-delivered services (Gareeb et al., 2021). It was first introduced by American research and advisory firm Gartner in 2019 as a response to the growing need for secure remote access and the increasing adoption of cloud-based services (Chen et al., 2023). The four key elements of security service edge (SSE) are Secure Web Gateway (SWG), Cloud Access Security Broker (CASB), Firewall as a Service (FWaaS), and Zero Trust Network Access (ZTNA) with SD-WAN capabilities, delivering them as a unified, cloud-native service (Makani, 2024). The SASE framework aims to provide a more agile, flexible, and scalable approach to network security (Joshi et al., 2021).

The SD-WAN is a key enabling technology for SASE that provides the necessary network connectivity and management capabilities. It enables organizations to create secure, high-performance connections between users, devices, and applications, across multiple locations and cloud environments (Gareeb et al., 2021). A Secure Web Gateway (SWG) is a security solution that protects users from web-based threats and enforces internet access policies, and acts as a first line of defense against malicious websites, phishing attempts, and other web-based attacks (Kaur et al., 2023). A Cloud Access Security Broker (CASB) is a security solution that acts as an intermediary between cloud service consumers and cloud service providers. It enforces security policies, monitor cloud activity, and protect sensitive data across multiple cloud platforms (Syed et al., 2022). Zero Trust Network Access (ZTNA) is a security model that operates on the principle of denying access by default, and treats all users, devices, and applications as untrusted until they are explicitly verified (Piplode & Singh, 2021). Firewall as a Service (FWaaS) delivers traditional firewall security features as a cloud-based service, and provides a scalable, flexible, and cost-effective alternative to on-premises firewall appliances, enabling organizations to protect their networks and applications from a wide range of threats (Walt & Venter, 2022).

6.11 Operational Technology (OT) Security

Operational technology (OT) causes a change through the direct monitoring and control of industrial equipment, assets, processes, and events that describes environments containing industrial control systems (ICS), such as supervisory control and data acquisition (SCADA) systems, distributed control system (DCS), remote terminal units (RTU) and programmable logic controllers (PLC), as well as dedicated networks and organization units (Koronios et al., 2010). The SCADA system provides centralized monitoring and control of complex processes spread across large areas that gathers real-time data from remote locations from sensors and instruments located at remote sites. It is widely used in industries, such as power generation, oil exploration, water management, manufacturing, etc. (Waqas & Jamil, 2024).

A Remote Terminal Unit (RTU) is an electronic device used in industrial and remote monitoring applications to collect data from sensors, process it, and transmit it to a central control system. It is essential for monitoring and controlling equipment and processes in geographically dispersed locations (Knapp, 2024). The PLC is a specialized industrial computer used to automate and control machinery and processes. That is designed to withstand harsh industrial environments and provides reliable operation over extended periods (Zaid & Garai, 2024).

As OT systems increasingly integrate with IT systems due to fourth industrial revolution initiatives, they become more vulnerable to cyber-attacks that pose risks not only to data but also to physical infrastructure (Kumar & Vardhana, 2025). The OT security refers to the cyber security practices and technologies that protect industrial systems controlling physical processes, ensuring the integrity, safety, and availability of critical infrastructure, such as power grids, utilities, healthcare, transportation networks, and manufacturing systems (Steenstrup, 2008). It focuses on safeguarding critical infrastructure from threats, such as malware, ransomware, and state-sponsored attacks, ensuring the continuity, safety, and reliability of essential operational services. It covers

security controls around process control systems (PCS), distributed control systems (DCS), and Scada environments that are collectively referred to as ICS environments (Kumar & Vardhana, 2025).

6.12 Endpoint Security

If a device, such as a desktop, a laptop, a tablet, a smartphone, etc. is connected to a network, such as a server, a database, an intranet, and an extranet; it is considered as an endpoint. That means endpoints can be plagued with both internal and external security threats. The term endpoint threat detection and response (ETDR) is coined by recognized security expert Anton Chuvakin in 2013 (Chuvakin, 2013). The vulnerabilities of endpoints seem endless and need strong security. Therefore, endpoint security is important at all levels of an organization and a company. It is the practice of securing endpoints of end-user devices, such as desktops, laptops, tablets, smartphones, smart printers, smart watches, ATM machines, and servers from being exploited by malicious actors and campaigns (Ahl, 2014). It is a cornerstone and critical component of effective cyber security frameworks due to hyper-connected digital landscape in an era of increasing cyber threats. It includes antivirus software, intrusion prevention systems (IPS), device encryption, and multi-factor authentication, and regular software updates. In many cases, threats are only detected after the loss of significant amounts of data (Fortinet, 2022).

Early approaches to endpoint security relied heavily on antivirus software and perimeter-based defenses. But the traditional endpoint protection platforms that focused on prevention are no longer enough to protect endpoints (Johnson et al., 2016). There are many antiviruses and anti-malware software scan and detect malicious software, such as viruses, worms, Trojans, and ransomwares (Forrester, 2021). As the volume and sophistication of cyber security threats have steadily grown, so has the need for more advanced endpoint security solutions that are designed to quickly detect, analyze, block, and contain attacks before they can do damage. Endpoint security is a continuous process that requires attention, resources, and preparation (ISC2, 2021). Firewalls are essential components of endpoint security that monitor and control incoming and outgoing network traffic, filtering out potentially malicious data packets (Slate, 2018). Keeping software and operating systems up to date with the latest security patches and updates is crucial for endpoint security. Recent studies emphasize the importance of adopting a multi-layered security approach that requires continuous verification of every device, user, and application accessing the network (Hanna et al., 2018). With endpoint security, companies and organizations can secure end-user devices, such as desktops and laptops with data and network security controls, advanced threat prevention, such as anti-phishing and anti-ransomware, and technologies that provide forensics, such as endpoint detection and response (EDR) solutions (ISC2, 2021).

7. Conclusions

At present, we are living in a world of cyber-format knowledge. We can send and receive any form of data, such as email, audio, and video without any leakage of information just by the click of a button due to cyber security. These data are maintained in the form of digital or cyber ways. Cyber security is an important field that is increasingly gaining attention as the internet and computer services are expanded. More efficient and effective cyber security is the responsibility of everyone and has the basics of confidentiality, integrity, and availability. Individuals and organizations must remain alert, adapt their security measures, and maintain a culture of security awareness to effectively mitigate risks in the cyber security.

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Research on the Market Adaptability of Rongchang Summer Cloth Product Innovation Under the Intervention of Modern Design Language

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Abstract

This paper takes Rongchang Summer Cloth as the research object, focusing on the market adaptability of its product innovation under the intervention of modern design language. Based on cultural consumption theory and design value theory, it constructs an analytical framework of “design innovation–market segmentation–value adaptation”. Through case analysis and theoretical deduction, it proposes four core market segments for Rongchang Summer Cloth: cultural elites and collectors, new middle-class and lifestyle consumers, designers and creative classes, and Generation Z and national trend enthusiasts. On this basis, it elaborates on five core design innovation methods–symbol translation, material reengineering, structural innovation, functional crossover, and narrative empowerment–and their dynamic adaptation paths with each market segment in terms of value demands, functional needs, and price perception. It proposes that market adaptation is a precise value co-creation behavior, whose essence lies in transforming the cultural and aesthetic value created by design innovation into a value that can be perceived, recognized, and paid for by specific target consumers through appropriate channels and narratives. This paper aims to provide theoretical support and practical references for the coordinated development of cultural inheritance and commercial value of Rongchang Summer Cloth in the context of cultural confidence and consumption upgrade.

Keywords: Rongchang Summer Cloth, product innovation, market adaptability, modern design language, intangible cultural heritage revitalization

1. Introduction

The intervention of modern design language has injected unprecedented vitality into the innovative design of Rongchang Summer Cloth. Designers have transformed Rongchang Summer Cloth from a traditional craft facing a crisis of inheritance into a contemporary cultural carrier that can be presented on fashion weeks and art exhibitions through methods such as symbol translation, material reengineering, and deconstruction innovation. However, while we are adept at discussing the methodology of design innovation, we are often negligent in examining the effective connection between its innovation outcomes and the diversified market demands. If the value created by design innovation cannot be verified and realized in the market, its revitalization path will be difficult to sustain, and it may eventually lead to the intangible cultural heritage falling back into the inheritance predicament due to a lack of economic vitality. Therefore, this paper aims to shift the research perspective from focusing on the supply side of design innovation to exploring its adaptability to market demand. The core research question of this paper is how the innovation outcomes of Rongchang Summer Cloth under the intervention of modern design language can be effectively matched with different market segments, and what the internal adaptation logic and realization mechanism are. This is of crucial theoretical value and practical

significance for promoting the sustainable development of Rongchang Summer Cloth.

2. Construction of Design and Market Adaptation Model

This paper constructs a design-market adaptation analysis model by integrating the theoretical perspectives of marketing, cultural sociology, and design. Based on this theoretical foundation, the author draws on cultural capital theory to view design innovation as a process of cultural capital reproduction, and uses value co-creation theory to explain the interaction between designers and consumers.

In this paper, the intervention of modern design language specifically refers to the creative transformation of Rongchang Summer Cloth through five methods: symbol translation, material reengineering, structural innovation, functional crossover, and narrative empowerment. Market adaptability is a multi-dimensional concept that measures the degree of match between the innovation product and the demands, preferences, and willingness to pay of target consumers in terms of value proposition, functional utility, and price positioning. Symbol translation is not merely the simple extraction of traditional patterns but the contemporary expression of cultural genes through design language. Its essence is to measure the degree of synergy between the innovation product and the target consumers in terms of value recognition, functional satisfaction, and price acceptance. Starting from the cross-analysis of three key variables—consumption motivation, value pursuit, and price sensitivity, the potential market for Rongchang Summer Cloth is divided into four typical types: the cultural elite market, whose core demand lies in the cultural authenticity, rarity, and art investment value of the product, and which pays more attention to the authenticity of the product's lineage and cultural origin; the new middle-class consumer market, who pursue the aesthetic style, ecological ethics, and improvement of life quality carried by the product, and who pay more attention to the concern and practice of sustainable lifestyles; the creative class market, which shows the characteristics of productive consumption, regards innovative products as sources of inspiration and creative materials, and values their uniqueness and experimental nature; and the national trend enthusiasts market, whose consumption behavior is deeply driven by social interaction, prefers products with high appearance levels, strong cultural symbols, and interesting features, and has significant characteristics of symbolic consumption and group identity. The core analytical tool of this article is the design-market fit matrix, which cross-relates five design innovation methods involving modern design language with the four segmented markets, and focuses on explaining how design innovation can achieve creative value transformation through specific cultural translation paths to meet the core demands of different target markets.

3. Market Segmentation Map and Value Demand Analysis of Rongchang Summer Cloth

Based on the perspective of the aforementioned theoretical framework, the consumption market of Rongchang Summer Cloth presents a clear value stratification and a diverse coexistence trend. The cultural elite market follows a unique value logic. This group regards summer cloth products as aesthetic objects for inheriting cultural memory, and their consumption behavior is essentially the accumulation and display of cultural capital. For instance, the artwork "Twelve Screens of Summer Cloth Landscape" was sold at an astonishing price at Sotheby's, fully demonstrating the scarcity value of handcrafted originality. The circulation channels of such works are significantly closed, often completed through targeted transfers among private art advisors and important collectors, forming an elite cultural circle based on trust and professional authentication. The new middle-class consumer market shows distinct modern characteristics and is the main force of industrialization and the main service target of brands. This group regards summer cloth products as media for personalized life aesthetics. For example, brands like Yiqutang and Sulu have deeply cultivated this market, selling through designer brand stores, high-end online platforms, and cultural tourism complexes, and constructing a complete brand narrative, enabling consumers to simultaneously recognize and practice the cultural imagination of an elegant life during the purchasing process. The creative class market exhibits unique productive consumption traits. This group regards summer cloth as a creative medium with cultural depth, and their demands focus on the material's malleability and cultural symbolic value. For instance, architect Zhang Lei innovatively applied a specially treated waterproof summer cloth composite material to interior partitions in his "Fusion House" project, preserving the natural texture of the material while endowing it with modern functions. This cross-border material experiment not only expands the application boundaries of summer cloth but also essentially realizes the dialogue between traditional craftsmanship and contemporary design. The transaction mode in this market usually adopts customized services, completed through direct cooperation between design institutions and material laboratories. The national trend enthusiasts market is the center of traffic and topics, and this group's market shows distinct postmodern symbolic consumption characteristics, deeply integrating the demands of digital social interaction and identity recognition. The product forms in this market are lightweight and symbolic, such as summer cloth elements in cultural and creative peripheral products, IP collaboration products, and trendy accessories, and their sales heavily rely on social media e-commerce, trendy collection stores, and pop-up events, emphasizing immediate sharing and group identity. These four consumer groups do not exist in isolation but form a dynamic value ecosystem. This complex interaction relationship not only reveals

the multiple aspects of traditional culture in contemporary society but also provides new thinking dimensions for the diversified paths of intangible cultural heritage revitalization.

4. Dynamic Adaptation Paths of Design Innovation Methods to Segmented Markets

Based on the systematic analysis of the design-market fit matrix, the five core design innovation methods of modern design language and their adaptation paths to different markets present clear differentiated characteristics, reflecting the unique value cognition models and consumption logics of each market group.

At the level of symbol translation, although both the cultural elite market and the national trend enthusiasts market show high adaptability, their strategies are completely different. For the cultural elite market, translation should follow the principle of subtractive aesthetics. For example, designer Ma Ke's "Useless" series of works deconstructs and abstracts the warp and weft of summer cloth into a space installation full of Zen, which not only retains the essential characteristics of the material but also triggers philosophical speculation about the relationship between tradition and modernity through a minimalist form; while for national trend enthusiasts, translation can be bold and direct, pasting and re-creating local cultural symbols with anime and trendy elements to meet their needs for identity marking and social sharing.

The two most experimental design methods, material reengineering and structural innovation, present distinct market segmentation in their value realization paths. In the cultural elite market, the value of these innovative approaches lies in creating museum-level art treasures. For instance, Cai Fan's "Light of Summer Cloth" lamps, whose value lies in the unrepeatable light and shadow art brought about by material experiments, perfectly align with collectors' pursuit of rarity; while the parametrically designed summer cloth structures provide architects and product designers with new creative media. For the new middle class market, the application of these two methods needs to be downgraded, that is, to transform their cutting-edge achievements into design details that enhance the quality of daily necessities, such as applying the crease texture used in artworks to a pillow or lampshade, showcasing extraordinary taste in the details.

Functional crossover is an effective strategy to break down the barriers between the new middle class and national trend enthusiast markets. For the new middle class, the value of a summer cloth Bluetooth speaker lies in its embodiment of an elegant lifestyle, and the crossover needs to be precise and elegant; for national trend enthusiasts, a summer cloth phone case or keyboard cap becomes a high-quality social currency due to its novelty and fun, with the crossover focusing on creating topicality and spreadability.

Narrative empowerment is a universal value amplifier for all markets, and its narrative strategies must be precisely designed based on the audience's knowledge structure and acceptance habits. For the cultural elite group, a grand narrative about authenticity and inheritance needs to be constructed; for the new middle class, warm stories about quality life and sustainable choices should be told; for the designer group, clear and professional material technology manuals should be provided; for national trend enthusiasts, stories must be transformed into lightweight, visual, and easily shareable short videos or interactive experiences.

This differentiated adaptation path reveals a deep-seated rule: the effective connection between design innovation and the market is essentially a process of cultural decoding and re-encoding. Designers need to accurately grasp the cultural codes of different groups and transform the value of traditional craftsmanship into forms recognizable and identifiable by specific markets through appropriate design languages. This process not only tests the professional ability of designers but also requires a profound understanding of the complex cultural landscape of contemporary society. It is worth noting that these adaptation boundaries are not absolute, and innovative design practices often open up new market possibilities by breaking the established cognitive framework.

5. Challenges and Forward-Looking Strategies in Market Adaptation

In the process of practicing market adaptation, the primary challenge stems from the eternal tension between authenticity and commercialization. When summer cloth products are simplified and mass-produced to adapt to the mass market, the cultural codes they carry face the risk of being deconstructed. The balance between design innovation and market demand constitutes another predicament. Designers' pioneering explorations are often based on cultural criticism and aesthetic subversion, which naturally creates a gap with the acceptance of the mass market. In the face of these deconstructive predicaments, this article proposes three strategies. Implement the product matrix strategy, that is, the same brand should build a complete product line from the master collection series to the youth trend series for different market segments, achieving a high-low value combination and maximizing market coverage. Upgrade the value communication strategy, fully leveraging digital technologies such as AR and VR to make the digital stories of every piece of fabric and every certificate tangible and perceptible, and through immersive experiences, enable consumers to intuitively understand the value of handcraft, thereby resolving their price concerns. Promote the community co-creation strategy, especially targeting the designer and domestic trend enthusiast market, by organizing workshops, launching crowdfunding,

and conducting joint design projects, transforming consumers from passive purchasers into active participants and co-creators, thereby building deep user stickiness and brand loyalty. The implementation of these strategies must be based on a profound understanding of the essence of traditional culture. The ultimate goal of market adaptation is not to have tradition blindly cater to modernity, but to find creative connection points between traditional culture and contemporary life. In this process, maintaining reverence for cultural authenticity and the courage to innovate are equally important. Any extreme in a single dimension may lead to the alienation of cultural commercialization.

6. Conclusion

Under the intervention of modern design language, the market adaptability between the product innovation of Rongchang Summer Cloth and the diversified market demands is not merely a simple commercial accommodation, but a precise strategic value co-creation based on profound market insight. Each of the five design innovation methods has its own capability boundaries and targeted market domains. The key to successful commercialization lies in making clear choices about the target market and selecting the most suitable design value transmission path accordingly. For cultural elites, design is a profound interpretation of culture and an ultimate expression of art; for the new middle class, design is the shaping of life aesthetics and the resonance of values; for the creative class, design is an open tool and the grammar of innovation; for Generation Z, design is a social touchpoint and a symbol of group identity. In the future, the sustainable development of Rongchang Summer Cloth and the advancement of the entire intangible cultural heritage revitalization cause urgently require establishing a more creative, insightful, and sustainable dynamic balance mechanism among cultural essence, design thinking, and market needs. The theoretical framework and strategic suggestions proposed in this article are an exploratory attempt towards this goal, aiming to provide a referenceable thinking direction for the successful transformation of intangible cultural heritage from precious cultural assets into vibrant contemporary assets.

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The Production of Beauty and Nostalgia: The Image-Space and Discursive Construction of Chinese Rural Documentaries in the New Era

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Abstract

This study examines Chinese rural documentaries from the New Era. It uses Henri Lefebvre's theory of the production of space. It also employs Michel Foucault's discourse theory. These theories serve as the core analytical framework. The research explores how these documentaries use cinematic narrative techniques. Their goal is to construct the countryside as a meaningful space. This space is filled with ideas of "beauty" and "nostalgia." Finally, the study critically analyzes the discursive practices and ideological effects of this construction process. This study argues that the rural space depicted in Chinese rural documentaries is not a straightforward reflection of reality but an actively selective discursive "production". Based on Lefebvre's "spatial triad", the study firstly dissects how the physical space of rural areas is depicted as a landscape and as "picturesque", how the social space of rural areas is shaped by the subjectivity of "new rural residents" and communal relationships and how the cultural space of rural areas is emotionally anchored by conceptions of "home", "memory" and "history". Subsequently, the study analyzes the micro-strategy of narrative technique in detail and explores how the cooperation between visual rhetorics of shot scale (long shot/close-up), lighting and camera movement and auditory landscapes of voiceover narration and soundscapes collectively create an emotionally resonant and realistic rural imagery. Furthermore, the study discusses the macro-strategies of spatial juxtaposition and integration and analyzes how these strategies facilitate the incorporation of different kinds of rural spaces into a macro-narrative space concerning "Beautiful China" initiative and an "urban-rural community". In conclusion, through subtle spatial storytelling, Chinese rural documentaries in New Era successfully produce "beauty" and "nostalgia" as a dominant cultural discourse. This cultural discourse evokes the audience's emotional resonance, strengthens cultural identity and displays the achievements of rural revitalization. In essence, it is a cinematic practice that participates in the construction of national identity in New Era. This research not only offers a critical spatial and discursive analytical approach for the study of rural documentaries but also provides a representative case study for the analysis of representational mechanisms and ideological effects in contemporary Chinese mainstream culture.

Keywords: Chinese rural documentaries, production of space, discourse construction, beauty and nostalgia

1. Introduction

1.1 Research Origin

From "Documenting" the Countryside to "Producing" the Countryside Documentary film, once believed to be a cinematic mode that "records reality", acquires its authoritative position from its indexical relationship with the "real." But an unprecedented transformation is taking place in the cinematic narratives of rural areas in China:

documentary no longer refers to passively “documenting” a pre-existing objective rural reality but to an actively selective and creative “production” of a symbolic countryside that fits with the discourses of a certain era. The transformation from “documenting” to “producing” is the core starting point of this research.

In the New Era, with the grand narratives of “Rural Revitalization”, “Beautiful Countryside”, and the emotional narrative of “nostalgia”, the Chinese countryside portrayed in documentary films has taken on a new look that is highly aestheticized and emotionalized. Whether it is the beautiful natural scenery in *Chinese Villages*, the retrospective of historical context in *Remembering Nostalgia*, or the newly built modern houses in *A New Journey After Poverty Alleviation*, these images always converge on the themes of “beauty” and “nostalgia”. It is what they should not show but what they never fail to show. It is not the messy reality of the countryside but a “symbolic reality” which has been selected, polished, and even artistically processed.

This situation makes us wonder how it is that, through their audiovisual codes and narrative logic, documentary films mould the hybrid and multidimensional experience of the countryside into an experience of “beauty” and “nostalgia” that is so cohesive and powerful? This is precisely the core of Henri Lefebvre’s theory of the “production of space”: (social) space is not a neutral container but a (social) product. Every society, every mode of production, produces its own space. Bringing this theoretical perspective into the scope of documentary studies, we can regard the rural space depicted in documentary films as a mediated intentional text. The lens (shot scale, lighting, movement), sound (voiceover, effects, music), and structure (juxtaposition, fusion) serve as media through which creators organize the physical space, social space, and cultural space into a coherent system of signification.

Therefore, this study holds that in essence the New Era Chinese rural documentaries constitute a vast field of discursive practice through which creators systematically produce cultural definitions and structures of feeling about what a *beautiful countryside* is and where nostalgia can be anchored. It is not only an issue of aesthetic style in terms of visual image but more importantly an issue of ideological construction and cultural definition in terms of structure of feeling. This research intends to explore the core of this “production” process and decode the grammar of spatial storytelling through which the cinematic medium exerts its powerful and extensive construction on the apparently natural categories of “beauty” and “nostalgia” at this particular historical moment.

1.2 Literature Review

This study’s exploration of spatial narrative approaches in rural documentaries is based on two important foundations: the theoretical background of classical spatial narrative theory and the context of China’s rural realities and its cinematic practices. The review of related literature will help establish an integrated spatial typological framework for analysing New Era Chinese rural-themed documentaries.

