



Digital Reconstructing Gandhara: The Discourse Power Game In Cross-Civilization Aesthetic Migration: A Comparative Study Of Chinese And Western Digital Gandhara Projects

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ABSTRACT

As global attention increasingly focuses on Gandhara, the digital regeneration of Gandharan Buddhist art is becoming a new frontier for technological practice and ideological competition in the field of global cultural heritage. This study reveals that technological interventions (e.g., 3D high-precision scanning, metadata annotation rights, VR narrative scripts) fundamentally reconstruct cultural sovereignty boundaries. The lack of algorithmic ethics exacerbates risks of digital colonialism, exemplified by the British Museum's "Cloud Gandhara" project, which strips local religious and social contexts while amplifying its "Hellenistic heritage" attributes. In contrast, China's "Digital Dunhuang" project emphasizes tracing the evolutionary trajectory of Gandharan Buddhist artistic elements within Sino-local artistic exchanges. This paper comparatively analyzes the discursive strategies of Western "universal heritage" narratives versus China's "civilizational tracing" narratives in the digital reconstruction of Gandhara. It aims to provide new theoretical pathways for Gandharan digital heritage conservation under the Belt and Road framework.

Introduction

Gandhara, located in the Peshawar Valley of northwestern Pakistan and the Jalalabad region of eastern Afghanistan, served as a crucial intersection between the southern Silk Road and Central Asian trade routes. As a pivotal hub for East-West civilizational exchange, it gave birth to a unique transcultural visual system in art history—Gandharan Buddhist art. This artistic tradition fused the anatomical precision of Greek sculpture, the spiritual core of Indian Buddhism, Persian decorative motifs, and Roman architectural elements, forming a rare "polygenetic" artistic laboratory (Smith, 2018). It was not merely a visual manifestation of religious faith but also a crystallization of long-term political, economic, and cultural interactions (Anderson, 2020).

In the digital era, technologies such as 3D scanning, virtual reality (VR), panoramic imaging, and cloud databases have introduced unprecedented possibilities for the preservation and dissemination of Gandharan art. However, technological intervention has not dissolved power structures; instead, it has ushered in a new phase of contestation over cultural sovereignty and digital discourse power. The author argues that the digital reconstruction of Gandharan art is not only an innovative technical practice but also a nexus of cultural politics and international relations. By comparing the technological applications and narrative strategies of Chinese and Western digital Gandhara projects, this paper reveals how digital media participates in and shapes the distribution of cultural discourse power, thereby offering a critical reference for digital humanities research in postcolonial contexts.

Literature Review

In recent years, the digital reconstruction of Gandharan Buddhist art has emerged as a new frontier in global cultural heritage preservation and academic research, involving not only technological innovation but also deep-seated struggles over cultural sovereignty and narrative authority. Western academia and museums have dominated this process. For instance, the British Museum's "Cloud Gandhara" project demonstrates a pronounced "Hellenistic" aesthetic preference in its high-precision scanning and virtual exhibitions, reconstructing a narrative centered on classical Mediterranean art (Smith, 2018). This "decontextualized" technological gaze highlights cross-cultural fusion while systematically marginalizing the deeper religious and sociocultural significance of Gandharan Buddhist icons in their local contexts (Anderson, 2020).

Chinese scholars, in contrast, emphasize a "civilizational tracing" and "genealogical" narrative in digital heritage practices. Projects like "Digital Dunhuang" trace the artistic evolution from Gandhara to Gupta to Central Plains traditions, showcasing the Chinese civilization's capacity to absorb and reinterpret foreign cultures (Wang, 1990; Chen, 2019). This narrative acknowledges the historical reality of cultural hybridization while asserting the agency of localized transformation (Zhang, 2021).

Scholars critiquing digital colonialism argue that monopolies over digital standards and intellectual property regimes lead to the surrender of cultural data sovereignty, creating new forms of cultural inequality in postcolonial contexts

(Couldry & Mejias, 2019). For example, 3D models and metadata produced through collaborations between the Taxila Museum and international institutions are often owned by foreign entities, requiring local institutions to pay for access—a dynamic that keeps the chain of "cultural reproduction" firmly tethered to Western servers and intellectual property systems (Anderson, 2020).

Thus, the digital reconstruction of Gandharan art is both a product of technological innovation and a new battleground for cultural power structures. Future research must critique Western "universal heritage" narratives while exploring ethical frameworks for digital heritage that balance global accessibility with cultural sovereignty, fostering genuine civilizational dialogue and mutual learning.