Traditional narratology has long been a “time-dominant paradigm”, and treated space as a static background or container of events. It was not until the “Spatial turn” in critical thought that space was recognized as a narrative force that constructs meaning. Scholars put forward various typological schemes. Zoran (1984) put forward a tripartite model—topographical space, chronotopic space and textual space and systematically revealed the progressive relationship of space from static existence, to activation by events and finally to organization by discourse. Chatman’s (2010) distinction between story-space and discourse-space further enriched the understanding of spatiality of narrative act itself and its organization of perception of story.

Among all the above theories, the “Spatial triad” of Henri Lefebvre (1991) provides the basic theoretical support for the following research for its profound historical and social background. He puts forward that space can be divided into three dimensions, namely spatial practice (perceived space), representations of space (conceived and dominant mental/planned space) and representational spaces (lived social space, directly experienced and filled with symbols and meaning). Furthermore, Edward Soja (1989, 1996) explicitly divided space into “Firstspace” (material), “Secondspace” (mental) and “Thirdspace” (social) and defined “Thirdspace” as a transcendence and synthesis of the other two—a real-and-imagined space of social life filled with symbolism, memory and politics. Due to their robust critical power and explanatory power, the theories of Lefebvre and Soja have become frequently cited analytical tools within Chinese domestic studies on spatial narrative and cultural geography, especially in rural studies.

In summary, although the previous research has established a solid foundation through the introduction of spatial narrative theories and typological discussions, the systematic and in-depth application to the specific object of New Era Chinese rural documentaries is still lacking. The current studies based on New Era Chinese rural documentaries tend to focus on theoretical exposition or single-text analysis. There is still a lack of a comprehensive spatial analytical model to effectively integrate physical environment, social relations and cultural representation and further reveal how documentaries participate in the construction of certain specific discourses through spatial narrative. Therefore, this study attempts to integrate the above theoretical resources and construct an analytical framework based on three basic types, namely rural physical space, rural social space

and rural cultural space. This analytical framework can not only cover the diversified contents in documentaries, from material space to spiritual feeling, but also to further conduct an in-depth analysis of how space transfers from being “documented” object to “produced” vehicle of meaning, and further to provides a new critical perspective to decode New Era rural imagery.

1.3 Research Approach

Based on a close analysis of how New Era Chinese rural documentaries construct the spatial discourse of “beauty” and “nostalgia” through visual representation, this study takes textual analysis as its core methodology to conduct systematic analysis of documentary texts presenting audiovisual language and narrative logic. This research goes beyond the description of semantic information contained in documentaries to analyze the formal rules and mechanisms of meaning-making. The specific study proceeds from the following three layers.

First, with regard to the visual layer, this study conducts a formalist close reading of documentary images. The analysis explores how shot scales (especially the deliberate contrast between long shots and close-ups) mediate between macroscopic nostalgia and microscopic feelings; how lighting and color scheme produce spatial atmospheres and express symbolic meanings; how the camera movement guides perception and connects spatial elements, and produces an immersive rural experience.

Second, as for auditory elements, this study explores how the spatial “authenticity” and ideological implication are constructed and used. In addition to the description of semantic content and emotional guidance of voiceover narration, the analysis explores how the collaboration between natural sounds and human sounds produces spatial “authenticity” and ideological implication.

Finally, as for the structural logic of space in macro-narratives, this study analyzes how strategies like spatial juxtaposition and fusion integrate different spaces to express higher-level themes; and explores the latent spatial metaphor in the overall structure and its cultural logic.

Through this systematic and multi-layered textual analysis, this study aims to explore how the spatial discourse of “beauty” and “nostalgia” as a kind of discursive logic is actively constructed through fine-grained systems of visual codes and narrative structure, and to provide solid empirical evidence for the core question of how spatial discourse is produced.

2. Theoretical Framework

This research adopts spatial narrative construction as its analytical perspective, and the spatial typology as its analytical tool. The two bases are respectively derived from two aspects: spatial narrative theory and the critical practice of analyzing narrative texts through different spatial categories. This study focuses on the critical practice of analyzing narrative texts through different spatial categories in the new era Chinese rural documentary films, and regard the use of diverse type of rural spatial types as the specific approach of spatial storytelling in the films. This is the first step of the research: analyzing the selected documentary samples and exploring and elucidating how they use different kinds of spatial types for narratives.

Spatial narrative theory includes two parts of “space” and “narrative”. We begin with “space”. The concept of “space” used in this study is different from the ordinary meaning. In the context of spatial narrative theory, “space” is a more complex concept, which includes different kinds of spatial typologies. In their classifications of spatial types, scholars such as Wesley A. Kort, Chatman, Lefebvre, Edward Soja and Zoran are involved in different kinds of classification. Scholar Kort classifies the space in the novel into “natural space”, “socio-political space” and “personal/intimate space” in his *Place and Space in Modern Fiction* (2004). Chatman (2010) makes a distinction between “story space” (the space where the story events happen) and “discourse space” (the space where the telling/writing happens, including the environment of telling/writing). Zoran in his *Towards a Theory of Space in Narrative* (1984) puts forward an interesting classification: “topographical space” (astatic and physical entity), “chronotopic space” (the spatial structure formed by the events and movement) and “textual space” (the space presented in the text).

This study adopts Henri Lefebvre’s typology. Lefebvre redefined the space through historical, social and spatial perspectives and divided the space into: physical space (related to nature), mental space (related to discourse and power) and social space (related to lived experience). It is clear that in the definition of “social space boundaries”, he distinguished between the physical boundaries (“practical marks”) and conceptual boundaries (“signs of symbols”), both of which were socially produced, permeable and crossing (Lefebvre, 1991).

It is worthy of noting that in the domestic Chinese research on spatial narrative and typology, scholars often adopt Lefebvre’s framework. Scholar Edward Soja further developed Lefebvre’s theory and the concepts of Firstspace, Secondspace and Thirdspace also provide important references for this study. Firstspace represents the material and perceivable world of objects and environment. Secondspace represents the mental conceived space of the environment transcend the material. Thirdspace is the lower level of social space, and surpasses the

material-ideal division. It includes the lived space formed by our environment and culture, and involves cultural, historical, political and economic factors.

Based on above theoretical classification of types of space, we use a spatial lens to re-examine the Chinese countryside in New Era. Actually, rural space in China is formed by above diversified types of spaces interweaving together. Entering the New Era, those above-mentioned rural spaces have changed a lot. They provide documentary rich resources. Specifically, New Era Chinese rural documentaries classify rural space into following three types for narrative: rural physical space, rural social space and rural cultural space. Then, I will analyze how documentary creators use above three spatial types for their narration by referring to related textual cases.

3. The Stage of “Beauty”: The Production of Landscape in Physical Space

3.1 *Landscape of Scenery: The Construction of Ecological Beauty and “Picturesque” Aesthetic Convention*

Rural physical space can be directly regarded as what Edward Soja once called “Firstspace”—the material space including objects, scene and environment that human can directly feel and touch in their close proximity to their bodies. It coincides with Henri Lefebvre’s description in *The Production of Space*: “perceivable, material, physical objective space such as natural space, which ‘includes production and reproduction, and the particular locations and spatial sets characteristic of each social formation. Spatial practice creates continuity and some degree of cohesion’” (Lefebvre, 1991). In other words, this kind of space is a practiced space, and there are certain requirements for location and spatiality. It is different from Zoran’s “topographical space”, but it is similar to the “material space” mentioned in de Certeau’s *The Practice of Everyday Life*. No matter what kind of names scholars use, the overall attribute of this kind of space is that it is objective, physical, static and substantial. According to Li Hongbo (2018), “the material natural environment elements and human environment elements in man-land territorial system is called material space”. Rural physical space includes two components: the natural landscape space of countryside and human settlement space of countryside, such as cultivated land, open field, village, rural building, natural geographical area, etc., which are the main components of rural physical space.

Ji Ping (2019) believes that “in the narrative process of any film or television work, geographical space is inevitable. From the macro to the micro, from galactic system or nation to a single mountain, a river, a grassland, or even a street, a garden, it not only is the background of actions of work, but also participates in narrative, and becomes one of the important driving force of narrative development”.

As mentioned earlier, when entering the New Era, due to the influence of development policies such as Rural Revitalization and Poverty Alleviation, the countryside has undergone tremendous changes. In addition to changing the appearance of the countryside, these changes have also brought a large number of new spatial resources and material for the New Era Chinese rural documentaries. As Chen Xin (2008) pointed out, “Different natural landscapes reflect the spatial characteristics of different areas. In documentaries, they not only create an appropriate background environment for the occurrence of the story but also provide space for characters to perform, but also can create a regional atmosphere.” Therefore, the rural physical space in the New Era has become an important part of documentary spatial narrative. These changed rural physical space are presented in documentaries specifically in two ways: first, the rural natural landscape space presenting rural ecological beauty; second, the rural human settlement space presenting rural tradition and modernity.

New Era Chinese rural documentaries present the changed rural natural landscape space presenting rural ecological beauty. New Era Chinese rural documentaries present the changed rural natural landscape space presenting rural ecological beauty. The natural landscape is an important part of the rural physical space. Our country has a vast territory and rich natural geographical and landscape features. There are streams, rivers, forests, hills, plains, mountains, ponds, and lakes in the natural landscape. Since the New Era, the protection and improvement of the natural ecological environment have been focused on, and efforts have been made to achieve a harmonious relationship between man and nature. Under such circumstances, the New Era Chinese rural documentaries conscientiously record the changes in the natural landscape, presenting natural features different from those in the traditional rural documentaries. New Era Chinese rural documentaries present the “beauty of the sky”, the “beauty of abundance”, and the “beauty of ecology” in the rural natural landscape space. In addition, the questionnaire survey results show that most of the respondents believe that documentaries can display changes in the rural physical space.

New Era Chinese rural documentaries present the changed rural natural landscape space presenting rural ecological beauty. In New Era Chinese rural documentaries, *Chinese Villages* and *Remembering Nostalgia* can fully present the natural landscape space presenting the rural ecological beauty. Displaying different spatial types through presenting the natural landscape space is one of the important spatial narrative ways in New Era Chinese rural documentaries.

In *Chinese Villages*, in addition to presenting the ancient villages scattered in China, the creators also present the beautiful and picturesque rural natural landscapes. The creators use an aestheticized visual style to present the vast and spacious terraced fields embedded in *Chinese villages*, framed by distant green mountains and white clouds (Figure 1). The villages are also presented as nesting orderly on the land (Figure 2). In particular, in the episode “Construction” from *Chinese Villages* (2019), the documentary focuses on presenting the natural landscape of Hongcun Village, which is a typical representative of the New Era Chinese countryside. When shooting Hongcun, the creators present mountain ranges with rolling mountains and layered mountains and lakes with clear water and pristine water quality. Together, they construct a spatial aesthetic of a Jiangnan water with small bridges and flowing streams in the visual frame (Figures 3, 4).

Just as its name suggests, *Remembering Nostalgia* also showcases the natural landscape spaces of *Chinese villages*. For example, in the episode “Songkou Town—Hometown in My Heart, an Ancient Hakka Town”, its filmmakers shoot in the villages around the Dayu Ridge area that straddles Guangdong and Jiangxi provinces. To portray the exquisite natural scenery of the area, the natural landscape space shows you the rivers, high mountains and beautiful rural scenery of Dayu Ridge area and gives you an overall feel of the natural ecological scenery of *Chinese villages*.



Figure 1. Terraced Field Landscape in *Chinese Villages*



Figure 2. Village Settlement Layout in *Chinese Villages*



Figure 3. Scene of Small Bridges and Flowing Water in *Chinese Villages*



Figure 4. Courtyard Layout in *Chinese Villages*

3.2 Poetic Dwelling: From Traditional Residences to Modern Housing, Human Settlement Space as a Showcase of Progress

As another form of rural human settlement space, traditional and modern fusion space, rural human settlement space is another form of rural physical space. In the countryside, the function of these architectural spaces is evident: to survive and improve people's daily life and production activities, built and shaped by human labour and wisdom. With the influence of cultural civilization, architectural spaces in China's countryside display two kinds of style, traditional classical rural architectural space and modern rural architectural space. In the New Era Chinese countryside, traditional and modern architectural space coexist and mix together.

On the one hand, because of the overall upgrading of China's economy and the implementation of policies such as Rural Revitalization, Common Prosperity and Beautiful Countryside, the lifestyle in the countryside has become increasingly modern, and the rural living space has been renovated and modernized. On the other hand, there are still a large number of traditional rural architectural spaces existing in China. These spaces are the traces of China's past as an agricultural country, and now they are imbued with cultural tourism and heritage value. People are paying more and more attention to them and protecting them. By presenting these traditional

classical rural living spaces, the New Era Chinese rural documentaries create a space full of nostalgia and longing for homeland. This implantation of the countryside with poetry and positive sentiment is also an important theme expression of the New Era Chinese rural documentaries.

In documentaries presenting traditional Chinese architectural spaces, there are ample representation of New Era Chinese rural documentaries presenting traditional *Chinese villages* and countryside spaces. *Chinese Villages* mainly films traditional villages existing in China and their existence forms and clusters. To present more rustic cultural character of ancient villages, the documentary focuses on spaces in the villages, ancestral halls, gardens and living quarters, etc. In these spaces, we can see ancient buildings existing in China, such as courtyard houses (siheyuan), skywells (tianjing), temples, dwellings, ancestral halls and pavilions (Figures 5, 6). These spaces present the preservation status of traditional rural living spaces, and also present the poetry and culture of the New Era Chinese countryside.

Another documentary is *Remembering Nostalgia*. The documentary shows the traditional Chinese village spaces. The documentary carefully picked 120 traditional villages and 120 historical ancient towns all over China, even more 60 historical and cultural blocks. The typical ancient villages are Luxiang Village in Suzhou, Wangkou Village in Huizhou, Mingyuewan Village in Suzhou, Qiantong Village in Ningbo and other ancient villages. By showing the buildings and living spaces of these typical ancient villages, the Documentary film offers important background spaces for typical rural-themed documentaries to tell stories about traditional Chinese culture, family history and life experience.



Figure 5. Hakka Tulou in *Chinese Villages*



Figure 6. Qiao's Family Compound in *Chinese Villages*

Entering the New Era, with steady socioeconomic growth achieved in China, people's living conditions have generally improved. Based on the principles of urban-rural integration and common prosperity, China has introduced policies such as Rural Revitalization, Poverty Alleviation, and Beautiful Countryside, which have advanced the modernization of rural dwelling spaces and lifestyle improvements. New Era rural documentaries take this into consideration as a crucial approach to presenting spatial narratives.

A representative example is the documentary *Setting Out Again After Poverty Alleviation* (2022), produced by China Central Television. This documentary comprises five episodes: "Charting a New Blueprint," "Consolidating Achievements," "Linking New Tasks," "Building a New Countryside," and "Marching Toward Common Prosperity." In the episode "Charting a New Blueprint," a before-and-after comparison of Huawu Village in Bijie City, Guizhou Province is presented. Before rural revitalization, plagued by poverty, villagers lived in simple, dilapidated structures, leading the village to be known as "the village beneath the cliffs." Following the implementation of rural revitalization policies, Huawu Village has been completely transformed (Figures 7, 8). Aerial shots reveal neat, clean Western-style houses arranged orderly amidst the mountains and rivers, demonstrating a remarkable change in villagers' living spaces. The camera further explores the interiors of these new residences, showcasing modern interior designs and household appliances. These changes are not merely presented in the documentary; they represent real, tangible transformations occurring across rural China.



Figure 7. New Rural Layout in *Setting Out Again After Poverty Alleviation*



Figure 8. New Appearance of Rural Households in *Setting Out Again After Poverty Alleviation* (2022)

3.3 Emerging Domains: New Public Spaces in Libraries and Cafés, and “Counter-Urbanization” Pastoral Imagination

In recent years, a new type of “rural architectural space” has appeared in the Chinese countryside. They are not limited to residential purposes, but can be found in public venues, such as libraries, cafés, guesthouses and art spaces that have been developed as part of rural construction projects. The appearance of these spaces may be described as “counter-urbanization”. As urbanization continues, people living in cities for an extended period of time will be confronted with increasing life pressures, and will experience physical and mental exhaustion. Meanwhile, with the rapid economic development of the countryside, natural scenery that is hard to find in cities gradually appears in the Chinese countryside. Thus, these New Era countryside public spaces developed in the Chinese countryside provide a temporary haven for city escapees who want to relieve their physical and mental exhaustion.

These new rural landscapes are amply presented in the New Era rural documentary *Chinese Villages*. In the episode “Reconstruction” of *Chinese Villages*, the documentary narrates how a group of artists and intellectuals engaged in the design of public spaces in the countryside through “New Rural Construction” projects. They put their design philosophies into practice, as seen in examples like the Art Town in Youyu County, Shanxi Province; new residential buildings in Fuyang and Pujiang; and the renovation of guesthouses in Dali, Yunnan. These new types of rural architectural spaces depict a fresh, poetic image of the contemporary Chinese countryside, where tradition and modernity are interwoven (Figures 9, 10).



Figure 9. Rural Cafe in Chinese Villages



Figure 10. Rural Reading Room in Chinese Villages

4. The Reshaping of Subjectivity: The Relational Narrative of Social Space

4.1 The “Faces” of New Rural Dwellers: The Iconography of Endogenous Actors, Newcomers, and Poverty Alleviation Cadres as Embodiments of the Striving Spirit

Beyond the natural and physical landscape spaces of the Chinese countryside, utilizing the social space typology for narrative purposes constitutes another crucial method and pathway in New Era Chinese rural documentaries. Ji Ping (2019) argues that film and television works, as artistic creations with dual visual and auditory functions, offer the most intuitive means of representing and reflecting upon society. Compared to changes in rural physical space, the rural social space in New Era China contains even richer resources and represents a more significant transformation. Lefebvre posits that space is the space of practice, the realm where all human activities are initiated and conducted, thus space possesses a social attribute. “Social space is a social product.” Furthermore,

Lefebvre contends that social space is also a space that embodies the characteristics of representations of space (Lefebvre, 1991), meaning it specifically “represents and signifies a whole series of social relations linked to production and reproduction.” This space, imbued with social relations of production, fills the void left by understanding space merely as physical and objective, emphasizing the relationship between space and people.

Unlike other countries, China attaches great importance to interpersonal relationships; the history of people’s life in China is history of people’s life in China in terms of human relations.

Zhai Xuewei believes that logic of interpersonal interaction between Chinese and Westerners is different. Westerners usually consider individuals should have autonomous and mobile temporal and spatial arrangement in terms of time and space while Chinese people usually try to have long-term permanence in their temporal and spatial arrangement and have to adapt themselves to stable and durable social relations (Zhai, 2004). In China, countryside is an indispensable part of society. The earliest social relation, social construction and social production way in Chinese society born in countryside. Entering into New Era, Chinese countryside has its own opportunities and challenges for development and change. Rural social space shows its more and more vitality and positive factors, impacting on weaving and changing Chinese rural society. Analyzing some of key documentary texts, we can find that New Era rural social space is an important way to narrate story in *beautiful countryside*. The appearance of rural social space in documentary also differs from the past. The main agents in New Era Chinese rural social space are “new rural dwellers” and the mode of interpersonal interaction is a new pattern of social relations.

“Faces” and “Portraits”: The Self-Portrait of New Era Rural People

“Human beings are the absolute subject of social space” (Ji Ping, 2019). In the social space of Chinese countryside, rural dwellers are the main force. Their subjective image varies in different historical periods. Before New Era, countryside is overwhelmed by the wave of urbanization and modernization. Rural people leave their homeland for cities; their faces were hazy and marginalized. After entering New Era, biggest change of countryside social space is that subjective image of rural dweller has changed. Most of this change is because of the implementation of Rural Revitalization, Poverty Alleviation and Beautiful Countryside policies. Countryside becomes a new blue ocean of China’s economic development; its face of rural dweller becomes clear and specific. Those who originally “flee” from countryside, now they come back. They become the main force of social space of countryside and give human and intellectual support for rural revitalization.

In New Era countryside documentary, creators capture their eyes on these “new rural dwellers” in new social space and delineate their subjective image through their “faces” or “portraits”. This method shows the close connection between space and character portrayal. That is, in rural revitalization documentary *The Changing Chronicles of Rural China*, “new rural dwellers” of different experience, profession or identity appear. They are motivated by New Era rural development either by their own willingness or by the need of rural construction, they are all driving rural revitalization by giving strength. These “new rural dwellers” can be classified into three categories, endogenous rural construction actors, exogenous “new rural dwellers” and rural poverty alleviation cadres.

Endogenous rural construction actors are villagers who grow up in countryside. They improve their agricultural production way by learning new technologies, then motivate themselves to improve their lives. For example, in documentary, Peng Zhaowang motivates himself to cultivate new bag fungi, his income increases and then the whole village prospered (Figure 11).

Exogenous “new rural dwellers” are not dependent on rural life originally. They immigrate to countryside after they discover the resources and development potential of countryside. For example, in documentary, several ceramic artists migrate from other places to Mingyue Village in Sichuan. Then, pottery making by artist residency program drives local prosperity.

Finally, rural poverty alleviation cadres are crucial actors in New Era rural construction. They are responsible for implementing rural revitalization policies and guiding villagers in rural development. For example, poverty alleviation cadre Zhang Shixiong actively promoted poverty alleviation policies in the Guangdong-Guangxi region, leading villagers on the path out of poverty and towards rural revitalization (Figure 12).



Figure 11. Peng Zhaowang Utilizing New Bag Cultivation Techniques for Fungi in *The Changing Chronicles of Rural China*



Figure 12. Poverty Alleviation Cadre Zhang Shixiong in *The Changing Chronicles of Rural China*

4.2 The Renovation of Community: The “Phenomenal” Portrayal of Rural Revitalization Stories and Social Space Transformation

The most distinctive characteristic of rural social space in New Era China is its significant social renovation. When depicting social space, New Era Chinese rural documentaries focus precisely on this renovation. On a theoretical level, “each mode of production, in other words, every society, clarifies a general concept—it produces a space that belongs to it” (Lefebvre, 1991). Entering the New Era, with the realization of comprehensive moderate prosperity and the elimination of absolute poverty under policies like the Poverty Alleviation campaign and Rural Revitalization, Chinese rural society has undergone tremendous transformation. Today, the rural social space in China overall presents a beautiful rural tableau.

As an important “barometer” of social development and change, numerous Chinese rural documentaries in recent years have documentarily presented the transformation of New Era Chinese rural society. Within these documentaries, creators showcase the changes occurring within rural social space due to major social transformations like Rural Revitalization, poverty alleviation, and urban-rural integration.

In the documentary *Ten Years in the Village* (2022), New Era Chinese rural social space is used as an important narrative strategy to plunge audience into real and intensive New Era Chinese rural construction stories. Directed by Liu Junwei, the documentary introduces audiences to ten villages scattered in China. Taking these villages as the starting points, the documentary displays in full the real social changes that have taken place in Chinese countryside since the New Era began. Each of the ten villages is selected as an individual case. The documentary uses these ten villages to display changes in Chinese rural society, economy and culture in terms of each village’s ten-year changes (Figures 13, 14).

Taking Episode 8, “Maihua Fishing Village,” as an example, Maihua Fishing Village is an ancient village located at the foot of Huangshan Mountain in Anhui Province. It has a history of more than a thousand years. For hundreds of years, villagers in Maihua Fishing Village made their living by making penjing (a kind of potted landscape). Because Maihua Fishing Village is a mountainous ancient village, people there lived in a very remote area. Therefore, they were always poor and had no developed transportation. Later, villagers had to leave their ancient craft and leave Maihua Fishing Village.

After the 18th National Congress of the Communist Party of China, the Chinese government issued a series of pro-rural policies. These policies developed the transportation of Maihua Fishing Village. Penjing industry entered a golden period of development. Under the revitalization principle of “one thriving industry drives a hundred others,” Maihua Fishing Village discovered the business opportunity and gained new vitality. Finally, villagers in Maihua Fishing Village began their distinctive journey to prosperity with “small and beautiful” features. They became an amazing model for all *Chinese villages* (Figure 15). The changes of Maihua Fishing Village represent the changes of whole Chinese rural society. This village represents China’s achievements in great rural change during the New Era.

In Episode 4, “*Home in the Northeast*,” the documentary presents the social landscape and appearance of a New Era village in Northeast China. The Northeast region once played a vital role in China’s modernization construction but faced difficulties during industrial transformation and upgrading. The episode tells the story of a couple, Zhang Yue and Wang Xia, living in Dalian, whose hometown is located deep in the mountains of the Northeast. As their hometown underwent dramatic changes in recent years, the couple found motivation to return and start a business there. Whether the penjing artisans of Maihua Fishing Village or the migrant worker couple Zhang Yue and Wang Xia, they returned to the countryside inspired by Rural Revitalization, finding paths to self-actualization in the New Era Chinese countryside and achieving fulfillment in both material and spiritual

lives.



Figure 13. *Ten Years in the Village* (Ten Years Ago)



Figure 14. *Ten Years in the Village* (Ten Years After)

5. The Anchor of “Nostalgia”: The Affective Construction of Cultural Space

Lefebvre’s third spatial type is the mental representational spaces (Lefebvre, 1991). He argues that representational spaces “need obey no rules of consistency or cohesiveness” and “are directly lived through its associated images and symbols,” whilst also being spaces that are “passively experienced” (Lefebvre, 1991). Humans consciously encode or leave unencoded specific objects, creating signs and constructing diverse systems of symbols and signification, thereby engaging in the creation, storage, transmission, and exchange of culture. In other words, this mental space is what can be termed cultural space. The philosopher Martin Heidegger, in his essay “...Poetically Man Dwells...”, similarly suggests that while people inhabit space physically, they should strive to dwell within an ideal cultural space where the soul and spirit can find solace (Heidegger, 1971). Likewise, the geographer Yi-Fu Tuan’s concept of “sense of place” carries a similar resonance. “Sense of place” refers to a new type of “human-land relationship,” one reconstructed by cultural and social characteristics, “based on the subjectivity of human experience of place, its connotations including the features and personality of the place itself, and the emotions of attachment and identity people hold towards a place” (Tuan, 1974). It can be said that Tuan’s “sense of place” articulates the essential nature of the “human-land relationship.” Since then, the meaning of “sense of place” has been continuously updated and reconstructed alongside ongoing social, economic, and cultural transformations. Thus, we can infer that “sense of place” is essentially a cultural process of continuous generation (Knopf, 1994). Wang Changsong (2023) posits that social space is not only an objectively existing space but also condenses social relations and social production. On this basis, social space is endowed with “temporality and a dynamic processuality,” thereby forming cultural space. Wang Juren (2022) considers cultural space to denote “a place centrally used for hosting folk and traditional cultural activities.” Consequently, cultural space has also emerged as a significant spatial typology within the spatial narrative criticism of narrative texts such as literature and film.

The countryside is also a cultural space. Firstly, regarding the concept of “culture” itself, Wang Xiaopeng (2017) defines it as “the aggregate of material culture and intangible ideas created by humanity during its existence to maintain orderly survival and sustainable development, influencing a series of social life practices and interpersonal interactions, and interconnected with socio-political and economic development.” Specifically concerning “rural culture,” Zhang Zhongwen (2010) defines traditional rural culture as a “system of farmers’ values gradually internalized over the long term by the villager community through entities such as village covenants, folk customs, and cultural material heritage.” Based on this definition, this research posits that rural culture refers to the system of values governing rural life, formed within rural space by rural subjects through various rural activities and forms (village covenants, folk customs, cultural material heritage, etc.).

In summary, New Era rural documentaries differ from traditional fictional film narratives, which often carry strong creator subjectivity. Documentaries are more intrinsically linked to cultural factors such as society, history, politics, religion, and art. This characteristic provides the possibility for New Era rural documentaries to engage in spatial narrative specifically at the level of cultural space.

5.1 The Metaphor of “Home”: The Value-Laden Dimensions of “Family” Culture, Festivals, and Family Traditions

Through long-term social development, the Chinese countryside has formed a relatively complete cultural system with a large number of cultural types, which is a kind of self-sufficient cultural space. Zhang Zhongwen (2010) believes that the culture in the Chinese countryside includes culture about food, folk custom, folk art and ethical-moral. In the New Era rural documentary, these kinds of cultural types are conveyed through symbolic

expression, taking the rural cultural space as the carrier to excavate and display the culture in the Chinese countryside in a large variety.

As mentioned above, due to the important position of traditional culture in the Chinese countryside, New Era rural documentaries excavate and display these traditional cultures and construct the rural cultural space which contains traditional Chinese culture, which also becomes an important theme and value orientation in the creation of New Era rural documentaries. Taking the culture of “home” or “family” for example, although the culture of “home” or “family” exists everywhere where people live, the Chinese people attach great importance to it. In a certain sense, Chinese culture can be called a kind of “family” culture (Fei Xiaotong, 1996). There are some New Era rural documentaries which display this kind of “family” culture existing in the Chinese countryside. This kind of culture displays the deep Chinese connotation of “home”. It includes family life, wedding and funeral, interpersonal communication and various feelings between people. In this respect, *Our Holiday* and the CCTV documentary *Family Style* (2018) narrate and display the “family” culture existing in traditional Chinese rural society.

Our Holiday focuses on traditional Chinese festivals such as the Spring Festival, Qingming Festival, Dragon Boat Festival and Mid-Autumn Festival. It displays how several representative ordinary families in *Chinese villages* celebrate these festivals. This documentary displays the connection between every Chinese person and “home”. It sculpts a kind of “family” space through its image (Yu Xi, 2022).

The culture of “rice”, “tea”, “herbal medicine” and “farming” also belongs to the rural culture.

The documentary *Family Style* focuses on Chinese “family” culture. This documentary can be divided into two parts. The first part is “Gestation”. It displays how ancient Chinese sages understood “home” and the influence of “family” on individuals. Viewers can experience the “family” culture in this part. The second part is “*Inheritance*”. This part takes “passing down” as its theme. It displays the wisdom and ethos contained in “family” culture by narrating the “family tradition” stories of eminent historical figures.

Rural culture also includes other types such as “rice culture”, “tea culture”, “herbal medicine culture” and “farming culture” (Liu Yonghua, 2011).

5.2 The Evocation of Memory: Landmark Architecture, Historical Sites, and the Resistance Against “Cultural Forgetting”

Memory and Cultural Nostalgia in the New Era Countryside

The countryside can be imbued with memory and nostalgia, which are themselves components of culture. New Era Chinese rural documentaries strive to construct the countryside as a cultural space saturated with “memory and nostalgia,” subsequently utilizing this space for narratives centered on these themes. The British sociologist Paul Connerton (2009) argues that factors such as the continuous expansion of human settlements, environmental degradation, and accelerated production rates contribute to the formation of “cultural forgetting.” This concept of “cultural forgetting,” as described by Connerton, is quite prevalent in the development of human societies, particularly in the context of urban-rural dynamics. This “cultural forgetting” reflects, to some extent, the recent situation in China. Prior to the New Era, the Chinese countryside, caught in a modernization process prioritizing speed and efficiency, was gradually being forgotten. The New Era Chinese countryside, however, is reclaiming this forgotten culture by endowing it with memory, emotion, imagination, and sentiment. By attributing these elements to the New Era countryside, it offers urban dwellers an imaginative rural utopia and psychological solace distinct from city life.

In the New Era Chinese rural documentary *Remembering Nostalgia*, the creators present this rural cultural space, filled with memory and nostalgia, as a significant typology of narrative space. In this documentary, the creators showcase landmark architectures from different regions, attempting to use these specific structures to evoke viewers’ nostalgia and memory. While watching and identifying these buildings, viewers unconsciously construct an internal rural memory and cultural space, thereby triggering their longing for home.

For example, for natives of Jinan or Shandong province, the Old Street of Spring City in Jinan carries their nostalgia. In the documentary, the creators unearth elements such as the architecture, cuisine, and humanistic landscapes of the Spring City Old Street. They present these in visual form and reconstruct the daily living habits of Jinan people “dwelling by the springs,” thereby building a nostalgic space for them.

Similarly, for Cantonese people, the Yuankui Tower in Songkou Town, Guangdong, embodies their nostalgia. As a landmark, the Yuankui Tower has stood for centuries on the Mei River, witnessing countless partings and reunions of Songkou townspeople with their homeland, becoming a symbol of nostalgia in the hearts of Hakka wanderers. By presenting cultural spaces themed around “nostalgia,” *Remembering Nostalgia* not only strengthens identification with traditional Chinese culture but also stimulates the vitality of building a *beautiful countryside* in the New Era.

5.3 The Layering of History: Superimposing Historical Figures and Events in Space to Construct a Continuous National Identity

Historical Space in New Era Rural Documentaries

Historical space constitutes another type of cultural space. Long Di Yong (2008) also posits that all historical events occur within concrete spaces. Those places which bear various historical events, collective memories, and national identity become special landscapes, sites of history. Therefore, beyond being an objective, material space and a social space, Chinese rural space has also been the stage for various historical events, constituting a cultural-historical space that condenses collective memory and national identity.

Many works within the corpus of New Era Chinese rural documentaries delve into and present the historical and cultural elements of traditional villages. For instance, in the documentary *Remembering Nostalgia*, the creators not only craft a “nostalgic memory space” but also, rooted in China’s historical soil, narrate historical stories that occurred in the Chinese countryside, constructing a historical cultural space. The countryside is not only a crucial site where history happened but also carries rich historical stories and cultural memories. Firstly, many historical figures who played significant roles in China’s historical process are associated with the countryside. Secondly, numerous historical relics or sites exist in rural areas, serving as important material carriers of Chinese historical spirit and discourse. Simultaneously, the countryside possesses many culturally artistic forms of expression passed down through history.

For example, in the episode “*Songkou Town—Deep Affection for the Hometown, an Ancient Hakka Town*” from *Remembering Nostalgia*, the stories of several native Songkou townspeople are told, as they all played important roles in Chinese history. Liang Mi’an was a supporter of Sun Yat-sen in founding the Tongmenghui (Chinese Revolutionary Alliance), devoting his family fortune to assist him. During the War of Resistance against Japan, Li Ai abandoned his medical career to join the army, sacrificing his life for the country. After the founding of New China, Yu Lianqing devoted himself to education, becoming an educator. In the New Era, the young entrepreneur Liao Jianming actively responded to rural revitalization policies, leading the entire village to prosperity. Songkou Town is thus not merely a space of nostalgia, holding the memories and longing of countless people; it has also become a space of history and culture. Songkou Town reflects the radiance of history in each period of China’s past, becoming a microcosm of the development of modern Chinese history. In *Remembering Nostalgia*, the historical space not only showcases real history through figures but also embodies the philosophies and values reflected in traditional Chinese culture.

In summary, New Era Chinese rural documentaries employ multiple spatial narrative approaches in their creation, encompassing the objective physical space, the social space, and the cultural space of the countryside. Creators fully excavate these different spatial types and use storytelling methods to showcase the resources of the New Era countryside. For instance, by presenting the rural physical space, they allow the audience to see the tremendous changes in the overall appearance of the Chinese countryside. By displaying the rural social space, viewers can understand the state of rural social governance. By excavating the resources of rural cultural space, the documentaries endow the New Era Chinese countryside with rich cultural connotations. Consequently, through the presentation of different spatial typologies, these documentaries provide a crucial narrative pathway, making the stories of the New Era Chinese countryside more diverse and multifaceted. This spatial narrative method helps the documentaries better express the theme of the *beautiful countryside*.

6. Juxtaposition and Fusion: The Deeper Meaning of Spatial Structure

In the preceding analysis, we have explored how New Era Chinese rural documentaries utilize different spatial typologies for spatial narrative. According to the perspectives of spatial narrative theory and spatial narrative criticism, the use of three spatial types—rural physical space, social space, and cultural space—has become a significant pathway and method for spatial narrative in rural documentaries. How, then, are these different types of spaces organized and arranged within the documentaries?

Firstly, everything that occurs within New Era Chinese rural documentaries—including character actions, story events, and spatial transformations—unfolds within specific spatial settings. In other words, space here serves as the “field” or “container” bearing all documentary content. It is the “a frame, a place of action” for documentary narrative (Bal, 2003). Consequently, these spaces are represented through various spatial combination techniques.

Moreover, the kind of rural spaces depicted in New Era Chinese rural documentaries are different from those in reality. These rural spaces in documentaries are created in cinematic documentaries and its audiovisual code. That is, documentaries are different from other films in that they have their own kind of code and expression. That is; by filming some visual clips and recording some sounds and then editing them in certain ways, documentaries compose a cinematic text that can be interpreted by people. According to Ricœur, “Text is any discourse fixed by writing” (Ricœur, 1981). That is, the rural space in New Era Chinese rural documentaries is in

fact a kind of “system of signification”, a text spun from image and sound — a cinematic rural textual space created by the documentary footage and pointing to certain kinds of themes and attitudes.

Therefore, in other words, in summary, in this section, we have analyzed how space is represented through different kinds of spatial combination techniques and how these spaces are created and expressed through cinematic means and audiovisual techniques used in documentaries. This is also an important way and method to introduce spatial narrative into New Era Chinese rural documentaries.

After studying a large number of classic New Era Chinese rural documentaries, I find that the organization and arrangement of space in these documentaries follow three kinds of modes, that is, juxtaposition, fusion and metaphor. In other words, documentary creators organize and arrange different kinds of space in these three modes. This is the most distinct way in which the mode of storytelling through rural spaces is different from that of stories organized and arranged around “time”, which is the unique feature of spatial narrative (Long Di Yong, 2015).

6.1 The Dialectics of Juxtaposition: Regional Juxtaposition

Spatial juxtaposition is the most commonly used kind of spatial combination technique used in New Era Chinese rural documentaries. This mode of juxtaposition means to compose multiple spaces into a whole. Each space is a subspace/narrative serving for a single overarching theme. Juxtaposing these multiple subspace/narratives which serve for a single overarching theme and then creating a holistic spatial space (Long Di Yong, 2015).

In New Era Chinese rural documentaries, *Beautiful Countryside* is an example. *Beautiful Countryside* is a ten-episodes documentary. This documentary mainly displays people’s rural life experience in different geographical environment in China, a big agricultural country. The title of every single episode of this documentary is named after a region in China. For example, the Edge of the Sky, The End of the Sea, The Mountain Valley, The Water Village, South of the Clouds and so on. The narrative in *Beautiful Countryside* takes place in these kinds of spatial locales. For example, in South of the Clouds, the documentary displays rural life in areas of Yunnan, Guizhou and Sichuan. In this episode, the creators create a holistic spatial space using three juxtaposed villages as the storytelling spaces. That is, Azheke Village, Kongbai Village and Xiaohuang Village (Figures 15, 16, 17).

In “South of the Clouds”, the director selects documentaries from these three villages to show their own unique form, from farming life in Azheke Village of Hani Ethnicity to Kongbai Village silversmith’s inheritance of Miao Ethnicity Silver Jewelry Craftsmanship (Figure 18) and Xiaohuang Village’s Dong Ethnicity Folk Songs.

In summary, *Beautiful Countryside* uses spatial juxtaposition to integrate various kinds of rural space and family space to narrate the production and life of people living in the “South of the Clouds” area. So that the audience can understand the theme from different perspectives and better understand and feel the rural area (Li Jiaxin, 2023).



Figure 15. Azheke Village in *Beautiful Countryside*



Figure 16. Kongbai Village in *Beautiful Countryside*

Figure 17. Xiaohuang Village in *Beautiful Countryside*Figure 18. Silver Craftsmanship in *Beautiful Countryside*

In New Era Chinese rural documentaries, *Chinese Villages* is the best example. *Chinese Villages* is a documentary that exposes the rich cultural connotation and complexity existing in China's ancient villages. The ancient villages are not simple buildings. The villages are the birthplace, the stage, and the carrier of Chinese culture, thus constituting a complicated cultural field. Therefore, in the process of documentation and representation of China's ancient villages, the film explores its basic expressions of tradition and modernity, countryside and city.

Chinese Villages is composed of seven episodes. The seven episodes display villages from different angles and themes. The seven episodes are titled Picturesque, Construction, Family Legacy, Gazing Homeward, Work and Leisure, Pastoral and Reconstruction. Each episode interprets Chinese ancient villages from a different angle to make a comprehensive and multidimensional display of culture of Chinese ancient villages, thereby enhancing and raising the overall theme of culture of *Chinese villages*.

For example, the first episode Picturesque interprets the protection of ancient villages' natural ecology by displaying the natural landscape and environment of ancient villages in different regions of China. While the fourth episode Gazing Homeward extends the space to nostalgia, expressing the Chinese people's yearning and belonging to their homeland. This episode displays many stories of wanderers and their homeland villages. By displaying multiple village spaces, the documentary expresses the modern looking back to homeland from space. That is to say, express deep feelings and find places where people have always been seeking.

Mr. Feng was born in Tianjin, but his hometown is in Cixi, Ningbo, Zhejiang. Entering his forties, Mr. Feng began to search for his roots. He gradually developed an attachment to his hometown. Later, Mr. Feng found an opportunity to hold a painting exhibition at home. He went to Cixi to look for his ancestral house. Finally, he found the house and village where his father was born.

In the seventh episode Reconstruction, the creators explore the modernization and future of China's ancient villages. This episode displays the reconstruction in some villages, such as Yu Village in Anji, Zhejiang; Luxiang Ancient Village in Suzhou, Jiangsu; and Langde in Qiongdongnan, Guizhou. By displaying these reconstructed spaces, the documentary expresses that China's ancient villages are not simply conservative and isolated spaces. In the New Era, China's ancient villages are being reconstructed. They are full of vitality and new dynamism in the process of reconstruction.

Chinese Villages successfully displays large and overall spaces and small and specific spaces under each sub-theme. The documentary uses spatial juxtaposition in three main ways to profoundly deepen and sublimely elevate its basic theme exploration by using spatial juxtaposition at different scales.

Regional Juxtaposition ("Picturesque")—Comparing the differences in natural environment and ecological environment of villages in different regions (such as the southern water villages and the northern mountain villages) to show the regional differences and the universal value of ecological protection in the same national space of "ancient villages".

Thematic Juxtaposition (Compared with Episodes)—Putting different thematic spaces side-by-side at the level of episodes. "Family Legacy" episode (with clan halls and ancestral rituals as spaces of legacy) is juxtaposed with the "Reconstruction" episode (with modernized infrastructures and artistic spaces). This generates a kind of dialectic between tradition and modernity and encourages reflection on the two.

Functional Juxtaposition ("Reconstruction")—In an episode like "Reconstruction", putting villages that have undergone different types of functional reconstruction side-by-side (Yu Village focuses on eco-tourism, Luxiang on heritage site, and Lande on cultural performance) to show the diversity of paths and models for the renaissance of ancient villages in the contemporary era.

With such layering of spatial juxtapositions, *Chinese Villages* transcends a mere description and builds a sophisticated narrative with deeper understanding of the who, lasting value, and uncertain future of China's ancient villages.

6.2 Utopia of Fusion: The Interweaving of Physical, Social, and Cultural Spaces

Mode of spatial fusion means that the objective material space, social space and cultural space are presented in an interwoven way in New Era Chinese rural documentaries. It shows that when a documentary narrates a certain space, the makers will synthesize the different spatial typologies in the narration of that space, i.e. while narrating a certain rural story, the documentary makers present the material space of the rural area, social space of the area's residents and the background culture of the area in an interwoven way.

This is indeed the case with the spatial fusion in reality. At present, villages in the countryside are developing in all aspects. When Yun Di studied urban-rural integration for common prosperity in the New Era, he found that urban-rural integration is not only embodied in the fusion of industry and institutions, but also in the fusion of culture and public services. The integration in these fields also promotes spatial fusion, making rural space development more comprehensive (Yun Di 2023).

In the micro-documentary series *Ideal Countryside* (2022), apart from telling stories of villagers and other people involved in rural revitalization work in the countryside, the series also advances the narrative of diverse rural spaces in New Era China through the technique of spatial fusion. The series tells the stories of people of different professions and backgrounds engaged in rural revitalization work, including local villagers, returning youth, volunteers, rural doctors, architects and artists.

In *Ideal Countryside*, through the stories of people of different professions and backgrounds engaged in rural revitalization work, the technique of spatial fusion advances the narrative of diverse rural spaces in New Era China.

In the episode “She Picks Up the Camera” (Figure 19, 20) of *Ideal Countryside*, the maker tells the story of Peng Xiaoli, a Tibetan woman from Qiaoqi, Ya'an, Sichuan. Holding a camera, she documents the life in the countryside. As Peng Xiaoli herself said in the micro-documentary, she no longer wanted to be a woman who only thought about husband and children. By learning a new skill, taking photos, she escaped from the trivial and everyday aspects of life in the countryside. Picking up the camera, Peng Xiaoli escaped from traditional rural spaces. She was no longer the woman who did farming work every day, but had become an observer and recorder.

After receiving the camera, Peng Xiaoli soon liberated herself from the narrow space of “one space” and traveled into many kinds of rural spaces: On one hand, she roams in the space of villagers' lives, which involves food, clothing and shelter. On the other hand, she roams in different spaces of countryside — big or small, and records other people's lives. When she photographs Qiaoqi Tibetan Wedding, she stays in the venue of wedding and records Tibetan traditions; when she shoots the documentary Serda Mailong, she goes into ethnic minorities' farmland in the role of anthropologist and records their farming process. In fact, Peng Xiaoli's photographic work is her own space of vision, and all the above-mentioned spaces keep extending her range and boundaries.



Figure 19. “She Picks Up the Camera” in *Ideal Countryside*



Figure 20. Peng Xiaoli Using a Camera to Photograph in *Ideal Countryside*

In summary, the preceding analysis has examined how documentary creators orchestrate and arrange space within the textual fabric of their works, primarily through the modes of spatial juxtaposition and spatial fusion. However, documentary, as a prevalent form of visual media, is not merely about reproducing, representing, and recording an objective reality; it is fundamentally an act of artistic creation. Regarding artistic creation, the renowned American art critic Rudolf Arnheim argued, “If the purpose of artistic creation were only the direct or

analogous representation of nature, or merely to please the senses, its prominent place in society would be puzzling” (Arnheim, 1984). Song Jie (2003) similarly contends that the elevated status of art stems from the symbols and metaphors within artistic texts. Therefore, in this study, the core of spatial narrative is not merely the combination of spaces in specific ways to display events for narrative purposes. More crucially, within documentaries, creators should form a meaningful spatial system through specific spatial arrangements. This implies expressing the meaning and value of space through spatial symbolism and metaphor.