Research Methodology

This study employs a combination of comparative research methods and critical discourse analysis (Critical Discourse Analysis, Fairclough, 2013) to explore the differences in technical practices and narrative strategies between China and the West in the digital reconstruction of Gandhara art. First, in terms of data collection, the study selected the British Museum's 'Cloud Gandhara' project and China's 'Digital Dunhuang' initiative as core cases, reviewing relevant academic papers, museum exhibition manuals, and policy documents. In terms of analytical methods, the study applied semantic annotation and narrative framework analysis to digital exhibition content and explanatory texts, focusing on differences in aesthetic affiliation, religious context reproduction, and cultural lineage construction. Particular attention is paid to the construction of the two core discourses of 'Hellenisation' and 'civilisational origins' in the narratives and their underlying cultural-political implications. Through a critical comparative analysis across cases, this study evaluates the potential impacts of the two digitalisation models on global cultural heritage sharing, knowledge production in a post-colonial context, and civilisational exchange, providing empirical support for the construction of a digital heritage ethical framework that balances technological openness and cultural sovereignty under the 'Belt and Road' initiative.

Gandhara and the Digitalization of Gandhara

The Diversity of Gandharan Sculptural Elements

Gandharan Buddhist sculpture represents one of the most remarkable multicultural syntheses in human civilization. When Alexander the Great's army entered the Indus Valley in 326 BCE, the rational anatomy of Greek sculpture, the solar/lunar symbolism of Persian Mithraism, and the Indian Buddhist concept of samsara converged here, giving birth to a revolutionary artistic paradigm—the anthropomorphic Buddha. This hybridity reached its zenith in Gandharan Buddhist statuary, representing not a passive blending but an active negotiation of cross-cultural symbols: Greek elements manifest in Apollo-like curls, defined nasal ridges, volumetric musculature, and precise anatomical structure; Indian elements appear in the Buddha's ushnisha (cranial protuberance), meditation mudras, and jataka stories; Persian elements are revealed in the Buddha's flaming halo (surya-prabha) and winged celestial beings; while Roman elements are transformed into toga-style monastic robes and Corinthian column motifs. Gandharan sculpture artfully

synthesized these diverse influences with local elements to create masterpieces. Archaeological evidence shows Greek artisans sculpted facial features using pointing machines for proportional accuracy, Indian craftsmen created lotus pedestals and hand gestures, and Scythian metalworkers cast aureoles—all requiring mastery of the Buddhist Iconometric Canon. Through digital extraction techniques (2D imaging and 3D scanning), these complex, multifaceted elements can now be systematically isolated by archaeologists and compared frame-by-frame with artworks from other civilizations. Such detailed analysis, which previously required the discerning eye of experienced sculptors to detect subtle differences, can now be conducted repeatedly by historians and researchers section-by-section using new digital tools, greatly facilitating the interpretation of Gandharan art's diverse elements.

Western "Decontextualized" Narratives: The Hellenistic Monopoly in Aesthetic Discourse

The British Museum's high-precision digital displays of Buddhist sculptures, particularly Gandharan art, exhibit a marked preference for "Hellenistic" visual narratives. This bias manifests in the technical approach (e.g., high-resolution scanning) deliberately focusing on artifacts featuring Mediterranean artistic characteristics such as "Greek-style curls" and "Roman toga-style monastic robes" (samghati). Through such selective technological gaze and exhibition labeling (for instance, categorizing standing Buddha statues excavated from the Taxila site directly as "Hellenistic Oriental Heritage"), the museum constructs an aesthetic interpretive framework centered on Greco-Roman artistic influence. However, while emphasizing cross-cultural visual synthesis, this framework systematically diminishes or even obscures the profound Buddhist ritual significance embodied in the icons (such as the symbolic meanings of mudras and postures) as well as the indispensable Central Asian indigenous artistic traditions and multicultural elements in Gandharan art's formation (including Indian iconographic concepts, influences of Persian Sassanian art, and the aesthetic demands of the Kushan Empire). Particularly noteworthy is how the museum's exhibition strategy deliberately omits crucial historical evidence of interaction when emphasizing the "Hellenistic" heritage label, such as the explicit records in Ashoka's pillar edicts about Greek communities (Yavanas) settling in northwestern India, converting to Buddhism, and participating in its dissemination. This selective historical narrative positions Greco-Roman elements as unilateral "donors" and arbiters of aesthetic standards to ancient India, while relegating the Buddhist belief system and local artistic practices to passive "recipient" or "influenced" status, thereby reinforcing a Eurocentric cultural hierarchy that obscures the more complex, reciprocal nature of cultural exchanges in the ancient world.