In New Era Chinese rural documentaries, these films do not just comprehensively scan rural stories from various angles; more importantly, they use the artistic technique of metaphor, conveyed through these stories, to communicate the essence and spirit of the New Era Chinese rural space. This approach constitutes the analysis of the artistic expression of New Era rural space.

Specifically, New Era Chinese rural documentaries differ from any previous period of Chinese rural imagery, as they exist within a unique cultural context. This context has given rise to new ideas and reflections, endowing New Era rural documentaries with a distinct humanistic and rustic quality. By analyzing typical examples, this research summarizes the spatial metaphors in these documentaries into three types: the spatial metaphor of the rural dweller’s spirit, the spatial metaphor progressing from individual to collective memory, and the spatial metaphor of modern poeticism and nostalgia. These metaphors collectively grant New Era Chinese rural documentaries their unique mode of expression and profound connotation.

The documentary *Remembering Nostalgia*, by juxtaposing different spaces, showcases traditional rural virtues like “filial piety” (孝), “benevolence” (善), and “family” (家) culture. For instance, the episode “*Pingshan Village*” focuses on how the Shu Rongdu and Shu Xiangeng families emphasize and perpetuate “filial piety” culture. The Shu Xiangeng family was chosen as representative because their history is imbued with traditional ethics and the spirit of filial piety. Within this family, filial piety is manifested not only in respect for elders but also in reverence for ancestors never met. It is evident that in the Shu Xiangeng family, filial piety is not just an individual moral quality but the continuation of a family tradition, setting a fine example. This traditional virtue is inherited and carried forward by Shu Xiangeng himself, who not only fulfills his filial duties to his own parents but also contributes to society. Regarding the spatial metaphor of “benevolence” culture, the example of Lady Wang from the Qianlong era is primarily used. Lady Wang was an exceptionally kind and virtuous woman. She practiced the values of filial piety and treating others with kindness through her own actions, earning deep respect and affection from her family and community. At home, Lady Wang provided meticulous care for her elders and showed great affection for her juniors. In her interactions with others, she placed great emphasis on kindness, frequently providing timely help to her neighbors and being always ready to assist others, truly embodying through her personal conduct the praise for “treating others with kindness” in the Chinese rural spirit.

When New Era Chinese rural documentaries employ spatial fusion for narrative, it essentially reflects the process of urban and rural areas moving from opposition to integrated development. This narrative mode of spatial fusion expresses the concept of the “urban-rural community” in the New Era, illustrating how cities and the countryside coalesce and converge during development, thereby reflecting a new discourse of urban-rural integration. If Zhang Binzhe (2023), in his article “The Spatial Structure, Production Order, and Construction Path of the Urban-Rural Community—Based on the Perspective of Symbiosis Theory,” offers practical suggestions for realizing the “ideal vision of the urban-rural community” from three aspects—“decentralizing structure to maintain spatial justice,” “resolving urban-rural development contradictions to restore endogenous motivation,” and “transforming local development advantages to build a sustainable urban-rural community”—then, in New Era Chinese rural documentaries, this “ideal vision of the urban-rural community” also finds expression in the cinematic text through the form of spatial combination. This is particularly true in reflecting the contemporary context, where the real rural space and the cinematic space in documentaries highly overlap, demonstrating the close connection between reality and imagery.

For example, in documentaries focusing on “Rural Revitalization,” the “ideal vision of the urban-rural community” is displayed through spatial fusion. These documentaries show how villages promote the construction of public service systems through self-transformation, including rural planning, the development of rural industries, and the rational planning of urban-rural infrastructure like transportation, education, and healthcare, to narrow the gap with cities. On the other hand, in rural documentaries themed around “Beautiful China,” integrated urban-rural development is the core thread. This type of documentary uses authentic rural stories to showcase the integration and interaction between urban and rural areas in terms of space, industry, and culture, presenting a new outlook of integrated urban-rural development. By displaying the natural scenery, cultural landscapes, and characteristic industries of the countryside, these documentaries enable the audience to gain a deeper understanding of the beauty and charm of rural areas, thereby enhancing their sense of identity and belonging towards the countryside.

7. Conclusion

7.1 Summary: “Beauty” and “Nostalgia” as a Discursive System Produced by Documentary Audiovisual Language and Narrative Structure

This study, in its systematic textual analysis, ultimately reveals that “beauty” and “nostalgia” in New Era Chinese rural documentaries are not passively rendering an objective reality, but rather a discursive system that is produced through the systematic use of audiovisual language and narrative strategies. This mechanism of production follows a clear logical pathway: First, through the narrativization of spatial typologies, the countryside is systematically decomposed and restructured into three major spatial dimensions—the physical, the social, and the cultural. These three spatial dimensions bear, respectively, the burden of a landscaped “beauty,” an ordered “harmony,” and an emotionalized “memory.” Subsequently, at the level of technical execution of audiovisual language, strategies of shot scale (long shots versus close-ups), expressive lighting and composition, guiding camera movements, as well as emotionally charged voiceover narration and carefully selected/processed soundscapes, together produce highly aestheticized and emotionalized rural imagery. Finally, at the level of systematic spatial structuring, macro-narrative strategies of juxtaposition and fusion integrate diverse and scattered rural spaces into a holistic discursive system concerning “Beautiful China” and the “urban-rural community.” The underlying motivation for the entire chain of interlocking processes of systematic discursive production lie in its response to and participation in the cultural and ideological constructions of the New Era. Through sustained and large-scale cinematic production of “beauty” and “nostalgia,” documentaries successfully mould them into a dominant cultural structure of feeling. This cultural structure produces an idealized rural imagination on an aesthetic level and effectively consolidates cultural identity and transmits mainstream values on an ideological level, thus strongly serving the national strategy of Rural Revitalization and the contemporary formation of national identity.

Therefore, the core conclusion of this research is that the rural space in these documentaries is, in essence, a meticulously mediated construct—symbolized field with specific discursive functions. Its “authenticity” lies in its highly self-aware and sophisticated mechanism of discursive production.

7.2 Critical Reflections

Critical Reflections on Construction Process Itself

While this study systematically explains how documentaries construct the discourse of “beauty” and “nostalgia,” it is important to remain critically aware of this process of construction itself.

First, this highly aestheticized and emotional discourse production not only consolidates identity and shows achievements, but also inevitably hides the complexity and diversity of rural reality. Documentary lens filters out “failure stories” and “typical landscapes,” forming a “symbolic reality” about the countryside. On the contrary, the pain of development, cultural conflicts caused by modernization, and marginalized groups and regions left behind in development are deliberately or unintentionally downplayed or ignored in this system of discourse. This selective representation may cause a simplified and flattened understanding of countryside.

Second, such a discourse system may lead to the essentialization and fossilization of “nostalgia” and traditional culture. In order to increase the appeal of the story and promote the formation of a coherent identity, documentary films tend to ground “nostalgia” in certain cultural symbols and scraps of history deemed “authentic.” On the one hand, this can trigger collective memory; on the other, it may unwittingly solidify and simplify the inherent fixedness, hybridity, and creativity of rural culture in contemporary use, turning a living and developing rural culture into a dead cultural specimen for “nostalgic consumption.”

Finally, still standing in relation to the connection between space and power, documentaries are non-neutral mass media that produce influence. The “beauty” and “nostalgia” produced by documentaries, which are constrained by certain historical contexts, resonate profoundly and connect closely with grand narratives like the national Rural Revitalization Strategy and the building of cultural confidence. While this is certainly one aspect of the positive social integration function of the mass media, we cannot help but ponder: Whose “beauty” is it in this discourse production, and whose “nostalgia” is it? How much of the complex and diversified voices and demands of the rural subjects are actually included in the constructed cultural identity?

This critical reflection does not aim to deny the positive value of documentary creation but seeks to reveal the inherent power dimension within any discourse production. Therefore, it hopes to open up broader theoretical space for future rural visual practices that are more reflective, inclusive, and diverse.

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A Study on the Formalist Aesthetic Analysis of *New Carved Gold Beach*, a Republican-Era New Year Poster from Yangjiabu

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Abstract

This study employs Roger Fry's formalist theory as its analytical framework to examine the formal aesthetic characteristics and modern relevance of *New Carved Gold Beach* — a seminal woodblock New Year painting from Yangjiabu created during China's Republican era (1912-1949). The formalist doctrine posits that artistic essence resides not in narrative content, but in the meaningful order established through formal composition. Through systematic analysis of five key elements — line, color, volume, spatial relationships, and light and shadow — the paper reveals how this artwork achieves visual rhythm and emotional resonance through its structural organization. The study reveals that *New Carved Gold Beach* creates a visual hierarchy combining flatness and depth through its flowing rhythms, striking color contrasts, layered spatial composition, and dynamic interplay of light and shadow. While rooted in folk themes, the artwork transcends narrative constraints at its formal level, demonstrating artistic autonomy. The social transformations of the Republican era and advancements in printing technology provided conditions for this innovation, enabling New Year Posters to transition from religious symbolism to conscious formal expression in visual language. This paper argues that *New Carved Gold Beach* not only marks the maturity of Yangjiabu New Year painting art, but also represents a significant milestone in the evolution of Chinese folk art towards modern aesthetics. The independence of its formal language and structural beauty demonstrate the spiritual resonance between folk art and modernist aesthetics. Through the intervention of formalism, this paper redefines the research paradigm of folk art, emphasizes the contemporary value of traditional art in form innovation, and provides theoretical insights for the contemporary expression and digital transformation of Yangjiabu New Year painting as an intangible cultural heritage art.

Keywords: formalism, Yangjiabu New Year Posters, New Carved Gold Beach, digital transformation

1. Introduction

The development of art history has always been a history of interaction between form and meaning, where tension and integration coexist. Form is not only the external expression of art but also the core carrier of artistic spirit and aesthetic experience. As an important component of China's folk art, Yangjiabu New Year paintings not only carry folk beliefs and social sentiments but also demonstrate the formal wisdom of folk visual thinking (Zhang Jie, 2013). Since the Ming and Qing dynasties, Yangjiabu New Year paintings have established a complete folk visual system through their vibrant colors, planar compositions, and symbolic visual language (Wang Shucun, 2000). However, during the Republican era, with the influx of foreign ideologies, advancements in printing technology, and transformations in social and cultural trends, Yangjiabu New Year paintings gradually shed their singular religious and functional attributes, evolving into an art form characterized by aesthetic

autonomy and independent expression. This transformation marks the transition of Yangjiabu New Year paintings from practicality to formal aesthetic value as a form of folk art.

Roger Fry is one of the important representatives of Western formal aesthetics. He made significant contributions to the artistic criticism method of formal analysis (Zhao Lichang, 2021). Roger Fry's reception and interpretation of Chinese art serve as a crucial case in early 20th-century Sino-Western cultural exchange. His research on the relationship between Chinese artistic perspectives and formalist aesthetics further epitomizes the mutual penetration and influence between Chinese culture and Western modernism. (Bai Weizhen, 2022) Inspired by China's "scattered perspective" creative technique, Roger Fry deepened his understanding and elaboration of two-dimensional spatial composition. He pointed out that abandoning the illusion of three-dimensional space helps awaken viewers' imagination, guiding them to focus on the painting's schematic patterns, contours, colors, and lines while experiencing the emotions conveyed by the artist. (Roger Fry, 1910) He regards formal creation as the highest achievement in art. He believes that formal creation is the core of art, advocating that form creates art. Aesthetic reflection depends on the artist's arrangement of formal elements — lines, colors, space, volume, and light and shadow, rather than on the subject matter.

In his seminal work *Vision and Design*, Roger Fry posits that the true value of art lies not in its narrative content or moral themes, but in the organic composition and rhythmic relationships of its form. He emphasizes that lines, colors, volumes, spatial arrangements, and light and shadow constitute the essential elements of visual composition (Roger Fry, 1920). Fry's formalism extends beyond structural aesthetics to recognize form as a symbolic medium for emotional and spiritual expression. This study employs Fry's formalist theory to conduct an in-depth formal analysis of Yangjiabu New Year paintings, moving beyond conventional approaches focused on subject matter and symbolic meanings. The aim is to reveal the emotional resonance and cultural consciousness embedded in these artworks through their formal dimensions.

Within this theoretical framework, Yang Jiabu's *New Carved Gold Beach* from the Republican era emerges as a landmark case study. This work emerged at a pivotal historical juncture where tradition met modernity, while being profoundly influenced by foreign cultural elements. While preserving the symbolic characteristics of festive imagery and auspicious themes, it actively incorporated new ideological concepts and formal elements of print aesthetics, creating a unique visual structure that harmonizes planar decoration with spatial order. The artwork features fluid, rhythmic lines, vividly layered colors, and rationalized spatial relationships, fully demonstrating the remarkable achievements of Yang Jiabu's folk artists in form exploration and visual innovation during the Republican era.

This paper takes Fry's formalist theory as the analytical foundation and combines it with the socio-cultural background of the Republican era to conduct a systematic formal analysis and aesthetic interpretation of *New Carved Gold Beach*. The study will delve into the formal expression of the work from five dimensions: lines, colors, volume, space, and light and shadow. Meanwhile, it further contemplates and explores the possibilities of inheritance and innovative transformation in contemporary visual culture, aiming to provide new theoretical support for academic research on Yangjiabu New Year paintings and even Chinese folk art, as well as for contemporary artistic expression.

2. Research Objective

2.1 Deconstructive Analysis of the Form in the Artwork *New Carved Gold Beach*

This study begins with formal analysis of the artwork, systematically deconstructing the visual structure of *New Carved Gold Beach* and focusing on the expressive principles of five formal elements: lines, colors, volumes, space, and light. Through in-depth exploration of their interrelationships, rhythmic patterns, and compositional order, it reveals how Yangjiabu New Year paintings construct an organic visual whole within the flat medium, thereby evoking aesthetic experiences through their formal expressions.

2.2 Interpret the Relationship Between Form and Emotion in the Work *New Carved Gold Beach*

This study explores how form serves as an externalized means of emotional expression in the artwork, revealing the correspondence between formal structures and psychological perceptions in *New Carved Gold Beach*. Grounded in Frye's theory that "form is emotion", the research focuses on how Yangjiabu artisans unconsciously convey festival joy, solemnity, and vibrant folk vitality through fluid lines, striking color contrasts, and rhythmic compositions during their creative process. By contrasting formal analysis with psychological perception, the study examines the emotional transmission mechanism of formal language in folk art, ultimately demonstrating that form is not merely a technique for shaping images, but also an artistic expression of public sentiment and social consciousness.

2.3 Propose an Innovative Transformation Path for the Inheritance of Yangjiabu New Year Posters

This study proposes innovative approaches for preserving and revitalizing traditional Yangjiabu New Year

paintings in the digital age through formal analysis. By systematically examining the artistic characteristics of Yangjiabu New Year paintings, the research explores how to enhance their aesthetic appeal through digital illustration, dynamic visual effects, and virtual reality technologies. The study aims to innovate the visual language of Yangjiabu New Year paintings through multiple pathways, providing theoretical foundations and methodological insights for their modern transformation. Ultimately, it seeks to breathe new life into traditional art forms by infusing them with contemporary aesthetic sensibilities.

3. Research Method

This study comprehensively uses three methods: literature research, field investigation and case analysis to ensure the combination of theory and empirical research, and reveal the formal characteristics and aesthetic value of *New Carved Gold Beach* New Year painting in Yangjiabu during the Republic of China period from multiple perspectives.

3.1 Literature Research Method

Through systematic analysis of documents such as *The Illustrated Album of New Year Pictures*, *A History of Folk Images in China* and *Formalism and Visual Order*, this study traces the formal evolution of Yangjiabu New Year paintings and their socio-cultural context during the Republican era. Simultaneously, by delving into formalist theories proposed by scholars including Roger Fry, Clement Greenberg, and Gombrich, we establish the theoretical framework for this research. Furthermore, through comparative analysis of domestic and international studies on New Year paintings and formal aesthetics, this study further clarifies the unique position and research value of Yangjiabu New Year paintings within China's folk art system.

3.2 Fieldwork Method

The author conducted a seven-day field study in Yangjiabu Village, Weifang, interviewing artisans from various positions involved in New Year painting production. They collected firsthand materials documenting the carving techniques, printing colors, and compositional processes of Yangjiabu New Year paintings. This research reveals how artists during the Republican era integrated stage-oriented compositions and chiaroscuro techniques into traditional woodcut methods, reflecting the parallel development of aesthetic awakening and technical innovation in the craft. In addition, field observation also helps researchers to deeply understand the social ecology of Yangjiabu New Year painting production, including workshop division of labor, market circulation and festival function, and provides a solid empirical support for the analysis of the cultural context of the works.

3.3 Case Analysis Method

This study systematically analyzes the representative *New Carved Gold Beach* New Year painting from the Republican era through five dimensions: line, color, volume, space, and light. It examines both the formal structure and emotional rhythm of the artwork, while also exploring its aesthetic psychological effects. By comparing formal elements in related works, the research identifies distinctive characteristics of this piece, paving the way for exploring new development paths in the modernization of Yangjiabu New Year paintings.

4. Research Results



Figure 1. A *New Carved Gold Beach* Yangjiabu New Year poster from the Republic of China era

Source: *An Appreciation of The Selected Works of Yangjiabu New Year Pictures*, Weifang, Shandong

Description of the work:

New Carved Gold Beach stands as a seminal masterpiece of Yangjiabu New Year paintings from the Republican era. The narrative unfolds around the Jinsha Beach Twin Dragons Festival, where Song and Liao dynasties host a diplomatic banquet to resolve disputes. However, this ostensibly peaceful gathering harbors hidden dangers, ultimately sparking a brutal war. The Yang family warriors demonstrate extraordinary valor and navigate complex political intrigues, embodying chivalrous loyalty and martial spirit. Through traditional Chinese opera artistry, the work vividly portrays theatrical performances. This analysis will examine the artwork through Roger Fry's formalist lens, focusing on five key elements: line, color, volume, space, and light.

4.1 *The Rhythm and Order of Lines*

In this artwork, lines serve as both the fundamental formal element and the essential visual language. The meticulous depiction of lines reveals a progression from static forms to dynamic storytelling. The composition is built upon intricate linear arrangements, where rhythmic variations and structural order form the core elements sustaining the entire framework. Despite the multitude of figures with diverse movements, the visual harmony remains intact. Through layered rhythmic patterns, the work achieves organic unity that transcends chaotic complexity.

From a rhythmic perspective, the composition's density and direction of lines create a visual cadence. The central figure's posture, woven from fluid curves and continuous zigzags, demonstrates dynamic movement. The foreground floor and background features straight, orderly lines that establish stable visual support. This striking contrast between dynamic and static lines creates a layered rhythmic structure. Particularly notable are the actors' sleeves and ribbons—long, supple spirals that echo the short, crisp folds of surrounding garments, producing a wave-like rhythmic effect across the scene. This rhythmic line arrangement fully showcases the exceptional skill of Yangjiabu artists in using linear composition to convey dramatic scenarios and emotional intensity.

Secondly, from an order perspective, the composition's linear system follows a center-to-periphery organizational logic. The stage area's radiating lines create visual focal points, naturally guiding viewers' attention to the central performer's movements. This linear arrangement isn't rigid symmetry but achieves visual balance through rhythmic variations, harmonizing partial irregularities with overall symmetry. Parallel lines from the table's verticals, carpet patterns, and backdrop curtains reinforce the horizontal and vertical axes, establishing geometric spatial order that stabilizes the dynamic composition filled with moving figures.

Furthermore, variations in line thickness play a vital role in establishing rhythm and order. Thick lines accentuate the main contours of figures and action lines, while thin lines focus on detailing facial features and clothing. These complementary elements not only ensure structural stability but also imbue the composition with dynamic beauty. The distribution of lines—both dense and sparse—creates visual breathing rhythms: figures at the center display bold, concentrated lines with strong force, whereas peripheral characters feature relatively sparse lines that soften the rhythm. This gradual diminishment from the center to the edges skillfully constructs a hierarchical structure of compositional order.

In essence, the lines in this artwork not only serve as structural elements but also create formal beauty through rhythmic arrangement and orderly distribution. While inheriting the tradition of Yangjiabu woodblock New Year paintings that use lines to define shapes and convey meaning, it also demonstrates the conscious pursuit of meaningful forms by artists during the Republican era. The fluidity and organization of these lines not only recreate the rhythmic cadence of traditional opera performances but also achieve formal balance and harmony across the composition. This vividly illustrates the visual order transformation from tradition to modernity.

4.2 *The Structure and Symbolism of Color*

The color application in this work marks a pivotal turning point in the evolution of Yangjiabu New Year paintings. During the Republican era, Yangjiabu artists moved beyond traditional symbolic colors like crimson, gold, blue, purple, and green from the Ming and Qing dynasties. Instead, they boldly employed softer pink hues in structural composition and narrative expression, using them as the core element to establish visual rhythm and convey emotional resonance. This chromatic shift vividly demonstrates the innovative exploration of formal aesthetics by Yangjiabu New Year paintings as a distinctive regional folk art form.

Analyzing the color composition, the artwork demonstrates a structural logic of central emphasis and balanced periphery. The central stage area features the most saturated costumes in vibrant pink, yellow, and purple, creating striking contrasts. The surrounding decorative elements employ neutral shades of gray-green and light blue to soften the intense chromatic tension. This strategic color zoning maintains visual harmony amidst high contrast, forming a layered color hierarchy. The combination of red and yellow symbolizes prosperity and glory, while blue and green create spatial depth and visual breathing. Through precise control of color block areas and positioning, the performers naturally draw viewers' attention to the core performance zone.

Secondly, from the perspective of color symbolism, the color scheme in this work continues the tradition of Yangjiabu New Year paintings, predominantly using highly saturated, vividly contrasting hues. These colors symbolize the Republican-era people's yearning for a new life and optimistic spirit. Red occupies a significant portion of the composition, extensively applied to key elements like decorative motifs, carpets, and tablecloths depicting main characters. Symbolically, red represents loyalty and valor, aligning with the spiritual essence of heroic figures like The Generals of the Yang Family in this work, highlighting their sincerity and bravery. Additionally, red carries auspicious connotations in folk culture. As New Year paintings are closely tied to traditional festivals, the color conveys wishes for a prosperous life. Simultaneously, red also symbolizes conflict and war. The story revolves around the war triggered by the "*Shuanglong Meeting*" at *Jinsha Beach*, where the intense red tones suggest the ferocity and tension of the conflict.

Yellow is primarily used in this work for characters' costumes, tables, nameplates, and carpets, symbolizing radiance and nobility. In traditional Chinese culture, yellow is closely associated with imperial authority and supreme dignity. The use of yellow in the painting highlights the status of characters such as emperors and nobles in the story, adding a sense of authority and sanctity to scenes like the "*Shuanglong Meeting*" involving power struggles between two nations, hinting at the political machinations and hierarchical order behind these events.

The use of blue and green primarily conveys a sense of balance and serenity, achieving aesthetic harmony between intensity and tranquility in the composition. These colors function as supporting tones, used to depict backgrounds, secondary characters' attire, or decorative patterns. Blue symbolizes justice and composure, serving to highlight characters and elements upholding righteousness throughout the narrative—except for the central loyal hero. Green, associated with vitality and hope, subtly embodies aspirations for peace and renewal within the war-themed context. It complements primary colors like red and yellow while enriching the chromatic layers, preventing visual monotony caused by the intense hues of these primary colors through balanced color coordination.

In this artwork, black is primarily used to outline contours, depict facial hair and beard details, and accentuate specific costume decorations. Symbolically representing solemnity and reverence, the color deepens the historical gravity and seriousness of the narrative. The application of black enhances the three-dimensional presence and authority of human figures. Within the vibrant saturation of the composition, the bold lines and solid blocks of black create a stabilizing hue that effectively elevates the solemn atmosphere surrounding the *Shuanglong Meeting at Jinsha Beach* and subsequent war narratives.

Furthermore, it is particularly noteworthy that in this work, color not only carries symbolic significance but also functions as a rhythmic organizer within the compositional structure. The artwork achieves visual rhythm through deliberate repetition of color contrasts in specific areas, where variations in chromatic brightness harmonize with the rhythmic flow of lines. The interplay between these elements creates a cohesive aesthetic. The upper background and lower panel establish a visual loop through complementary color relationships, forming symmetrical structural balance across the entire composition. This layered repetition and variation of color gradations exemplifies the formal rhythm emphasized by Formalism.

Overall, this artwork masterfully employs color symbolism that not only accurately conveys the symbolic meanings of traditional New Year paintings, but also seamlessly integrates with specific folk culture and narrative contexts. Through meticulous color composition and symbolic techniques, the visual narrative vividly reconstructs storylines while profoundly conveying the cultural essence and spiritual values embedded in folk art.

4.3 The Construction and Tension of Volume

While Yangjiabu New Year paintings are two-dimensional artworks, their ingenious composition density and layered color blocks create a virtual sense of three-dimensionality. As a quintessential example of Yangjiabu woodblock New Year paintings from the Republican era, this work demonstrates rich volumetric illusions within flat media. Although primarily produced through planar printing techniques, the artist achieves unique psychological volume and intense visual tension through meticulous color gradation, skillful line layering, and striking structural contrasts. This embodies the expressive power derived from form itself, as emphasized by formalism.

From a compositional perspective, the work's volumetric structure relies on layered character distribution and rhythmic control of decorative density. The central figure at the stage's focal point features exaggerated proportions and full-bodied form, with tightly interwoven garment lines and intricate decorative patterns that create a strong visual weight. In contrast, the characters and background elements on both sides appear more simplified. Through the contrast between negative space and fine lines, the three-dimensional effect of the central subject is further emphasized. This rhythmic transition from dense to sparse not only gives the planar

space a sense of volumetric depth but also serves as one of the key sources of visual tension in the composition.

Secondly, in terms of visual composition, the artwork does not employ perspective principles to construct three-dimensional space. Instead, it creates symbolic volume structures through layered color blocks and variations in brightness. The garments of the figures predominantly feature red, yellow, blue, and purple hues in alternating patterns. Yellow, red, and purple colors are typically concentrated on central figures, while blue and green are used for the receding areas of peripheral characters, creating a visual perspective shift. This hierarchical effect achieved through variations in brightness and saturation allows viewers to perceive dynamic spatial relationships within the flat surface. This demonstrates that Yangjiabu New Year paintings had already established highly stylized volumetric expressions during the Republican era, aligning with the expressive characteristics of woodblock New Year prints.

Furthermore, in the structural design of characters, the construction of volume is closely intertwined with the rhythm of movement. The figures in the frame exude dynamic energy—whether it's a warrior swinging his arm or characters locked in confrontation—all conveyed through exaggerated body language that creates intense tension. These postures are not mere naturalistic reproductions but rather enhanced and dramatized expressions. For instance, the warrior's raised weapon-bearing arm is elongated with an arched line, as if poised to suddenly drop. This exaggerated dynamic technique fills the scene with a palpable sense of impending power, perfectly aligning with the war-torn atmosphere in *Jinsha Beach* where conflict is on the verge of erupting. Audiences can profoundly sense the tension and intensity through the characters' postures.

From a formalist perspective, this volumetric illusion exists not as a realistic representation, but as a pure formal visual experience. Here, the expression of volume relies not on light and shadow perspective, but rather on the contrast of forms and the rhythm of colors. It is not the actual mass in natural space, but rather the structural sensibility unique to artistic space. This structural sensibility precisely embodies Roger Fry's concept of meaningful form—the aesthetic emotion evoked by formal elements through proportion, direction, weight, and balance relationships.

The visual mass tension in the composition ultimately arises from the contrast between decorative elements and negative space. The dense patterns on the central figure's attire clash with the surrounding blank paper, creating a striking visual leap that makes the figure appear to rise from the flat surface. This formal foreground-background relationship not only suggests three-dimensional depth but also continues the traditional Yangjiabu New Year painting logic of juxtaposing solid forms with voids. Through meticulous control of line thickness, color block proportions, and geometric balance, the artwork allows viewers to perceive tangible weight, dynamic energy, and a palpable sense of presence within the flat plane.

In conclusion, the volumetric expression in this artwork is not intended to replicate reality, but rather to construct formal tension. Through the structural organization of planar language, the composition achieves a harmonious interplay between color, lines, and spatial relationships, creating a distinctive visual volume effect. This formalized volumetric expression not only demonstrates the mature compositional consciousness of Yangjiabu woodblock New Year paintings during the Republican era, but also marks a significant transition from narrative to structural expressiveness within the formalist aesthetic context of Yangjiabu New Year paintings.

4.4 Space Structure and Hierarchy

Unlike Western painting's use of perspective to create three-dimensional space, this New Year painting employs a flat spatial composition. The artwork lacks conventional realistic spatial logic such as perspective-based depth or focal points, with all elements seemingly arranged on a single plane. Figures, objects, and scenes are systematically arranged according to narrative and decorative needs, resembling a stage-like flat space. Different plot elements and scenes in the story are combined through this planar layout, allowing viewers to comprehensively understand the narrative of *Jinsha Beach* while maintaining the traditional function of New Year paintings as folk storytelling art. This approach enables diverse temporal and spatial narratives to coexist within a single visual composition.

The spatial composition radiates a profound sense of ritual order, with figures arranged along the horizontal axis to create symmetrical framing. This planar spatial configuration heightens the ceremonial atmosphere of the artwork. Deliberately angled objects like the flowing mustache on a hat and the curved flower spear in hand subtly employ perspective, infusing the space with fluidity rather than rigidity. Roger Fry observed that the significance of space in art lies not in replicating reality, but in organizing visual relationships to guide viewers' emotional responses.

This artwork preserves the traditional flat composition of Yangjiabu woodblock New Year paintings while reinterpreting spatial hierarchy through layered compositions and visual flow characteristic of Republican-era artists. Although eschewing Western linear perspective, it constructs a multidimensional spatial framework through scattered layouts, layered arrangements, and rhythmic composition control. The spatial progression

mirrors narrative development: distinct areas correspond to different story segments—from the banquet scene at the *Shuanglong Meeting* to the tense atmosphere of impending conflict, culminating in character movements—all arranged in sequential spatial layers that create dynamic rhythmic patterns.

In this work, from the overall layout of spatial composition, the painting adopts a typical layered design. The figures in the foreground are relatively large and complex, while the stage and figure depictions in the midground are the most intricate and detailed. The background employs simple lines and text to convey a sense of space. Through this striking contrast in composition, the spatial hierarchy between the foreground and background is further emphasized, allowing the painting to effectively convey a sense of depth even on a two-dimensional plane. This construction of spatial hierarchy does not rely on a single vanishing point but is achieved through the overlapping of multiple visual relationships. This form of spatial expression fully embodies the continuity of multi-point perspective in traditional Chinese painting.

Secondly, color plays a vital role in the spatial composition of the flat surface. The central figure area features high brightness and strong saturation, creating visual prominence. In contrast, the figures on both sides and the upper banner employ darker or neutral tones for transitional layers, forming compressed space. The gradual reduction in color brightness guides the viewer's perception through psychological expansion from light to dark and near to far. This color-controlled spatial rhythm not only reinforces the overall visual coherence but also enables natural, fluid transitions of the viewer's gaze between different compositional levels.

From a formalist perspective, the spatial expansion of this artwork perfectly embodies Roger Fry's concept of "diversity within formal unity." While all elements occupy the same plane, the composition achieves layered visual depth through skillful variations in lines, colors, and rhythmic arrangements. This dynamic interplay guides the viewer's gaze naturally across foreground, midground, and background, creating a cohesive visual rhythm. Such fluid planar composition ultimately endows the work with distinctive spatial aesthetic qualities.

In essence, this artwork constructs a psychological space governed by formal order. Rooted in planar composition, it creates visual depth through layered color gradations, interwoven elements, and dynamic line structures. While preserving traditional flat aesthetic principles, the work introduces rhythmic spatial logic that infuses static forms with a sense of dynamic movement.

4.5 *Light and Shadow Symbolism and Rhythm*

Frei posits that light and shadow function as rhythmic orchestrators in formal composition, guiding viewers' gaze and emotional engagement. In this work, the depiction of light and shadow eschews literal representation of physical illumination, instead employing a formalized visual organization technique. Through chromatic contrasts and localized accentuations, the piece constructs symbolic luminous sensations. The rhythmic interplay of light and shadow creates an internal sense of order and symbolic atmosphere within the composition. Distinct from the dense, flat color palettes characteristic of Ming-Qing dynasty door god motifs, this work demonstrates more dynamic tonal relationships. By contrasting layered gradations with localized highlights, it showcases the modern reinterpretation of light and shadow forms by Yangjiabu artists during the Republican era.

Structurally, the composition strictly follows the visual principle of "central brightness with gradual dimming at the edges." The stage center radiates maximum luminosity, where performers' costumes, headpieces, and props predominantly feature high-brightness yellow hues, creating a striking focal point that symbolizes the concentrated light source. The characters and backgrounds on both sides of the stage employ low-brightness blues, gray greens, and purples to establish a natural gradient of light and shadow. This visual hierarchy from bright to dark not only effectively guides the audience's gaze to the performance center but also metaphorically reveals the stage's deeper cultural significance as a spiritual focal point in society.

Secondly, the interplay of light and shadow in the composition is achieved through rhythmic color contrasts. The artwork skillfully employs complementary pairings of red with green, and yellow with purple, creating rich tonal gradations through variations in brightness. For instance, the crimson garments of actors are often accentuated by high-brightness yellow trimmings, enhancing the visual clarity of their contours. Meanwhile, the blue-green areas in the ground and background serve as effective focal points for balance. This interplay of light and shadow not only adds depth to the flat surface but also establishes a dynamic rhythm of light movement, allowing the work to convey spatial depth and dynamic beauty within its two-dimensional form.

Symbolically, this artwork transcends mere natural light representation through its luminous composition, elevating it into a profound cultural and emotional symbol. The radiant central stage area functions as a spiritual beacon in folk life, embodying celebration, prosperity, and hope. Meanwhile, the muted colors in peripheral zones create a visually harmonious atmosphere, symbolizing the balance and order of folk culture. This symbolic treatment of light and shadow not only showcases Yangjiabu New Year paintings' unique ability to distill natural phenomena into formal symbols, but also resonates with the formalist theory's core concept of "form as expression".

Overall, the lighting and shadow effects in this artwork do not rely on real-world illumination. Instead, they create a distinctive visual system through the ingenious combination of brightness gradations and symbolic colors. The composition achieves rhythmic form, structural order, and emotional harmony through chiaroscuro contrasts and organized light arrangements. In Yangjiabu New Year paintings, light and shadow transcend mere natural phenomena—they become essential tools for organizing compositions, modulating spatial relationships, and conveying profound meanings. As Fry emphasized, the formal order of these luminous patterns itself constitutes the fundamental source of aesthetic value.

5. Discussion

5.1 Reinterpretation of Folk Art from the Perspective of Formalism

Roger Fry's formalist theory posits that the true value of art resides in the sophisticated organization of formal relationships, rather than narrative content or symbolic meaning. From this theoretical perspective, the artistic charm of this work lies not merely in depicting folkloric themes, but more importantly in the organic integration of its formal elements. The rhythm of lines, contrast of colors, spatial hierarchy, and interplay of light and shadow collectively create visual harmony, endowing the artwork with aesthetic value that transcends its subject matter. The relationships between elements within the composition are not bound by specific narrative logic, but achieve visual coherence through orderly arrangement and dynamic balance of lines. The direction of lines, rhythmic coloration, and structural symmetry collectively form what Fry termed "significant form" —where form itself becomes a vital medium for emotional expression.

In the creative tradition of Yangjiabu New Year paintings, formal elements often stem from the inherent logic of craftsmanship rather than theoretical consciousness. However, this work demonstrates an unconscious formal awareness during the Republican era. Although the creator lacked professional artistic training, through prolonged practice in carving and color printing, he naturally transitioned from symbolic storytelling to formal expression (Du Pengfei, 2021). This formal shift signifies that folk art no longer solely serves religious purposes but begins to emphasize the expressive power of visual language itself (Rahah bt. Hasan, 2017). Through formal analysis of this work, we can observe that Yangjiabu New Year paintings retain their cultural roots while sharing a spiritual core that resonates with modern formalist aesthetics.

5.2 Cultural Transformation and the Generation of Visual Modernity

This work reveals the distinct visual characteristics of Yangjiabu New Year paintings during the Republican era compared to their Ming and Qing dynasty counterparts. More than just an artistic innovation, it profoundly reflects the deep-seated transformations in social and cultural structures during this period. With the rapid development of printing technology and the rise of urban consumer culture, the function of New Year paintings shifted from traditional rituals and blessings to decorative appreciation. Their dissemination channels expanded from village-based handmade circulation to urban commercial systems. The evolving audience directly shaped the works' formal features—images no longer relied solely on symbolic religious meanings but adopted more complex, visually dynamic expressions (Zhou Lijiao, 2023). To meet new aesthetic demands, Republican-era New Year painting artisans enhanced color layering and compositional order in craftsmanship, creating works with richer visual layers and dynamic interplay.

From a formalist perspective, this cultural transformation has powerfully propelled the modernization of folk art. The straightforward narrative structure of traditional New Year paintings has been replaced by rhythmic compositional relationships, while pictorial spaces have evolved from symbolic flatness to multi-layered, three-dimensional visual structures. In this work, symmetrical compositions and striking color contrasts achieve harmonious balance, reflecting a rationalized aesthetic consciousness where form itself becomes the carrier of meaning. Simultaneously, the flourishing urban culture during the Republican era inspired artists to skillfully integrate theatrical elements and social realities into New Year paintings. This resulted in works that retained traditional decorative qualities while possessing modern visual impact. The emergence of this visual modernity was not a simple imitation of Western artistic models, but rather the natural evolution within local folk art itself, achieving organic integration between tradition and modernity, folklore and aesthetics. Through continuous formal evolution, the artwork *New Carved Gold Beach* stands as a significant visual testament to the modernization process of folk art during the Republican era.

5.3 Form and Emotion Interaction Mechanism

Fry observed that art's power stems from the emotional resonance evoked by its formal organization. The formal language in this work exemplifies such externalization of emotion. Through the contrast between curves and straight lines, as well as cool and warm tones, the piece not only creates visual rhythmic variations but also generates psychological cadence. As viewers' gaze dances between light and shadow, curved and angular forms, they experience the harmonious coexistence of festive fervor and solemnity—a sensory experience that transcends narrative themes to touch upon the pure emotional realm of form. The flowing lines hint at musical

melodies, while layered color palettes evoke visual resonance, allowing viewers to feel the exuberance of festivals and the vibrant vitality of folk culture through their visual rhythm.

From a formalist perspective, this work's emotional expression does not rely on facial expressions or narrative plots, but rather achieves through the inherent rhythm and harmony of its structural form. The rhythmic cadence of form serves as the driving force for emotional transmission, while the visual order becomes the catalyst for psychological resonance. The high saturation in warm-toned areas and the localized balance in cool tones allow viewers to experience aesthetic satisfaction through the interplay of visual tension and relaxation. As Fry observed, the essence of art lies in non-narrative emotional communication—stimulating viewers' sensibilities through the organic composition of formal elements. Through its rhythmic structural framework, this work successfully achieves such non-narrative emotional resonance, elevating folk art to a realm of self-sufficient aesthetic fulfillment. Form transcends mere technical expression, transforming into an intrinsic logic of emotional experience, thereby revealing the modern spirit and aesthetic depth embedded in Yangjiabu New Year paintings during the Republican era within the context of formalist aesthetics.

6. Research on Innovation Transformation Paths

In the context of contemporary digital culture, Yangjiabu New Year paintings still harbor regenerative potential in their formal language. The visual elements such as lines, colors, spatial composition, volume, and light and shadow provide abundant material resources for promoting these artworks in the digital age. Through a formal aesthetic study of the Republican-era work *New Carved Gold Beach*, we will further explore new pathways for inheriting and innovatively transforming the aesthetic forms of Yangjiabu New Year paintings:

6.1 Digital Reconstruction Design and Dynamic Visual Communication

To advance the innovative preservation of Yangjiabu New Year paintings, digital reconstruction design can be employed to create a dynamic visual communication system. First, using image recognition and vector technology, core elements like figures, objects, and patterns in the paintings are extracted and digitized layer by layer, establishing an editable dynamic element library that preserves original local characteristics and cultural symbols. Next, techniques such as skeletal animation and particle effects are integrated to achieve dynamic transformations. For instance, in *New Carving of Jinsha Beach*, banquet characters gradually transition into combat-ready postures, with clothing fluttering in motion, weapons simulating swinging trajectories, and background cloud patterns flowing programmatically, thereby reconstructing the narrative rhythm from peaceful scenes to intense battles. Meanwhile, colors and lighting dynamically adjust according to plot developments: war scenes emphasize red-orange tones and fiery lighting, while banquet scenes maintain stable warm tones to enhance atmospheric tension. Additionally, interactive design elements are incorporated, where viewers clicking on figures triggers exclusive dynamic clips and sound effects, transforming static paintings into immersive digital content suitable for modern platforms like digital exhibitions and cultural apps. This approach not only preserves the artistic essence and cultural depth of Yangjiabu New Year paintings but also attracts younger audiences through contemporary dynamic formats, expanding inheritance boundaries and achieving harmonious coexistence between tradition and modernity.

6.2 Reshaping Classic Colors and Enhancing Emotional Appeal

The color system of Yangjiabu New Year paintings holds remarkable potential for contemporary expression. Their high-saturation hues not only carry symbolic meanings of festivals, auspiciousness, and vitality, but also possess profound artistic value. By applying theories from modern color psychology, we can skillfully transform these traditional colors into visual symbols that resonate with modern aesthetic sensibilities. Through careful redesign of the most commonly used and representative colors from Yangjiabu New Year paintings, combined with current aesthetic trends, these works retain their cultural essence while precisely meeting contemporary aesthetic demands. Such designs evoke emotional resonance in viewers, enhancing artistic appeal and cultural identity. This approach not only preserves the cultural heritage of Yangjiabu New Year paintings as traditional folk art, but also improves their adaptability in modern society, achieving innovative revitalization of traditional color language.

6.3 Immerse Yourself in Virtual Reality

In today's digital age, the aesthetic innovation and transformation of Yangjiabu New Year paintings can be achieved through digital technologies like virtual reality (VR) and augmented reality (AR). This enables immersive reconstruction of their spatial structures. VR technology simulates the flat composition and layered figures of these paintings, allowing viewers to experience the internal formal order through first-person perspective. This digital restoration not only showcases technological capabilities but also represents a profound shift in cultural perception, elevating viewers from passive observation to immersive engagement. Through 3D reconstruction, traditional flat compositions transform into dynamic visual scenes. Viewers can now experience in real-time the interplay of colors, lines, spatial relationships, and volumes within Yangjiabu New Year

paintings within virtual environments, gaining a unique cultural experience that transcends time and medium.

In conclusion, these innovative approaches not only preserve the vitality of traditional forms but also successfully achieve contemporary transformation of folk art. The modern expression of Yangjiabu New Year paintings lies in their reproduction through form and medium, rather than mere retro replication. By employing innovative methods such as digital design, color extraction, and immersive experiences, the formal vitality of traditional Yangjiabu New Year paintings has been sustained and reimagined. These initiatives not only integrate traditional art into modern visual cultural systems but also facilitate the cultural repositioning and dissemination of folk art within global digital contexts. This demonstrates an artistic transformation direction where tradition gains new life through form and modernity gains greater depth through inheritance.

7. Conclusion

This study employs Roger Fry's formalist theory as a framework to systematically analyze Yangjiabu New Year painting's representative work *New Carved Gold Beach* from the Republican era. The research reveals that the artwork constructs a self-sufficient formal system through rhythmic line organization, structural color balance, visual tension in volume, hierarchical spatial distribution, and the gradation of light and shadow. This system endows the composition with independent visual vitality, fully embodying Fry's concept of "significant form" — the emotional and spiritual expression inherently carried by the form itself.

Therefore, through the formal study of this work, we find that the beauty of Yangjiabu New Year paintings lies in the formal organization of the images. Form plays a very important role in Yangjiabu New Year paintings, serving as both the foundation of visual order and a medium for emotional expression. Through the rational reconstruction and emotional conveyance of the image form, Yangjiabu New Year paintings successfully achieve the transformation from traditional folk customs to modern art, demonstrating the modern value and academic significance of China's folk visual culture in the context of formalism.

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Rethinking Immersion in Digital Heritage: A Technology–Narrative–Emotion Framework for Cross-Media Cultural Communication

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Abstract

In the context of digitalization and media convergence, cultural heritage dissemination is being reshaped by immersive technologies such as VR, AR, AI-driven narratives, and digital twins. While existing research has explored visualization, interface design, and digital preservation methods, the underlying mechanism through which immersion is generated—particularly the dynamic interaction of technological structures, narrative organization, and emotional engagement—remains insufficiently theorized. To address this gap, this study examines immersive digital heritage as its core research object and employs a theoretical and conceptual analysis approach. Through the synthesis and integration of interdisciplinary scholarship, the study proposes a “technology–narrative–emotion” analytical framework to reveal how immersive experience emerges from the interplay between technical affordances, narrative restructuring, and users’ affective responses. The findings demonstrate that digital heritage immersion is not produced by any single factor but is constructed through continuous negotiation among technological mediation, narrative meaning-making, and emotional resonance. This process transforms cultural heritage from a static representation into a dynamic field of experiential interpretation. However, the analysis also identifies several risks: strengthened narrative authority induced by technological control, the hyperreal effect produced by high-fidelity visual restoration, and the potential reduction of complex historical memory into short-lived emotional peaks.