Algorithmic Dissolution of Religious Context

The British Museum's digital narrative strategy extends further into the interpretation of core Buddhist narratives (Jataka tales and Buddha's life stories), revealing a more covert form of "decontextualization" (Basu, 2021). Through carefully curated narrative scripts and technological presentations (such as interactive commentaries and guided pathways), the museum reframes reliefs depicting Buddha's

virtuous past deeds (like offering his body to a starving tigress or exchanging flesh for a dove) as "Ancient Greek epic-style heroic legends." This reconstruction deliberately strips these stories of their sacred function as vehicles for Buddhism's core doctrine of Samsara (Falk, 2015). Such narrative strategies completely erase the profound localized narrative content and faith-based practical significance carried by these stories during their transmission. For instance, the distinctive emphasis on themes like the "Fasting Buddha" and "Mara's Defeat" in Gandharan Buddhist imagery reflects local monastic communities' focus on ascetic practice, while the rapid emergence of "localized" characteristics in Mathura and other regions (such as thin, body-clinging robes emphasizing physical perfection) demonstrates native India's strong religious aspiration to "represent the Supreme Being in human form." These narratives and visual evolutions, rooted in specific regional faith systems and responding to local devotees' spiritual needs, have their independent aesthetic value and religious dynamism crudely reduced to passive "influences" of foreign styles under the overwhelming "Hellenization" label. Digital technology serves as an amplifier in this process, employing predetermined narrative frameworks, keyword weighting, and display logic to filter out and obscure the religious depth, ritual context, and diverse localization pathways in Buddhist art that don't conform to Western classical narrative paradigms, ultimately compressing complex religious art history into visual footnotes serving the simplified narrative of "civilizational exchange" (which in practice constitutes Greco-centrism).

The Institutional Expropriation of Data Rights

Beneath the facade of "global sharing" in digital cultural heritage lies a structurally exploitative system dominated by Euro-American institutions, whose essence resides in the monopolization of both digital standardization authority and ownership of cultural digital assets. The British Museum's "Cloud Gandhara" project epitomizes this system: on one hand, the artifact classification framework is Eurocentrically designed, embedding Western-centric cognitive paradigms through its inherent taxonomical logic, value hierarchies, and relational algorithms that predetermine qualitative distinctions among cultural artifacts; on the other hand, the property rights allocation mechanism reveals stark inequities—Pakistan, as the cultural heartland and physical custodian of Gandharan heritage, virtually donated numerous precious artifacts for high-resolution scanning by British teams, bearing all risks and costs of physical loan, while the resulting 3D models and derivative digital assets generated at sites like Taxila Museum are contractually designated as exclusive copyright and intellectual property of the British Museum or its technical partners. This creates an absurd yet oppressive reality where Pakistan, the cultural originator, must pay exorbitant licensing fees to the British Museum merely to access, study, or utilize digitized versions of its own heritage for domestic exhibitions, educational programs, or academic research (Basu, 2021). Thus, the historical plunder of physical artifacts has "evolved" in the digital era into a more insidious and systematic monopoly over virtual property rights. This monopolization constitutes not merely economic dispossession but, more profoundly, signifies the source culture's loss of control over the interpretation and reuse of its digitized heritage, perpetuating

postcolonial knowledge production chains firmly locked within Western institutional servers and intellectual property regimes, thereby substantially reinforcing the unequal power dynamics in global cultural heritage governance.

China's Emphasis on "Civilizational Genealogy" through a "Genealogical" Narrative

The art of the Dunhuang Grottoes, as a "living fossil" of Eurasian artistic genes, vividly demonstrates the complete genealogy of Buddhist art—from the Hellenistic Gandharan style to the Indian Gupta style, and ultimately to its Sinicized transformation. This process not only confirms the Chinese civilization's ability to absorb and recreate foreign cultures but also reveals the logic of diversity and localization emphasized in China's "civilizational genealogy" narrative. The excavation of Dunhuang Grotto art began during the Sixteen Kingdoms period (4th century CE) and continued to be constructed and renovated over the following millennium. Like a historical scroll, it presents the evolution of Buddhist art before our eyes. It is precisely this cultural treasure and its underlying genealogical features that have led Chinese scholarship to stress "civilizational genealogy." In mainstream Chinese studies of Buddhist art, the foreign origins of Buddhist art are never denied; rather, greater emphasis is placed on the broader historical dimension in which these "foreign" elements gradually fused with local Chinese elements, giving rise to a uniquely Chinese form of Buddhist art.