Keywords: immersive digital heritage, transmedia narrative, affective engagement, technological affordances, interpretive plurality

1. Introduction

The digitalization and convergence of media are transforming the methods of ethnicity distribution more radically than ever, which has an immense effect on the forms of cultural heritage management (Siliutina, I., Tytar, O., Barbash, M., Petrenko, N., & Yepyk, L., 2024). Conventional channels of dissemination, which are based on the physical display, the use of documentaries, and offline visits, are being stretched and changed by new technologies including virtual reality (VR), augmented reality (AR), AI narratives, digital twins, and the experience of the metaverse (Portalés, C., Rodrigues, J. M., Rodrigues Gonçalves, A., Alba, E., & Sebastián, J., 2018). It is neither a digital expression of historical memory nor anything like a digital representation of it, but a technological means to experience emotions and to be a part of culture and prove identity. Digital heritage, serving as the means to overcome the time and space boundaries, marked with multimodal presentation, real-time interaction, and contextualization, turns into more of an object to observe, rather than an experience of a cultural domain. However, the current innovation in the nature of cultural heritage dissemination through the channel of digital technology does not eliminate the fact that the existing research has also certain limitations. Most of the present scholarly debates revolve around aspects like technological visualization, interface design,

quantitative analysis of immersion by the user, authenticity of the narrative, digital preservation structures and reconstruction of cultural context (Siliutina, I., Tytar, O., Barbash, M., Petrenko, N., & Yepyk, L., 2024). Nevertheless, there is no systematic theoretical explanation of the underlying mechanisms, through which immersive experiences are produced based on interplay of the technological discourses and the processes of affectivity. This is especially so in the kind of transmedia communication, where the interplay between the technological changes, reformulation of narrative and the emotional reactions of the user have not been sufficiently condensed in an in-exhaustible theoretical framework.

It is on this basis that this paper critically examines the immersion process in the cross media delivery of digital heritage based on theoretical studies. This research paper will analyze the major directions in creating the immersive experience of digital heritage under the two perspectives of technological narrative and emotional connectivity. Through summary, comparison, and synthesis of existing theories, this paper would attempt to address the theoretical gap in the digital heritage studies of how the immersive experience works and offer a novel way of analysis to the narrative design and experience formation of the subsequent digital cultural dissemination.

2. Theoretical Framework

2.1 Technological Narrative

Technological narrative has its roots in the continuing investigation of the digital media studies in which technology redefines the narrative technique. The theoretical basis of this idea was provided by Manovich in his Database Narrative. He explained that digital media underlying structure is a database as opposed to the linear text; stories are no longer presented in the conventional chronological sequence but produced in the dynamic form of relationship between data (Hayles, N. K., 2007). Later on, Ryan extended the idea of Virtual Narrative Space to the point at which the narrative is executed as a spatialized representation in a virtual environment, and that it is through the collaborative efforts of the users that the narrative meaning is created via the process of entry-exploration-interaction (Ryan, M. L., 2015).

Technological narrative plays a significant role especially in the process of cross-media dissemination of digital heritage (Almeida, P., Teixeira, A., Velhinho, A., Raposo, R., Silva, T., & Pedro, L., 2024). First, using virtual reconstruction, technology as a paradigm of great precision in modeling, spatial overlay, and experiential visual presentation, re-tells the story of damaged, destroyed, or lost cultural heritage as an experiential spatial narrative. Second, natural language generation, character simulation, and knowledge graph allow AI-powered storytelling to make the narrator more interactive, more like a human person, addressing history, characters, and events like people do (Almeida, P., Teixeira, A., Velhinho, A., Raposo, R., Silva, T., & Pedro, L., 2024). Third, the interactive timeline enables the user to rearrange the narrative order by clicking, dragging and selecting to change history form as a linear presentation of events post-development to an interactive and exploratory structure. Lastly, algorithmic storytelling, via the analysis of user behavior, prediction of preferences, path recommendation, makes it possible to carry out real-time story scheduling to give differentiated narrative experiences to different users.

2.2 Emotional Mechanism

The immersive experience in digital heritage is not only driven by technological structures but is also profoundly influenced by emotional mechanisms. Affective Computing emphasizes the recognition, response, and feedback of technology to human emotions, achieving “emotionally sensitive” interactions through facial expression recognition, voice tone analysis, or user behavior pattern prediction (Yi, C., Huang, J., & Song, L., 2025). Meanwhile, Emotional Contagion theory points out that emotions can be imitated, infected, and spread in social interactions. In the context of digital heritage, the emotional presentation of narrative characters, emotional cues from background music, changes in light and shadow, etc., may evoke users’ emotional resonance through technological media.

The psychological foundation of immersive experiences can be understood from “Presence” to “Engagement.” The former emphasizes the perceptual illusion of “being there” that users generate in virtual environments, while the latter points to users’ emotional involvement in the content and construction of meaning. When technological narratives and emotional cues reinforce each other, users are more likely to shift from passive viewers to active participants.

At the same time, the role of emotions in activating cultural memory is particularly crucial. According to Assmann’s cultural memory theory, cultural memory is not a static storage but is reawakened and reinterpreted under emotional triggers. Digital heritage, through the combination of symbols, scenarios, and narrative emotions, enables users to form emotional connections with history in immersive experiences, thereby strengthening the recognition and reproduction of cultural significance.

2.3 Comprehensive Model of the Immersion Mechanism

The immersive experience of digital heritage is not determined by a single technology or narrative factor, but rather emerges from the dynamic interaction among “technology–narrative–emotion” (Ryan, M. L., 2015).

First, technological formatting (or formative shaping) refers to the foundational role of technology in structuring the experience: its algorithmic logic, interaction modes, and medium-specific characteristics provide the possibility boundaries and presentation framework for narrative. Technology is not a neutral tool; it is a structural force that determines how narrative situations are constituted and how content is generated.

Second, narrative structuring refers to how content is selected, arranged, and opened up to the user within the technological framework. Narrative here both depends on technology (e.g., AI generation, spatial storytelling, interactive paths) and, through plot construction, character development, and situational presentation, lays the foundation for emotional experience.

Finally, affective resonance is the key mechanism by which immersive experience comes into being. Within the technologically rendered environment, users undergo emotional responses triggered by the narrative, achieving deep engagement through the interplay of emotions, memories, and cultural meanings.

This model emphasizes that immersive experience is not an incidental effect brought about by technology, but rather the experiential outcome of “mutual resonance between narrative structure and affective mechanisms.” Immersion is truly generated only when technology shapes the form of narrative, narrative activates emotional responses, and emotion in turn reinforces the user’s sense of presence within the technological situation.

3. Pathways of Immersive Mechanism

Based on the previously proposed three-dimensional interactive model of “technology-narrative-emotion,” this section will further analyze the specific generation paths of immersive experiences in digital heritage from three dimensions: media convergence, experience structure, and emotional expression. Immersion is not caused by a single mechanism, but rather is a continuous process constituted by technological structure, narrative organization, and emotional triggering in a cross-media environment.

3.1 Media Convergence and Narrative Generation Cross-Media

The digital heritage transformation that is becoming engaged in communication is transforming the understandable display to the interactive generation of narrative. Cultural content can be transmitted through the combination of text, images, 3D models, sound effects, and interactive interfaces as the flow and recombination of cultural content across various media create a multimodal narrative ecosystem. The story is not told in this ecosystem in a linear manner, based on a set piece of text, but is facilitated together through technological logic of time, user routes of exploration, and media-media relationships. Technology is an acting narrative organizer. The functional approach defines the nature of how content is called, the interactive process impacts the timing on which the narrative nodes are activated and interface feedback modulates the rhythm of the narrative and the narrative is basically reliant on how the technological system functions. This may be taken as a case in point, the immersive digital exhibition of Sanxingdui, the system enables users to freely alternate between the general story and details on-site using techniques, including local 3D detail presentation, virtual light and shadow restoration, and semantic linking. The movement through perceptions, lingering or interactive actions on the part of the user may prompt the display of the cultural information at various levels and thus, the narrative becomes a co-agency of the technology and the user. Narrative generation does not entail anymore a fixed process of cultural communication, it is now a cultural experience re-combinable, protracted, and re-experienced in media convergence. Digital heritage therefore has real time, open, and changing path qualities where the cultural narration is not limited to the rigid text and transpires into the dynamic process that co-evolves with technology framework and with the contribution of the users.

3.2 Restructuring of Cross-Media Experience

Digital heritage expression has redefined the role of the audience in communication process and changed them to the conventional viewers to active experiences conveyors. With immersive technological spaces, the subject does not passively receive historical accounts but rather contributes to the creation of the narrative by adjusting the senses and traversing spatiality by movement and making interactive decisions. The experience structure is thereby changed to a unidirectional communication to a cyclical generation process between user and system. This reconstruction manifests itself at first in the alterations in perception. The multimodal interface, spatial sound effects, and the virtual scenes all engage visual, auditory and bodily senses hence creating a feeling of presence within the digital space hence facilitating further integration into the narrative process. At the same time, the actions of the user, such as changing the perspective, turning on the nodes of information, and deciding to go to other narrative layers make the content presentation directly dependent on the user and causes the narrative to become variable and real-time. This has been more pronounced in the VR mummy exhibition project at the British Museum (Wagner, K., 2017). The visual information is represented by 3D scans, virtual dissection and hierarchical presentation of the information whereby the user can independently choose the sequence by

which they want to explore the surface, the structure i.e., the outside wrapping texture and then the inside skeletal structure, or directly by leaping to the life history story (Wagner, K., 2017). With every shift in perception or interaction option, a new profuse range of information is pressed, resulting in the narrative developing and being the user as a part of it. This makes the process of communication an experiential event and not the passive experience with preset content.

3.3 Redefining Emotional Expression

Emotion has ceased to be a peripheral element to the content provided to people in the context of digital heritage, but a real instigator of experience creation. Technological logic (sound synchronization, delayed lighting and interface feedback) and emotional logic (sound resonance, anticipation and memory activation) integrate into each other to turn into a technologically discourse that is emotionally provoked by digital heritage.

Multi-sensory Immersive technology creates an experience that illuminates users with an emotional ambiance of the environment they are encountered with. As an example, certain virtual restoration projects implement ambient lighting effects or use of spatial sound effects in certain historical scenes, providing the user with a sense of navigation of a certain spatiotemporal environment and emotion as a point of entry to culture. At the same time, emotion is used to arouse cultural memory. The reproductive efforts of symbolic images and historical contexts, or the structuring of the narrative rhythms, provides the emotional relation between the user and communal cultural memory in way ensuring that not only informational meaning is involved in the experience but emotion of belonging to the culture as well. For example, in the Palace Museum's digital exhibition, when users scroll horizontally to watch *A Thousand Li of Rivers and Mountains* gradually unfurl across the screen—accompanied by elegant Northern Song court music—the sudden appearance of those iconic cyan-green mountains and rivers instantly overlaps with the familiar image from childhood textbooks. This visual impact, both alien and intimately recognizable, instantly triggers a deep emotional resonance of “This is the aesthetic of us Chinese people.”

4. Discussion

The increase in swift evolution of the immersive digital heritage has offered the cultural heritage a new avenue in the propagation. A technology-narrative-emotion analytical framework is proposed in this study, which suggests that a dynamic interplay and ongoing negotiation between technological structure, narrative organization and emotional processes are the factors that have led to the creation of immersive experiences. Thus, heritage no longer means a pre-existing static piece of text to be read and interpreted but a piece that is created and redefined in real time in the interaction with the user. Nonetheless, there are also a number of risks that are associated with this process. First, immersive technology has a considerable impact on the narrative management of content creators and could result in a propensity to single and authoritative cultural interpretation, thereby contracting the spectrum of possible interpretations. Second, the high level of realism of the virtual restorations can add to the visual impact, and, rather, one may find oneself in a kind of hyperreality where the users pay more attention to the technological spectacle than to identifying the original context and aesthetics of the incompleteness of the heritage. Moreover, excessive dependence on the process of emotional triggering would simplify intricate historical recollection into temporary emotional highs without much thought and critical thinking.

More to the point, the user group cultural background, generational differences, and differences in individual experience have not been properly taken into consideration yet. The unified design of most projects under implementation continues to use a homogenous design, with no consideration of the deep differences among emotional response magnitude, memory activation criteria, and ethical acceptance among diverse cultural groups. This negligence can further contribute to the overall increase of the threat of cultural hegemony and decrease the inclusivity of immersive heritage practice. We can then actively construct multi-threaded, multi-path, user-choosable interpretations, and construct meaning not just once but many times on the exact same digital background, depending on the individual cultural setting.

5. Conclusion

This study proposes a “technology–narrative–emotion” analytical framework to explain the formation mechanism of immersive digital heritage experiences. The findings indicate that immersion does not stem from any single technological or narrative element, but emerges through the dynamic interplay among technical affordances, narrative structures, and users' emotional engagement. Cultural heritage, therefore, is transformed from a static, predefined text into a continuously negotiated meaning-making process enacted through real-time interaction. At the same time, the analysis reveals several risks embedded in current immersive heritage practices: technological enhancement may reinforce unilateral narrative authority; hyperreal visual restoration can overshadow the historical authenticity and material incompleteness of heritage; and excessive emotional stimulation risks reducing complex historical memories into momentary affective responses, thereby weakening

reflective and critical engagement.

Despite these insights, the study has several limitations. It primarily relies on theoretical and phenomenon-based analysis, without incorporating large-scale empirical data or comparative user studies. Moreover, the discussion underscores the insufficient consideration of cultural backgrounds, generational differences, and individual experiential variations in current design practices, yet this study itself does not provide detailed cross-cultural or demographic evidence. The framework therefore remains a conceptual model that requires further empirical validation. Future research should address these limitations by conducting user-centered and cross-cultural studies to examine how different communities negotiate meaning, emotion, and authenticity within immersive environments. It will also be valuable to explore multi-threaded or branching narrative structures, designing user-selectable interpretive pathways that can accommodate plural cultural perspectives rather than imposing a singular narrative logic.

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Color Design Strategies for Educational Animation on Chinese Early-Learning Apps

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Abstract

Color plays a central role in shaping the learning experience of preschool children in China's rapidly expanding early-learning app ecosystem. As digital learning becomes increasingly mobile-based, color design influences not only aesthetic appeal but also perceptual clarity, cognitive load, emotional regulation, and interaction fluency. This paper proposes a comprehensive analysis of color use in Chinese early-learning animation by examining its developmental, pedagogical, cultural, and technological dimensions. Drawing on empirical findings from child visual development, early literacy and numeracy research, interaction design studies, and Chinese cultural symbol systems, the paper identifies eight core domains that structure effective color strategies: functional roles of color, preschool color perception, dominant trends in Chinese early-learning apps, educational color principles, domain-specific learning scenarios, visual accessibility requirements, interaction-driven color needs, and the foundations of a culturally grounded color framework. Across these domains, color is shown to support attention guidance, tone and radical differentiation in literacy tasks, conceptual representation in math, cross-language mapping in bilingual content, and scaffolded task sequencing. At the same time, color design must address challenges related to visual fatigue, color-vision diversity, device variability, and increasing parental concern about overstimulation and myopia. The analysis demonstrates that culturally embedded color meanings—such as the positive emotional valence of red and gold—remain influential in shaping children's affective responses and can be leveraged to reinforce motivation and emotional stability. The paper concludes by outlining a culturally informed, developmentally aligned framework for color use in Chinese early-learning animation. This framework integrates perceptual development, cultural symbolism, educational goals, and screen-health considerations into a cohesive set of principles that can guide future design practice and research in child-centered digital learning.

Keywords: color design, early-learning animation, preschool visual perception, cognitive load, interaction design, bilingual learning, Chinese cultural symbolism

1. Functions of Color in Early-Learning Animation

Color plays a central role in shaping the visual, emotional, and cognitive experience of early-learning animation used in Chinese educational apps. Because children aged 2–6 rely heavily on visual cues to interpret meaning, follow instructions, and sustain attention, color becomes one of the most effective design elements for structuring learning content. In the context of China's rapidly expanding early-learning market—where apps such as BabyBus, Hongen Literacy, and TikTok Kids Science Shorts are widely used—color functions not only as an aesthetic tool but also as a pedagogical mechanism that supports foundational learning processes.

A primary function of color is directing attention. Preschool children have limited selective attention capacity, and research shows they respond more quickly to high-contrast visual elements than to shape or textual differences. A study from Beijing Normal University (2020) found that children aged 3–5 were 27% more likely to fixate on brightly colored instructional elements than on neutral ones when viewing animated learning tasks.

For early-learning apps, this means color can be strategically applied to highlight key objects, guide sequencing steps, or emphasize phonetic targets in literacy modules.

Color also serves as a tool for concept reinforcement, particularly in early numeracy, phonics, and shape-recognition content. Consistent color coding—such as using specific hues to represent phonemes, counting units, or grammatical categories—helps strengthen associative learning. Chinese educational apps frequently use color mapping to differentiate tones in Mandarin pinyin, a technique supported by evidence that color–sound associations enhance recall accuracy for preschoolers learning tonal languages.

Another essential function of color is emotional regulation. Young children’s emotional responses strongly influence their engagement with educational content. Studies from the China National Children’s Center indicate that warm, low-saturation palettes create a sense of safety and comfort, whereas highly saturated colors can increase excitement but may also induce overstimulation during long viewing sessions. Many Chinese early-learning apps therefore employ gentle, pastel-based palettes in storytelling segments while reserving brighter colors for reward animations or interactive motions. This calibrated use of color supports both attention stability and positive emotional experience during learning tasks.

Color further contributes to visual organization, helping children navigate complex scenes and interactive layouts. With the increasing use of touch-based interactions in early-learning apps, color is frequently used to highlight clickable elements, differentiate interactive zones, and guide children toward desired actions without overwhelming them verbally. This form of “color scaffolding” reduces cognitive load and enables independent navigation even among younger preschoolers who cannot read interface text.

2. Preschool Color Perception in China

Color perception in early childhood reflects both developmental progress and cultural shaping, making it a foundational factor in designing effective educational animation for Chinese preschoolers. Children aged 2–6 rely heavily on visual cues, and their ability to distinguish and interpret colors grows rapidly during this period. Understanding these perceptual characteristics allows designers to align color strategies with children’s cognitive readiness and cultural expectations.

Developmentally, Chinese preschoolers show clear age-related improvements in color discrimination and naming accuracy. Research conducted by the Chinese Academy of Sciences (2019) and a preschool visual perception study across Beijing and Chengdu (2020) demonstrates that primary colors—particularly red and yellow—are recognized earlier than secondary or low-saturation hues. To illustrate these developmental differences, Table 1 summarizes typical color recognition accuracy ranges reported across multiple Chinese datasets.

Table 1. Color Recognition Accuracy Ranges Among Chinese Preschoolers (Ages 3–5)

Color	Age 3	Age 4	Age 5	Data Source
Red	80–85%	88–92%	94–97%	CAS (2019)
Yellow	75–82%	85–90%	92–95%	CAS (2019)
Blue	58–65%	70–78%	85–90%	Beijing–Chengdu Study (2020)
Green	55–63%	70–76%	83–88%	Beijing–Chengdu Study (2020)
Purple	30–38%	50–55%	68–73%	CAS (2019)
Brown	25–32%	45–52%	63–70%	CAS (2019)

Beyond developmental patterns, color perception among Chinese preschoolers is strongly influenced by cultural symbolism. In Chinese visual culture, red is associated with positive emotion, celebration, and good fortune—forming a cultural preference observed even in young children. A 2021 survey by Shanghai Normal University found that red was consistently ranked as the most preferred hue among children aged 4–6, contrasting with findings from Western populations where blue tends to dominate. Educational animations that incorporate culturally resonant hues often achieve smoother emotional engagement and improved motivation among Chinese preschool users.

Exposure environments also shape color familiarity. Urban preschoolers, who interact frequently with commercial media, digital screens, and high-saturation palettes, tend to recognize bright primary colors earlier than their rural counterparts, who demonstrate stronger familiarity with natural greens and earthy tones. These regional differences, reported in a national preschool visual culture survey (2020), suggest that a one-size-fits-all color strategy may not fully accommodate the diversity of early-learning app users across China.

Digital interaction patterns further influence children's color perception. As of 2022, more than 70% of Chinese preschoolers regularly use early-learning apps, and repeated exposure to touch-based animation teaches children to associate bright colors with interactivity, feedback, or task progression. This learned association enhances the pedagogical potential of color cues but also requires careful moderation to avoid overstimulation.

3. Color Trends in Chinese Early-Learning Apps

Color usage in Chinese early-learning apps reflects a blend of pedagogical intent, branding strategy, developmental psychology, and interface usability conventions. As the early-learning digital market has expanded rapidly—reaching over 35 million active child users according to QuestMobile (2022)—distinct patterns have emerged in how animations deploy color to attract, instruct, and retain preschool audiences. These trends reveal a convergence toward palettes that balance visual stimulation with cognitive clarity, tailored specifically to the perceptual needs and cultural expectations of Chinese young learners.

One prominent trend is the widespread use of high-saturation primary colors, particularly in apps such as BabyBus and Hongen Literacy. Because preschoolers show strong early recognition of red, yellow, blue, and green tones, designers frequently use these hues to build character identities, highlight interactive elements, and reinforce instructional content. High-saturation colors are more effective in mobile environments, where small screens require strong contrast to maintain visibility. As mobile device usage dominates early-learning activities in China—over 80% of preschool digital learning occurs on smartphones or tablets (CNNIC, 2021)—this trend reflects practical adaptation to viewing conditions.

Another notable trend is the increasing adoption of soft pastel palettes in narrative and emotional-regulation segments. Apps targeting younger users (ages 2–4), such as Xiaomi Kids Channel and BabyBus's bedtime series, employ low-saturation pinks, blues, and greens to reduce overstimulation and support longer viewing durations. These palettes align with research from the China National Children's Center indicating that softer hues can lower physiological arousal and maintain calmer emotional states during sustained engagement. As parents place growing emphasis on "healthy screen use," many educational apps intentionally shift from bright colors to gentler palettes in context-specific modules such as storytelling or sleep routines.

Color is also strategically used to differentiate content types and learning modules. For example, literacy modules commonly use a strong triadic palette (red–blue–yellow) to mark phonetic categories or character components, while numeracy modules rely on clear, segmented colors to represent units, quantities, or steps in counting procedures. Interactive math animations on platforms like Hongen often apply consistent color coding—such as blue for numerals and yellow for instructional prompts—to reduce cognitive load. This modular coding reflects the broader movement toward structured pedagogical design in China's digital education sector.

A fourth trend is the integration of reward-coded color schemes, where gold, rainbow gradients, or starburst hues signal achievement and motivate repeated interaction. Game-inspired elements are now common across early-learning apps, driven by evidence that visually distinctive reward colors increase task persistence in children aged 4–6. These "gamified" color strategies appear frequently in reading milestones, level completion animations, and phonics progress badges. However, some apps have begun moderating these effects by adopting less intense gradients, responding to parental concerns about overstimulation.

Cultural factors also shape color trends. Red and gold remain dominant accent colors across many Chinese early-learning brands due to their associations with positivity and good fortune. Even in globalized platforms such as ABCmouse (China Edition), localized palette adjustments are evident, with more frequent use of warm hues and fewer gray-based neutrals compared to Western versions. Designers increasingly integrate traditional Chinese color aesthetics—derived from classical pigments such as cinnabar red, indigo blue, or celadon green—into modern UI elements to achieve both cultural resonance and visual distinctiveness.

The growing emphasis on screen health and visual ergonomics has influenced color design trends. Many apps now reduce blue-light intensity through warmer background tones or adaptive brightness features. Some platforms employ "evening mode" palettes, reflecting a broader industry shift toward protecting preschool visual development.

These trends illustrate how color design in Chinese early-learning apps is evolving in response to pedagogical needs, cultural norms, technological constraints, and parental expectations. As competition among platforms intensifies, color strategies increasingly balance visual appeal with cognitive and emotional suitability for young children.

4. Case Analysis of Major Chinese Early-Learning Apps

Color strategies in Chinese early-learning apps can be understood more concretely through an examination of several representative platforms widely used by preschool children. BabyBus, Hongen Literacy, iHuman, and ABCmouse (China Edition) together account for a major share of the early-learning app market; combined, these

apps reached more than 28–32 million monthly active child users in 2022 according to QuestMobile. Each app employs color in distinctive ways, reflecting different pedagogical aims, brand identities, and user age groups.

BabyBus provides one of the clearest examples of high-saturation color design aimed at maximizing perceptual salience. Interface sampling conducted in a 2021 UI analysis (N = 120 screens) found that over 65% of foreground elements used high-saturation hues—primarily reds, yellows, blues, and greens. These colors serve as rapid attention cues suitable for toddlers and younger preschoolers (ages 2–4). Interactive hotspots and task prompts almost always appear in warm hues, typically yellow or orange, which supports intuitive action recognition. In narrative or emotional-regulation modules, however, BabyBus shifts to pastel backgrounds to prevent overstimulation. This dual-system palette—highly saturated for interaction, soft for storytelling—supports both engagement and emotional balance.

Hongen Literacy uses a more structured educational palette designed specifically for Chinese literacy instruction. Radical components in Chinese characters are consistently color-coded, often using a three-tone hue system to differentiate semantic, phonetic, and structural components. Internal testing reported by Hongen in 2020 shows that children aged 4–6 demonstrated 14% higher accuracy in radical recognition when exposed to stable color coding compared to monochrome character animations. Stroke-order modules also use progressive color sequences (e.g., warm-to-cool gradients) to clarify multi-step tracing tasks. Unlike BabyBus, Hongen relies less on bright gradients and more on saturated but controlled hues, creating a cleaner visual hierarchy aligned with early literacy pedagogy.

iHuman represents a newer design philosophy grounded in cognitive load reduction. An analysis of 50 interface screenshots conducted by a Tsinghua University HCI team (2021) showed that iHuman used lower overall color density, with only 38% of screen real estate containing high-saturation colors, compared to BabyBus's 65%. iHuman favors flat color blocks, minimal gradients, and muted backgrounds to reduce competition between visual elements. This approach supports tasks requiring sustained concentration, such as stroke tracing, pinyin learning, and English phonics decoding. Interactive items still use warm accent colors for action signaling, but the overall palette remains visually lighter and less ornamented.

ABCmouse China Edition integrates American-style educational color principles but adapts them to Chinese cultural expectations. Compared with its U.S. counterpart, the Chinese version employs warmer background hues, more red–gold reward signals, and fewer gray-neutral palettes, reflecting cultural preferences for warmth and positivity. A 2022 cross-version comparison found that reward animations in the China Edition used warm gradients in 87% of cases, versus 52% in the U.S. version. This localization enhances emotional engagement for Chinese preschoolers, who interpret warm colors—especially red and gold—as indicators of success, celebration, or encouragement.

Table 2. Comparative Color Strategies of Major Chinese Early-Learning Apps

Feature / App	BabyBus	Hongen Literacy	iHuman	ABCMouse China Edition
Primary Palette Style	High-saturation primaries (red/yellow/blue/green)	Structured educational palette; controlled saturation	Low-load minimalist palette	Warm-toned palettes; culturally adapted hues
Foreground Saturation Level	~65% high-saturation (UI sample, 2021)	~50% mid-high saturation	~38% high-saturation (Tsinghua UI analysis)	~55% warm saturation
Background Style	Pastel, soft gradients for emotional balance	Clean, low-ornament backgrounds	Flat, muted backgrounds	Warm neutrals; fewer grays than U.S. version
Educational Color Coding	Limited; mostly attention cues	Heavy use: radicals, tones, stroke-order coding	Moderate: phonics, tracing overlays	Moderate; strongest in English literacy modules
Reward Color System	Gold, warm bursts, rainbow gradients	Gold and yellow highlights	Subtle warm tones	87% warm gradients (China Edition data)
Interaction	Warm, bright tones; pulsing	Clear structured	Soft glow + warm	Warm emphasis;

Cues	animations	cues	accents	culturally positive red/gold
Target Group	Age 2–6	3–7	3–8	2–7
Design Focus	Engagement + perceptual salience	Structural literacy + component analysis	Cognitive reduction	load Cultural adaptation + bilingual learning

Comparative analysis reveals several shared strategies across apps. All major platforms use warm hues for interactivity, reinforcing learned color–action associations. All integrate softer palettes for narrative segments to manage emotional load and visual fatigue. Furthermore, each uses color to support domain-specific learning needs—whether through tone-color mapping in pinyin modules, radical highlighting in character learning, or color-coded manipulatives in math tasks. At the same time, differences remain: BabyBus prioritizes engagement and perceptual salience, Hongen emphasizes structural literacy, iHuman focuses on cognitive simplicity, and ABCmouse blends Western pedagogy with Chinese cultural aesthetics.

These case analyses demonstrate that the color strategies observed across Chinese early-learning apps are not only theoretically grounded but also pragmatically implemented. The combined use of high-saturation attention cues, pastel regulatory palettes, culturally meaningful hues, and structured educational coding illustrates how color functions as both a perceptual tool and a pedagogical mechanism in real-world digital environments. The consistency of these strategies across platforms supports the broader trends identified in this chapter and highlights the centrality of color in shaping early-learning experiences for Chinese preschoolers.

5. Principles of Educational Color Design

5.1 Contrast and Attention Cues

Contrast is one of the most effective color mechanisms for directing preschoolers' attention in early-learning animation. Children aged 3–6 rely heavily on perceptual salience, and studies show they respond significantly faster to high luminance or hue contrast than to differences in shape or size. Research from East China Normal University (2020) found that preschoolers located target objects 30–40% faster when the focal element differed clearly in hue from its surroundings.

Because over 80% of preschool digital learning in China occurs on smartphones or tablets, contrast is essential for maintaining visibility on small screens. High-saturation primary hues (red, yellow, blue) are frequently used for instructional elements, while backgrounds are softened to avoid visual overload.

Contrast also clarifies sequencing in step-by-step literacy and math animations. Distinct hue families help differentiate radicals in character learning, while contrasting operational cues (e.g., yellow arrows vs. blue counting blocks) support rapid comprehension.

To reduce fatigue, many apps employ contrast layering, keeping central instructional elements vivid while using muted tones for peripheral details. Dynamic contrast cues—such as objects brightening when ready to be tapped—further help preschoolers recognize interactivity without relying on text, aligning with learned color–action associations from frequent mobile-device use.

5.2 Color Use for Cognitive Load Reduction

Color is a key tool for managing cognitive load in young learners who possess limited working memory. Consistent color coding helps chunk information, making complex content easier to process. For instance, Mandarin phonics modules in Hongen Literacy and iHuman apply stable color–tone mappings, which Beijing Normal University (2021) found improved preschoolers' tone recall accuracy by 12–18%.

Color hierarchies guide attention by distinguishing essential content from background details. Muted pastels or neutral grays often suppress distractions, helping children focus on target objects—especially important in visually dense mobile interfaces.

Sequential color cues reduce the cognitive burden of following multi-step tasks. Stroke-order animations frequently use hue progression (warm → cool) to indicate sequence, supporting motor planning without extensive verbal explanation.

To minimize extraneous load, many Chinese apps have shifted toward flat, minimally ornamented color fields, avoiding decorative backgrounds that overwhelm young learners. Eye-tracking research at Zhejiang University (2022) shows 15–22% fewer fixation shifts when children view simplified palettes.

Predictive cues—such as gradual brightening before an interaction—further smooth task flow, reducing

hesitation and supporting independent navigation. Calm, low-saturation color environments also help manage emotional load by maintaining focus during challenging literacy or numeracy tasks.

5.3 Emotional Color Mapping

Emotional color mapping uses color to evoke or regulate affective states, an essential function for preschoolers who rely on nonverbal cues to interpret learning environments. Warm hues—red, orange, bright yellow—enhance excitement and reward perception. In BabyBus, gold bursts and warm gradients often accompany achievement animations, reflecting cultural associations between red/gold and success. Data from the China National Children's Center (2020) indicate that warm hues increase motivational arousal among children aged 3–6.

Conversely, cool low-saturation tones promote calmness and sustained attention. Apps often apply soft blues and greens in bedtime stories or longer narrative segments. Experiments at Shanghai Jiao Tong University (2021) show that cool, muted hues reduce arousal levels and stabilize gaze patterns in preschoolers, supporting emotional regulation during extended learning.

Color also enhances narrative coherence: darker hues signal conflict, while lighter palettes convey safety or resolution. Chinese cultural symbolism strengthens these cues—red for positivity, black for caution, white for neutrality—making emotional transitions more intuitive for young viewers.

Emotional color strategies further support persistence during difficult tasks. Literacy and math modules frequently pair warm feedback cues with gentle pastel environments to create a psychologically safe learning climate. SEL (social-emotional learning) modules often adopt standardized emotional color codes (e.g., blue = sadness, yellow = happiness), helping children visually anchor abstract emotions before mastering verbal labels.

Given rising concerns about overstimulation, many apps now integrate comfort modes using warmer, low-blue light palettes during evening use and limit high-intensity color bursts in continuous-play modes to protect emotional well-being.

6. Color Use in Key Learning Scenarios

6.1 Strategies for Phonics, Math, and Bilingual Content

Color plays a structural role in shaping how preschoolers process phonics, math, and bilingual content in Chinese early-learning apps. In Mandarin phonics, color-tone mapping is widely used to differentiate tonal categories, allowing children to visually anchor pitch differences before developing accurate auditory discrimination. Platforms such as Hongen Literacy and iHuman employ stable hue assignments—warm hues for high tones, cooler hues for low tones—to reduce tonal confusion. Research from Beijing Normal University (2021) indicates that such mappings increase tonal recall accuracy by 12–18%, demonstrating clear pedagogical value.

In character learning, color highlights semantic or phonetic radicals to help children recognize component patterns across different characters. Consistent radical coloring supports morphological awareness, a key predictor of early literacy in Chinese. Similarly, stroke-order animations often apply distinct hues or incremental color shifts to illustrate sequencing, enabling children to visually track multi-step movements with reduced working memory load.

Math modules rely on color to organize quantities, categories, and operational steps. Counting animations frequently assign stable hues to objects and prompts—for example, using blue for unit counters and yellow for instructional arrows—helping children identify relationships at a glance. Color transitions, such as merging hues during addition or fading hues during subtraction, serve as visual metaphors that make abstract operations more concrete.

In bilingual learning, color separates linguistic channels by assigning different hue families to English letters, Chinese counterparts, or associated images. This reduces interference between languages during early vocabulary acquisition. Color-coded consonants, vowels, and digraphs also support decoding skills, especially for preschoolers encountering alphabetic systems for the first time.

6.2 Scaffolded Instruction Through Color

Color-based scaffolding supports preschoolers as they navigate multi-step learning processes, providing visual organization and reducing cognitive load. In literacy instruction, stroke-order animations often use warm-to-cool color progressions to signal sequence, helping children follow complex movement patterns without relying on written or verbal explanations. Eye-tracking studies from Zhejiang University (2022) show that these segmenting cues reduce fixation-switching by 15–20%, indicating smoother information processing.

Scaffolding also occurs through hierarchical color emphasis. Primary instructional targets—such as the next counting object or the radical to be identified—appear in saturated hues, while secondary elements use muted or

analogous tones. This separation clarifies priority and maintains attention on essential content, particularly important on small mobile screens common in Chinese households.

Progressive color cues are used to signal readiness or guide transitions. Objects may brighten or pulse before interaction, enabling children to anticipate actions without needing textual prompts. This supports independence, especially for younger learners who cannot decode symbolic instructions. Soft corrective cues, such as gentle desaturation or subtle glow changes, help children recognize errors without triggering frustration—an approach aligned with contemporary early childhood education goals emphasizing supportive rather than punitive feedback.

In phonics tracing and English letter formation, sequential color overlays guide stroke initiation and direction. These cues function as external supports for motor planning, reducing trial-and-error attempts and improving accuracy.

Color-based scaffolding thus provides preschoolers with a structured, visually accessible way to engage with complex tasks, supporting self-guided learning in China's mobile-first early-learning environment.

6.3 Interactive and Feedback Elements

Interactive and feedback elements depend heavily on color to help preschoolers identify actionable areas, understand system responses, and maintain motivation. Warm, high-saturation hues such as yellow, orange, or bright pink are commonly used to indicate clickable objects or draggable items. According to a Tsinghua University Interaction Design Lab study (2021), preschool children respond up to 25% faster to warm-toned prompts than to neutral or cool-colored alternatives, reinforcing the importance of color-action associations.

Color also shapes feedback perception. Green remains a primary indicator of correctness, but many apps now use gold, soft red, or gradient bursts for reward animations to align with cultural associations of success and celebration. These warm reward cues increase task persistence and emotional engagement. For incorrect responses, designers increasingly avoid harsh red flashes—linked to frustration—and instead use muted corrective tones or brief dimming effects to encourage re-attempts without emotional overload.

Dynamic color transitions support interactive timing. Pulsing, brightening, or rhythmic hue shifts signal upcoming actions, helping children anticipate when to tap, drag, or match. This reduces hesitation and supports fluid interaction flow, especially in multi-step tasks such as phonics assembly or math matching.

In narrative-based modules, interactive elements are marked with distinct accent colors that stand out from background palettes. This ensures that children can explore story environments without becoming visually overwhelmed. Color cues are also synchronized with audio prompts in music, phonics, and bilingual lessons, enhancing multi-sensory integration and improving recall.

7. Visual Accessibility Considerations

Visual accessibility is increasingly central to early-learning animation design in China, driven by rising preschool screen exposure and growing public concern over childhood myopia. Children aged 2–6 have immature visual acuity, developing color discrimination, and lower tolerance for high contrast and glare, making color selection critical to comfort and comprehension. National Health Commission data (2021) show that early myopia indicators are present in over 50% of children aged 5–6, underscoring the need for color environments that reduce strain during prolonged use.

A key accessibility requirement is achieving balanced contrast. Instructional elements must be visually distinct without relying on harsh or overly saturated contrasts that can fatigue young eyes. Designers increasingly adopt “soft-foreground, softer-background” palettes—foreground cues remain clear while backgrounds shift to matte pastels or low-saturation tones. This supports visual clarity, particularly on small screens, which dominate early-learning experiences for most Chinese families.

Colorblind accessibility also influences palette design. Although red-green color vision deficiency is relatively uncommon in China, affecting about 3–5% of boys (Sun Yat-sen University, 2020), the reliance of educational content on color differentiation necessitates inclusive strategies. Designers often supplement color cues with outlines, shapes, or motion to ensure comprehension even when hue perception differs.

Another dimension is blue-light management, given that Chinese preschoolers frequently use apps in dim lighting environments at home. Many platforms now provide warm-tone modes, reduced-blue displays, or adaptive color adjustments that shift palettes after evening hours. This aligns with national eye-health initiatives promoting reduced blue-light exposure for young children.

Typography and icon legibility interact closely with color. Early literacy animations require high readability, so designers use stable, high-contrast text against simplified backgrounds. Avoiding gradients or busy textures helps preserve letter form clarity, improving early decoding accuracy.

Device variability across Chinese households requires robust color choices. Because children may use older smartphones or tablets with inconsistent color calibration, designers favor bold, universally distinguishable hues and avoid subtle distinctions that may disappear on lower-quality screens. This ensures that learning cues remain consistent across diverse usage environments.

8. Interaction Patterns Shaping Color Needs

Preschoolers' interactive habits significantly shape how color functions within early-learning animation. Because young children depend heavily on perceptual cues to identify actions, color becomes a primary indicator of what can be tapped, dragged, traced, or explored. In China's mobile-first learning ecosystem, where most early-learning occurs on smartphones, these color-action associations quickly become internalized.

Tap-based interactions are the most common pattern. Warm, saturated hues—yellow, orange, pink—are widely used for buttons and next-step prompts, helping preschoolers instantly recognize actionable elements. Studies from Tsinghua University Interaction Lab (2021) show that warm-colored prompts yield 20–25% faster response times compared with cooler tones, confirming the behavioral efficiency of this design convention.

In drag-and-match tasks, color regulates structure and clarity. Draggable items typically use a distinct hue family, while target zones adopt complementary colors or soft glows to guide matching behavior. This reduces confusion in category-based tasks such as phonics pairing or shape sorting. Color also supports conceptual clarity: math apps use color-coded blocks or manipulatives to help differentiate numerical groups or operational steps.

Tracing interactions rely heavily on color contrast. Clear stroke paths, often rendered in warm, bright tones, help children maintain correct direction and pressure. As children trace accurately, dynamic color shifts—brightening or glowing—provide nonverbal feedback that reinforces correct motor patterns without relying on complex instructions.

Color also structures anticipatory cues. Objects that pulse, brighten subtly, or transition in hue signal that an action is imminent. These cues help preschoolers maintain task flow, especially in multi-step sequences where they may otherwise hesitate. In narrative-based modules, warm accent colors mark interactive story elements, while muted background palettes preserve visual focus and narrative coherence.

Audio-visual synchronization is another emerging pattern. In phonics and music modules, rhythmic color pulses aligned with beats or syllables help children coordinate timing and reinforce auditory cues. This modality integration is particularly effective for Mandarin tonal training and early phonological awareness.

9. A Culturally Grounded Color Framework for China

A culturally grounded color framework provides a foundation for designing early-learning animation that aligns with Chinese preschoolers' perceptual development, cultural meanings, and parents' expectations for digital learning. This framework integrates cultural symbolism, educational priorities, linguistic structures, and screen-health considerations into a cohesive design approach.

Chinese preschoolers grow up in a visual culture where colors hold strong symbolic value: red signifies joy and success, gold suggests achievement, green implies growth, and darker tones convey caution or seriousness. These meanings shape children's emotional interpretations long before they acquire abstract symbolic understanding. Leveraging this cultural knowledge—such as using red-gold hues for rewards or cool greens and blues for calming instructional segments—enhances emotional clarity and engagement.

The framework also accounts for regional differences. Urban children are more familiar with high-saturation commercial palettes due to heavy exposure to digital media, while rural children often respond more naturally to muted, nature-derived tones. A flexible palette strategy—allowing thematic or regional variation—ensures inclusivity for diverse learning audiences across China.

Health considerations further shape the framework. With early childhood myopia prevention now a national priority, color strategies increasingly incorporate moderated contrast, soft backgrounds, and controlled blue-light exposure. These choices balance clarity with visual comfort, supporting long-term eye development.

The framework also reflects linguistic and cognitive features unique to Chinese early learning. Color-tone mapping in Mandarin phonics, radical highlighting in character learning, and color-coded categorical groupings support literacy acquisition by reducing cognitive load and simplifying structural relationships. In bilingual modules, distinct hue families for different languages prevent channel interference and strengthen cross-linguistic mapping.

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Creative Negotiation in Platform-Mediated Visual Production

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Abstract

This paper develops a multidimensional framework for understanding creative negotiation as a defining feature of youth visual production within platform-mediated environments. While digital platforms shape cultural expression through algorithmic curation, engagement metrics, interface affordances, and moderation regimes, youth creators are not merely passive subjects of these systems. Instead, they actively interpret platform signals and adjust their creative practices through iterative, strategic, and relational processes. Drawing on platform studies, cultural labor research, and youth media theory, this study conceptualizes creative negotiation across four key dimensions: aesthetic compromise, narrative modulation, identity calibration, and community leverage. Through digital cultural observation and interpretive analysis, the paper demonstrates how these strategies allow creators to balance artistic intention with platform expectations, maintaining agency despite structural constraints. The findings challenge deterministic accounts of algorithmic governance by foregrounding creators' adaptability, reflexivity, and collaborative practices. This framework contributes to broader debates on platform governance, digital labor, and contemporary visual culture by illustrating how human creativity co-evolves with sociotechnical infrastructures. It also offers a conceptual foundation for future empirical research on youth creativity, platformized cultural production, and the shifting dynamics of visual expression in digital societies.

Keywords: creative negotiation, visual storytelling, platformization, digital power, platform governance

1. Introduction

The expansion of digital platforms has reshaped the landscape of contemporary cultural production, positioning social media environments as central infrastructures through which youth visual creators organize creative practice, distribute content, and construct public identities. As platform mediation becomes increasingly embedded in everyday media use, creators encounter a sociotechnical environment structured by visibility algorithms, monetization pathways, and governance protocols. Far from neutral, these infrastructures influence what kinds of creative expression become legible, accessible, and economically viable. Existing scholarship demonstrates that platform logics—ranging from recommender systems to content moderation—produce forms of soft regulation that shape cultural production at both structural and aesthetic levels. In this context, youth creators must navigate a terrain defined by competing pressures: to innovate artistically while aligning with platform incentives; to maintain authenticity while producing content optimized for attention; and to cultivate sustainable visibility despite increasingly crowded digital ecologies.

While much research emphasizes the constraining effects of platform governance, this paper advances a complementary perspective: that youth visual creators engage in active, situated negotiation with platform conditions. These negotiations are neither fully oppositional nor wholly compliant. Instead, they manifest as strategic adjustments in narrative structuring, aesthetic decision-making, identity presentation, and community engagement. Through these adjustments, creators preserve aspects of creative autonomy while achieving functional alignment with platform rules. This mode of creative negotiation highlights the coexistence of structural limitation and individual agency within platformized environments.

The notion of creative negotiation draws from theoretical currents in platform studies, cultural labor research, and youth media analysis. It underscores the idea that creators operate within multi-layered constraints—economic, technical, cultural—but nevertheless exert agency by interpreting, appropriating, and reworking these constraints. Rather than framing youth creators as passive subjects governed by opaque algorithms, the framework foregrounds their capacity for adaptive creativity. It also invites reconsideration of how visual culture evolves within platformized societies, especially as aesthetic conventions increasingly reflect the interplay between user practices and algorithmic infrastructures.

This study aims to provide a structured conceptual framework for understanding creative negotiation in platform-mediated visual production. The framework identifies four primary dimensions through which negotiation occurs: aesthetic compromise, narrative modulation, identity calibration, and community leverage. Each dimension corresponds to a distinct facet of creator practice shaped by platform conditions. Although grounded in theoretical analysis and digital cultural observation, the framework offers broader applicability for examining creative labor within diverse platform ecosystems.

By offering a multi-dimensional account of creative negotiation, this paper contributes to ongoing international conversations about platform governance, digital creativity, youth culture, and the political economy of media production. It also provides analytical tools for future empirical studies examining how creators mediate the tension between artistic aspiration and platform expectation. In doing so, the study advances a nuanced understanding of how contemporary visual culture is shaped by the dynamic interplay between human agency and platform power.

2. Theoretical Framework

Scholarship on digital platforms has increasingly emphasized the constitutive role these infrastructures play in shaping contemporary cultural production. The theoretical framework developed in this section integrates perspectives from platform studies, cultural production research, and youth media theory to contextualize creative negotiation as a situated response to platform-mediated constraints. This integrated framework demonstrates how platform architectures, economic imperatives, and cultural expectations interact to structure creator practice, while also identifying the pathways through which youth creators enact agency.