The Eastward Transmission of Gandharan Buddhist Iconography along the Silk Road

In the Northern Liang Cave 275, the Cross-legged Maitreya Bodhisattva and the Pensive Bodhisattva are depicted sitting cross-legged with one hand supporting the cheek, their draperies cascading like Roman togas—typical of Gandharan art from the Peshawar Valley in Pakistan. The origins of this style can be traced back to the fusion of Greek sculpture and Indian Buddhism in Gandhara after the eastward campaign of Alexander the Great (334 BCE). Buddha statues with high noses, deep-set eyes, curly hair, and beards present the visage of a Mediterranean Buddha. The Cross-legged Maitreya Bodhisattva in Cave 275 of the Northern Liang period exhibits "unmistakable Gandharan prototype features" and is speculated to have been "produced with the direct participation of artisans from the Western Regions or Central Asia familiar with Gandharan sculptural techniques" (A Study on the Dating of Early Dunhuang Caves, Wang Huimin; 1990). Although the nature of the Buddha niches shows localized Chinese characteristics different from Gandhara, Chinese scholars do not deny the Gandharan origins of early Buddhist styles; indeed, these sculptures may well have been crafted by Gandharan artisans themselves. This feature of early Dunhuang sculpture directly reflects how Gandharan art, transmitted eastward via the Silk Road, became the starting point of the history of Chinese Buddhist sculpture.

"Cao's Drapery Emerging from Water": The Adoption of Foreign Artistic Styles by Artisans and the Formation of a Hybrid Sculptural Tradition

From the Northern Wei to the Sui dynasties, Dunhuang Buddha statues gradually developed the characteristic of thin garments clinging to the body with densely folded

drapery, known in art history as “Cao’s drapery emerging from water.” This style originated in the Indian Mathura school and reached maturity during the Gupta dynasty (320–550 CE). Cao Zhongda, a Northern Qi (550–577 CE) painter originally from the Central Asian state of Cao (modern Samarkand, Uzbekistan), was skilled in this style and profoundly influenced Chinese Buddhist sculpture and painting, making it one of the four major Buddhist artistic styles of the Tang dynasty (The Four Schools of Buddhist Sculpture—The Sinicization of Buddhist Art, Chanlin, 2019). The Buddha in Mogao Cave 260, with its transparent wet-drapery effect, serves as direct evidence of the eastward transmission of Gupta aesthetics. Compared to the Hellenistic style of Gandhara, Gupta art emphasized bodily rhythm and inner vitality—a transformation that left a clear stylistic evolution trace in Dunhuang polychrome sculpture.

The Ultimate Transformation of Sinicization: From “Foreign Appearance and Brahmanic Features” to the “Tang-style Bodhisattva”

The “One Niche, Seven Figures” ensemble (Buddha, disciples, bodhisattvas, heavenly kings) in Tang dynasty Cave 45 marks the complete reinvention of Buddhist art under Chinese aesthetics. The bodhisattvas’ faces are full and rounded like Tang court ladies, the heavenly kings’ armor patterns derive from Tang military designs, and the kasaya robes are transformed into the Han-style pao yi bo dai (ample robe with broad sashes). The “concave-convex shading” technique from the Western Regions merged with Central Plains linear brushwork, ultimately giving rise to the flowing style of Wu Daozi’s “robes swaying in the wind.” At this stage, Dunhuang art completely broke away from imitation of foreign forms, forming a Sinicized Buddhist artistic system that combined religious solemnity with secular beauty.

Genealogical Narrative and Civilizational Exchange

The stylistic evolution of Dunhuang polychrome sculpture—from the Hellenistic genes of Gandhara, to the Indian aesthetics of Gupta, and finally to the Chinese reinvention of the Tang—constitutes a clear chain of “civilizational genealogy.” Through this “genealogical” narrative, China not only established its subjectivity in the development of Buddhist art but also demonstrated the Chinese civilization’s capacity to accommodate and transform heterogeneous cultures. This process is a model of “civilizational exchange” and offers historical reference for cultural dialogue in the context of contemporary globalization.

Conclusion

With the extensive application of digital technology in the context of cultural relics and archaeology, the digital regeneration of Gandharan art has already become a new arena for narrative competition between Chinese and Western civilizations. By comparatively analyzing the technical practices and narrative strategies of the British Museum’s “Cloud Gandhara” project and China’s “Digital Dunhuang” project, this study reveals the profound cultural-political implications behind digital media: the struggle for interpretive authority under technological empowerment presents a stark

contrast. The West, through the selective application of digital technology and monopolization of digital property rights, seeks to construct a system of “technological colonialism.” Under the guise of “universal heritage,” this system continuously erodes the narrative subjectivity of non-Western civilizations. In contrast, China’s “civilizational genealogy” narrative demonstrates a distinctly different technological ethic. The Digital Dunhuang project presents the artistic evolution from Gandhara to Gupta to the Central Plains in a genealogical manner, acknowledging the historical reality of cultural hybridity while emphasizing the consciousness of local transformation. The study of Gandhara in the digital era thus implies a profound contest over the interpretive authority of human civilization. This paper attempts to reveal how technological politics, through digital media, reshapes cultural heritage, and provides a critical perspective for digital humanities research in the postcolonial era.

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