Platform studies provide a foundational understanding of the technological and institutional logics that organize user experience. Researchers argue that platforms serve not merely as neutral intermediaries, but as actors endowed with the capacity to shape participation through design choices, governance policies, and algorithmic curation. Recommender systems determine what content becomes visible and to whom; monetization mechanisms influence the types of content that are economically viable; and moderation protocols delineate the boundaries of acceptable expression. These mechanisms work together to create what can be understood as a ‘soft infrastructure of regulation,’ wherein cultural production is subtly guided toward forms that are legible and favored within platform ecologies.

Complementing this perspective, the political economy of cultural production highlights the material conditions under which creative labor unfolds. Cultural labor has long been characterized by precarity, project-based organization, and the tension between autonomy and economic necessity. Within platformized environments, these dynamics are amplified. Creators must continuously adapt to shifting platform policies, invest significant time in maintaining visibility, and often work without guaranteed or stable compensation. The logic of constant activity—producing frequent updates, responding to audience engagement metrics, and monitoring algorithmic performance—contributes to a system wherein visibility itself functions as a form of labor. Youth creators, who frequently enter these ecosystems with limited institutional support, experience these pressures acutely.

Youth media research offers additional insight into how young creators navigate complex mediated environments. Youth are frequently positioned at the forefront of digital media participation, engaging with technologies not only as tools of communication but also as vehicles for identity construction, community-building, and cultural expression. Youth media research underscores the fluidity, experimentalism, and reflexivity of youth cultural practice, suggesting that young creators are adept at interpreting and responding to the demands of evolving media systems. This adaptability is central to understanding creative negotiation, as youth creators engage in ongoing adjustments to sustain both expressive fulfillment and platform viability.

Integrating these perspectives, the theoretical framework conceptualizes creative negotiation as an emergent property of interactions between platform structures and creator agency. Negotiation is not framed as a singular act of resistance or compliance, but rather as a multi-dimensional process involving aesthetic, narrative, identity-based, and community-oriented strategies. These strategies permit creators to reconcile platform expectations with their own creative goals. In this view, negotiation becomes a hallmark of creator practice within platformized cultural ecosystems.

Furthermore, this framework underscores the importance of analyzing negotiation within its sociotechnical

context. Platform architectures do not operate independently of broader cultural and economic forces. Instead, digital platforms reflect and reinforce existing power hierarchies, market imperatives, and cultural values. Creative negotiation thus occurs within a layered environment that intersects with global media economies, shifting aesthetic norms, and generational modes of expression. Understanding these contextual layers is essential for interpreting the complexities of youth visual production in contemporary societies.

The theoretical framework developed here provides the conceptual grounding for the subsequent analysis. By positioning creative negotiation as both a response to and a product of platformized cultural environments, the framework opens a space for deeper exploration of how platform governance, creative ambition, and social dynamics converge to shape creator practice. This orientation also provides a foundation for examining negotiation across diverse creative domains, offering a flexible analytical tool for future research.

3. Methodology

This study employs a qualitative, multi-method approach to examine creative negotiation within platform-mediated visual production. Because platformized cultural environments are shaped by complex sociotechnical logics, an equally layered methodological orientation is necessary to capture both structural conditions and creator agency. The methodology combines digital cultural observation, conceptual analysis, and interpretive synthesis of existing empirical research. Rather than generating primary interview data, the study focuses on constructing a rigorous analytical framework capable of explaining how creators adapt their practices in response to platform constraints. This approach aligns with traditions in platform studies and cultural theory that prioritize structural interpretation, meaning-making practices, and socio-technical critique.

3.1 Research Orientation

The research design follows an interpretivist orientation aimed at understanding the meaning-making strategies embedded in creative negotiation. Interpretivism assumes that social action is shaped by subjective interpretation, contextual norms, and situated responses to structural pressures. Youth creators' strategies are not reducible to deterministic outcomes of algorithmic governance; rather, they reflect internalized understandings of platform expectations and culturally inflected judgments about visibility, engagement, and authenticity. This methodological stance enables the study to foreground the symbolic and aesthetic dimensions of creative negotiation, treating platform interactions as culturally structured forms of practice rather than purely technical operations.

The research orientation is also informed by the methodological ethos of digital cultural studies, which emphasizes attention to mediated practices, representational forms, and the interplay between technological architecture and cultural life. This approach supports the analysis of creators' narratives, aesthetic decisions, and identity performances as expressions situated within broader platform dynamics. By blending interpretivist inquiry with digital cultural sensibilities, the study aims to illuminate how creators negotiate meaning and creative autonomy in platformized environments.

3.2 Platform and Visual Culture Observation

Platform and visual culture observation constitutes the primary methodological component of this study. This technique involves examining recurring patterns across platform interfaces, content trends, aesthetic conventions, and engagement mechanisms. It is well suited to studies where platforms structure the conditions of cultural production but do not provide transparent access to internal decision-making processes.

Observation focuses on three layers of platform activity:

- (1) Interface-level structures, including content feeds, editing tools, and affordances that incentivize particular aesthetic forms.
- (2) Behavioral patterns among visible creators, including stylistic convergence, pacing rhythms, thematic repetition, and forms of self-presentation.
- (3) Discursive formations surrounding creators, including audience responses, creator advice content, and platform policy communications.

These observational layers together provide insight into the constraints and cues that guide creators' interpretive decisions. While the method does not rely on direct interviews, it draws heavily on public outputs of creator practice—videos, captions, editing choices, community interactions—to infer the strategic logics underlying creative negotiation. This approach is aligned with qualitative platform ethnography traditions that analyze public data to understand user strategies within opaque technological infrastructures.

3.3 Analytical Strategy

The analytical process follows a three-step strategy: conceptual distillation, pattern identification, and theoretical synthesis.

(1) Conceptual Distillation

Key concepts such as platformization, visibility labor, creative autonomy, and identity performance are distilled from benchmark literature in platform governance, cultural labor studies, and youth media research. These concepts provide the scaffolding for articulating the mechanisms of creative negotiation.

(2) Pattern Identification

Drawing from platform observations, the study identifies recurring patterns of creator adaptation. These patterns include aesthetic compromise, narrative modulation, identity calibration, and community leverage. Patterns are analyzed as interpretive responses to structural features such as algorithmic sorting, interface affordances, and audience feedback loops.

(3) Theoretical Synthesis

The final step synthesizes the conceptual and observational insights into a coherent framework. This synthesis allows the study to map how different layers of platform influence converge to shape creator practice. The framework also highlights how youth creators reinterpret these influences in ways that preserve elements of agency, authenticity, and creative vision.

3.4 Methodological Limitations

Several methodological limitations must be acknowledged. First, the absence of primary interview data limits the study's ability to capture creators' subjective reflections directly. However, because the goal is to build a structural and cultural explanatory framework rather than document individual narratives, this limitation does not undermine the conceptual integrity of the analysis.

Second, platform observation is constrained by the opacity of algorithmic systems. Algorithms are constantly evolving, and their operational logic cannot be fully inferred from visible outputs alone. Nevertheless, studying creators' observable adaptations offers meaningful insight into how users interpret platform cues and respond to them.

Third, the interpretive nature of the research introduces a degree of analytical abstraction. While this abstraction supports theoretical innovation, it limits claims of empirical generalizability. The goal, however, is not to generalize creator behavior universally but to articulate a flexible and theoretically grounded model that can guide future empirical inquiry.

Despite these limitations, the methodological design is well suited to the study's objective: constructing a robust and analytically precise account of creative negotiation within platform-mediated visual production. The framework developed through this methodology offers a valuable foundation for advancing scholarship on platform governance, creative labor, and digital youth culture.

4. Main Analysis

4.1 Aesthetic Compromise

Aesthetic compromise represents one of the most visible and analytically revealing dimensions of creative negotiation. In platform-mediated environments, creators operate within an aesthetic economy structured by algorithmic preferences, interface affordances, and audience expectations. These forces collectively shape what types of visual expression are most likely to gain traction. As prior research in digital visual culture argues, aesthetic forms cannot be separated from the sociotechnical infrastructures that sustain them; platform logics subtly but consistently incentivize particular modes of seeing, feeling, and organizing visual information.

Aesthetic compromise does not imply a full abandonment of artistic intent. Instead, it captures the adaptive process through which youth creators blend personal stylistic preferences with the implicit and explicit cues provided by platform environments. One prominent example is the widespread adoption of accelerated pacing, rhythmic editing, and emotionally charged framing in short-form content. These stylistic conventions are not mere trends but reflect a deeper structural relationship between attention economies and algorithmic filtering. Content that activates immediate emotional resonance—through close-up shots, exaggerated reactions, intensified color grading, or rhythmic transitions—tends to perform better within systems optimized for short-term engagement.

From an analytical perspective, aesthetic compromise can be understood as a form of situated creativity. Creators must internalize platform norms without fully relinquishing distinctiveness. This internalization often leads to hybrid aesthetic forms: original visual ideas translated into platform-friendly sequences, narrative arcs compressed into algorithmically favorable durations, and artistic symbolism repurposed through popular editing styles. Such hybridization demonstrates the interpretive flexibility that youth creators deploy as they negotiate aesthetic constraints.

At the same time, platform affordances play a significant role in shaping aesthetic compromise. Templates,

filters, built-in editing tools, and trending soundscapes guide creators toward certain styles. These affordances do not merely enable creativity—they delimit the repertoire of easily producible aesthetic forms. Consequently, creators' choices often reflect a trade-off between efficiency and originality: leveraging built-in features accelerates production but can contribute to stylistic homogenization.

Yet creators routinely challenge this homogenization by incorporating original cinematographic elements, experimenting with visual metaphors, or blending offline and online aesthetic practices. The negotiation between platformization and artistic individuality thus operates through a cyclical process: creators adopt platform norms, reinterpret them, and reintegrate personalized elements. This ongoing cyclical adjustment underscores the dynamism inherent in aesthetic compromise and highlights the capacity of youth creators to maintain artistic agency within a structurally constrained ecosystem.

4.2 Narrative Modulation

Narrative modulation constitutes the second dimension of creative negotiation and captures how youth visual creators adjust storytelling structures to align with the temporal and interactional rhythms of platform environments. In platformized cultural systems, narrative forms are not neutral vehicles for expression; they become functional adaptations shaped by the flow of user attention, the logic of recommender systems, and the episodic patterns of content consumption.

One consistent pattern across platforms is the prioritization of front-loaded storytelling. Creators frequently position narrative climaxes or emotional hooks at the beginning of a video—a sharp contrast to traditional narrative arcs. This structural inversion is a rational response to the platform logic that determines visibility based on early user interaction. High initial retention signals algorithmic value, thereby improving a video's chances of circulation. Narrative modulation thus reflects a calculated recognition of how platform metrics shape audience attention.

Beyond temporal restructuring, narrative modulation also encompasses thematic and structural fragmentation. Many creators develop modular storytelling techniques—breaking down longer narratives into serialized micro-units. This modularity allows narrative elements to be flexibly rearranged or extended across multiple posts, sustaining audience engagement while allowing creators to adjust content according to performance analytics. Such segmentation adapts to platforms where attention spans are short and continuity is maintained algorithmically rather than through traditional narrative cohesion.

Additionally, narrative modulation frequently manifests in the blending of personal narrative with platform-friendly genres such as reaction content, micro-documentary formats, participatory challenges, and short-form tutorials. These hybrid forms arise from creators' strategic assessment of which genres are more likely to gain visibility while still allowing personal expression. The result is a narrative environment where individual voices coexist with highly standardized forms—another instance of negotiation between structural pressures and expressive ambitions.

Importantly, narrative modulation is not purely reactive. Creators often innovate within constraints by introducing subtle narrative experiments, such as nonlinear sequencing, symbolic layering, or multi-perspective storytelling, while still conforming to platform norms. These micro-innovations demonstrate that creative negotiation is not synonymous with compromise alone; it entails reinterpretation and productive transformation. Youth creators leverage narrative flexibility to carve out expressive possibilities within a seemingly restrictive environment.

Taken together, aesthetic compromise and narrative modulation reveal how creators adapt both the form and content of visual production. They illustrate how creative negotiation provides a lens to understand the conditions under which youth creativity unfolds, offering insight into the broader cultural implications of platform-governed visual storytelling.

4.3 Identity Calibration

Identity calibration forms the third dimension of creative negotiation and highlights the adaptive strategies that youth creators employ when presenting themselves within platformized environments. Identity on digital platforms is rarely a static construct; rather, it is a dynamic performance shaped by social expectations, platform norms, and interactions with algorithmic systems. The profile, persona, or creative identity that a youth creator cultivates emerges as a mediated product of platform affordances and audience feedback loops. These identities are crafted strategically to optimize visibility, build community, and sustain creative longevity.

Platform cultures reward consistent self-presentation. The repeated reinforcement of style, tone, and persona helps creators establish recognizability—a key factor in algorithmic circulation. Identity calibration therefore involves maintaining a recognizable creative persona while adjusting its nuances in response to platform signals. For instance, creators may emphasize relatability or aspirational qualities depending on audience reception.

Some may foreground artistic expertise, while others cultivate a humorous or dramatic persona to match trending platform aesthetics.

Identity performance is also bound up with expectations of authenticity. Audiences often valorize authenticity as a moral and aesthetic ideal within social media cultures. However, authenticity on platforms is a highly constructed mode of expression filtered through editing choices, narrative framing, and performative cues. Creators must balance authenticity with strategic presentation—revealing enough personal detail to maintain trust without compromising boundaries or diluting their creative brand. This balancing act exemplifies identity calibration as a nuanced negotiation between genuine self-expression and the pressures of visibility.

Furthermore, identity calibration extends into creators' interactions with platform communities and algorithmic systems. Creators often adapt their identities based on the types of audiences attracted by certain genres or content formats. For example, creators may shift their persona to align with niche communities, thereby enhancing engagement and fostering relational depth. These shifts may involve adopting community-specific languages, aesthetics, or behavioral norms, all of which contribute to more tailored self-presentation. In this sense, identity calibration is both a creative strategy and a response to the structural incentives embedded within platform systems.

At a structural level, identity calibration reflects the broader sociocultural conditions of platformized labor, wherein creators are expected to embody multiple roles simultaneously: artist, entrepreneur, community leader, and public figure. This multiplicity deepens the complexity of identity negotiation and underscores the emotional and cognitive labor involved. The phenomenon of “context collapse”—where diverse audiences converge onto a single platform space—further complicates identity calibration. Creators must manage diverse audience expectations while maintaining coherence across contexts. Identity calibration, then, becomes a critical framework for understanding how youth creators navigate the pressures of platform visibility and cultural participation.

4.4 Community Leverage

Community leverage constitutes the fourth dimension of creative negotiation, emphasizing how youth creators mobilize social relations, participatory cultures, and community practices to enhance creative autonomy. As digital platforms transform cultural production into an increasingly individualized activity—measured through personal metrics like follower count and engagement rate—community leverage counteracts this individualization by situating creativity within collective networks of support, inspiration, and shared meaning.

Communities provide creators with alternative sources of validation beyond algorithmic ranking systems. Engagement from tightly knit communities often manifests in sustained interaction, collaborative creativity, and a more stable base for visibility than what is offered by platform volatility. Such communities may form around shared interests, artistic aesthetics, cultural identities, or offline social networks. By cultivating community ties, creators reduce their dependence on algorithmic amplification and gain more control over the visibility and reception of their work.

Moreover, communities function as spaces of creative experimentation. Within community settings — whether they are artist collectives, fan groups, hobbyist circles, or thematic subcultures — creators are encouraged to explore unconventional forms of expression that may not align with mainstream platform norms. This form of experimentation contributes to the diversification of visual culture and provides a buffer against the homogenizing pressures of platform aesthetics. Community-based feedback mechanisms often enable creators to refine their craft without being penalized by algorithmic metrics.

Community leverage also enhances creators' resilience to platform instability. Algorithms are subject to constant change, and shifts in platform policies can abruptly alter creators' visibility and income. Community support helps mitigate these risks by offering consistent engagement and alternative pathways for creative distribution, such as cross-platform collaborations, offline events, or community-driven campaigns. This diversified approach aligns with broader principles in cultural labor research emphasizing the importance of social capital in navigating precarious creative environments.

From a sociocultural perspective, community leverage reflects the collectivist dimensions of youth culture. While platforms encourage individualized branding, youth creators frequently reassert collective identity through group participation, shared aesthetics, and collaborative storytelling. These practices resonate with theories of participatory culture, which highlight the role of shared creativity and communal meaning-making in digital environments. Community leverage thereby enriches the understanding of creative negotiation, illuminating how youth creators cultivate agency within and beyond the boundaries of platform systems.

When viewed alongside aesthetic compromise, narrative modulation, and identity calibration, community leverage completes a comprehensive framework for understanding creative negotiation. Together, these dimensions illustrate how youth creators navigate platform constraints through adaptive, strategic, and relational

forms of creativity. Community leverage, in particular, demonstrates that even within highly individualized digital ecosystems, collective practices remain vital to sustaining creative autonomy, offering alternative modes of visibility, support, and artistic innovation.

5. Discussion

The framework of creative negotiation developed in this study sheds light on the structural and cultural dynamics that shape youth visual production within platformized environments. Rather than conceptualizing platform power as a unilateral force that determines creative outcomes, this analysis emphasizes the reciprocal interplay between creators' adaptive strategies and the algorithmic, economic, and aesthetic constraints embedded in digital platforms. This discussion section synthesizes the implications of the four negotiation dimensions, situating them within broader conversations about platform governance, digital labor, and youth cultural participation.

5.1 Negotiation as a Structural Condition

Creative negotiation should be understood as a structural condition of platform-mediated cultural production. Platforms shape the conditions under which creativity becomes possible, legible, and economically viable. Youth creators do not operate outside these constraints; instead, their practices emerge through ongoing adjustments to the cues embedded in algorithmic operations, engagement metrics, and interface architectures. This structural orientation positions creative negotiation not as an isolated tactic but as a constitutive element of platformized creativity.

These structural conditions highlight the extent to which platform infrastructures shape cultural practices even in the absence of explicit coercion. The soft governance enacted through recommendation systems and visibility metrics encourages particular rhythms, genres, and aesthetic tendencies. As a result, creative negotiation is embedded within the broader political economy of platforms, reflecting how market imperatives and technological affordances co-produce cultural expression.

5.2 Negotiation and Platform Governance

The findings also hold significance for understanding platform governance. Creative negotiation makes visible the practical implications of governance mechanisms that are otherwise obscured by technical opacity. Youth creators infer platform rules by observing changes in visibility, engagement flows, and audience retention. These inferences underpin adaptive strategies, demonstrating how governance operates through indirect signals rather than explicit instructions.

This form of participatory rule interpretation underscores the role of users as active interpreters rather than passive followers of platform logic. At the same time, it reveals how creators remain vulnerable to shifts in algorithmic priorities, policy updates, or interface changes. Creative negotiation, therefore, illustrates both the interpretive agency and structural precarity inherent in platformized creative labor.

5.3 Negotiation, Creativity, and Youth Agency

Creative negotiation complicates binary understandings of agency and constraint. Youth creators are neither fully liberated creative subjects nor fully constrained platform laborers. Instead, their agency is relational — defined through adaptive choices that align or resist platform expectations.

The four negotiation dimensions illustrate different forms of relational agency:

- Aesthetic compromise reflects agency exercised within stylistic boundaries.
- Narrative modulation demonstrates agency through structural adaptation.
- Identity calibration highlights reflexive self-fashioning in response to platform cultures.
- Community leverage shows how agency extends beyond platform architectures through collective practices.

This relational perspective aligns with contemporary youth media theory, which views young people as culturally inventive actors whose practices emerge through interaction with social, technological, and economic structures.

5.4 Implications for Visual Culture

The framework also contributes to understanding platform-era visual culture. As aesthetic forms shift toward modularity, emotional immediacy, and algorithm-friendly rhythms, creative negotiation becomes a mechanism through which cultural conventions evolve. Rather than assuming that platforms inevitably homogenize visual expression, this study shows how creators resist or reinterpret homogenizing tendencies through hybridization, micro-innovation, and community-supported experimentation.

These dynamics underscore the co-evolution of platform architectures and cultural aesthetics. Visual culture in

platformized societies is neither purely user-driven nor fully determined by technological systems. Instead, it is shaped by continuous negotiation across human and non-human actors. This interplay enriches contemporary visual culture with new forms of expressiveness, emergent genres, and evolving forms of storytelling rooted in hybrid cultural logics.

In sum, the discussion demonstrates that creative negotiation is central to understanding how youth visual creators navigate platformized cultural environments. It provides a conceptual lens through which to analyze the tensions, possibilities, and contradictions of digital creativity and highlights the need for further empirical and theoretical research.

6. Conclusion

This study has proposed a multidimensional framework for understanding creative negotiation as a defining feature of youth visual production within platform-mediated environments. By examining how aesthetic, narrative, identity-based, and community-oriented strategies intersect with platform infrastructures, the analysis reconceptualizes creativity not as a purely autonomous activity but as an adaptive, relational practice deeply embedded in sociotechnical conditions. Creative negotiation thus emerges as a crucial analytical lens through which to interpret digital creativity in the contemporary media landscape.

The framework developed here highlights how platform logics—algorithmic curation, engagement metrics, interface affordances, and content moderation—exert subtle but pervasive influence over the processes through which youth creators produce, circulate, and sustain visibility for their work. These structures generate conditions that both constrain and enable creative expression. Rather than relying on deterministic accounts of algorithmic power, this study emphasizes the interpretive agency of creators, who continuously read platform signals and adjust their practices accordingly. Their responses demonstrate a capacity for navigating uncertainty, integrating platform norms into their work while simultaneously asserting artistic and narrative intent.

A key contribution of this study lies in its reorientation of creative labor scholarship toward understanding the micro-strategies that underpin youth cultural participation. The concept of creative negotiation foregrounds the improvisational and iterative nature of digital creativity, situating youth creators not as passive subjects but as strategic actors whose practices shape, and are shaped by, platformized environments. This relational approach provides a conceptual bridge between structural platform analyses and culturally oriented media studies, revealing creativity as an evolving process of alignment, resistance, and adaptation.

The implications of this framework extend to broader discussions of visual culture in the platform era. As creators navigate platformized aesthetics—marked by accelerated pacing, modular narrative forms, and performative identity cues—they contribute to the emergence of hybrid visual grammars that reflect both technological constraints and human expressiveness. These hybrid practices demonstrate that visual culture is not simply shaped by platform architectures but co-produced through continuous negotiation among creators, audiences, and algorithmic systems.

The study also identifies several directions for future research. First, empirical investigations involving interviews or ethnographic engagement with youth creators could enrich understanding of how negotiation is consciously articulated and emotionally experienced. Second, comparative research across platforms with differing governance structures could illuminate how platform-specific conditions influence creative negotiation. Third, attention to demographic, cultural, or regional differences would deepen insight into how negotiation manifests among diverse creator communities. Finally, examining the long-term implications of creative negotiation may shed light on how platform-mediated creativity contributes to cultural transformation.

In sum, creative negotiation provides a flexible, theoretically grounded model for analyzing youth visual production within platformized cultural ecosystems. It accounts for the multidimensional interplay between structural constraint and creative agency, offering a nuanced perspective on the practices that shape contemporary digital culture. By conceptualizing negotiation as a central component of platform-era creativity, this study contributes to ongoing efforts to understand the evolving relationships among technology, culture, and human expression.

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