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The Sociocultural Adaptation of Family Weavers on Nusa Penida Island

Diaz Restu Darmawan[1]*, Taufik Agus Purnomo[2], Putu Karina Pravitasari[3]
[123] Universitas Udayana, Jl. Pulau Nias No. 13, Denpasar, Indonesia.
Email: restudarmawan@unud.ac.id

Abstract

Rangrang cloth is a local fabric that is produced according to the traditional knowledge of the people of Nusa Penida Island. This traditional knowledge has been transmitted through generations by virtue of a process of inheritance. The weaving patterns of Rangrang cloth are imbued with the rich cultural narratives of the island's inhabitants, offering a subtle reflection of the community's way of life. However, the practice of weaving Rangrang cloth is gradually diminishing. This phenomenon is influenced by a variety of factors, including changes in the Indonesian textile market and the rapid development of tourism in Nusa Penida since 2020. As a result, it compels weavers to implement various modifications as a means of adapting to the livelihood system that has been passed down through family inheritance. The present study yielded various forms of change. To ensure the accuracy of the data collected, this research process will employ qualitative research methods, with a particular focus on direct observation in Pejukutan village and Tanglad village. The purposive sampling method was then employed to augment the data presented in the article's narrative which was taken from two families who are active as weavers. This will facilitate the subsequent data analysis and reduction process. This article presents a concise ethnographic account of the life experiences of two weaver families residing on the island of Nusa Penida.

Keywords: Adaptation; Local Wisdom; Craftsmen; Weaving

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Adaptasi Sosial Budaya Para Penenun Keluarga di Pulau Nusa Penida

Abstrak

Kain Rangrang merupakan salah satu kain lokal yang terbentuk dari pengetahuan kearifan lokal masyarakat pulau Nusa Penida. Pastinya pengetahuan tradisi ini sudah melalui proses dari warisan antar generasi. Dengan warna yang sangat cerah dan pola tenunan yang penuh dengan cerita ditiap prosesnya, kain tenun Rangrang secara tidak langsung memberikan bentuk kehidupan masyarakat di pulau Nusa Penida. Tetapi eksistensi kain tenun Rangrang semakin memudar. Hal tersebut dipengaruhi mulai dari faktor perubahan pasar kain nusantara ditambah dengan faktor pesatnya perkembangan pariwisata di Nusa Penida sejak tahun 2020. Oleh karena itu memaksa para pengrajin kain tenun untuk melakukan beragam perubahan sebagai bentuk adaptasi pada sistem mata pencaharian dari hasil warisan keluarga. Beragam bentuk perubahan didapatkan dari hasil penelitian ini. Demi mendapatkan kedalaman data yang akurat, proses penelitian ini akan menggunakan metode penelitian kualitatif dengan penekanan observasi secara langsung di desa Pejukutan dan desa Tanglad. Kemudian dengan metode purposive sampling, telah memperkuat data dalam narasi artikel ini yang diambil dari dua keluarga yang aktif sebagai penenun. Sekaligus akan membantu dalam proses analisis dan reduksi data. Mengutamakan pengalaman hidup dari dua keluarga penenun, artikel ini telah membuat catatan etnografi sederhana yang menunjukkan kehidupan keluarga penenun di pulau Nusa Penida.

Kata kunci: Adaptasi; Kearifan Lokal; Pengrajin; Tenun

INTRODUCTION

As rapid tourism expansion in Nusa Penida increasingly pressures traditional livelihoods, local family weavers face an urgent need to adapt their socio cultural practices and production system to ensure cultural and economic survival. Over the past four years the island has experienced a dramatic surge in visitor numbers, transitioning into a mass tourism destination. While annual data shows that Nusa Penida welcomed a total 2,075,152 visitors throughout 2023, generating approximately 26 billion Rupiahs in regional revenue subsequent figures from 2024 demonstrate that monthly tourist arrivals consistently surpassed 100,000 visitors (Kecamatan Nusa Penida, 2024; Premayani, 2024). This phenomenon is indicative of Nusa Penida's transition into a popular tourist destination, marked by the predominance of mass tourism. The substantial economic benefits that have resulted from this initiative have attracted significant support from both government and private sectors. Local communities have also pursued welfare improvements through tourist arrivals. The accelerated growth of tourism signifies a multifaceted socio-environmental predicament, necessitating the implementation of novel governance strategies. The repercussions of overtourism extend beyond the mere quantitative assessment of visitor numbers, encompassing ecological pressures, the commodification of culture, and alterations in local livelihood structures (Pramono, Juliana, Hulu, Djakasaputra, & Jie, 2026).

The mass tourism phenomenon in Nusa Penida can be conceptualized as overtourism, defined by a substantial surge in visitor numbers to particular destinations (Milano, Cheer, & Novelli, 2018). The rapid and massive influx of tourists has precipitated swift transformations in the region's ecological and social landscape. These transformations have affected public facilities, created new lifestyles, and established new welfare standards. This phenomenon mirrors broader patterns observed across Bali, where the impacts of overtourism manifest across environmental, socio-cultural, and economic sectors (Utama, Suardhana, Sutarya, & Krismawintari, 2024). The repercussions of overtourism in Bali are manifest in several ways. Chief among them are chronic traffic congestion, overexploitation of water resources, inadequate waste management, and the erosion of traditional cultural practices. In a similar manner, Nusa Penida is confronted with escalating pressures related to development. The region is experiencing a transformation of land uses, driven by the pursuit of amenities, and an expansion of infrastructure. These developments present a dual challenge: the necessity of harnessing the growth brought about by tourism while concurrently addressing the progressive degradation of the limestone ecosystem, coral basins, and local cultural heritage.

In the context of rapid tourism expansion, the traditional craft of rangrang weaving represents a distinctive cultural heritage that faces unprecedented challenges. Rangrang fabric is a traditional textile that is the result of the collective knowledge and wisdom of the communities in Nusa Penida. This

knowledge has been transmitted across generations through processes of cultural inheritance. The weaving tradition of rangrang is distinguished by its vibrant color palettes and intricate weaving patterns that are imbued with narratives. These patterns are intricately woven into each stage of the production process, and the weaving tradition has had a profound indirect influence on the social fabric of Nusa Penida's inhabitants. The etymology of the term “rang-rang” traces back to the local Nusa Penida sub dialect of Balinese, denoting space or gap. It alludes to deliberate inclusions in the weave that result in air permeability and a distinctive visual texture. This technical attribute exemplifies the artisans' ability to harmonize aesthetic and functional imperatives. However, the practice of rangrang weaving has gradually declined, a trend that has been further exacerbated by the rapid development of Nusa Penida's tourism sector since 2020. Local communities perceive the economic returns from tourism services as offering faster and more substantial profits compared to rangrang fabric production, which requires considerably more time and labor investment.

The multitude of studies has previously examined the manifold dimensions of Nusa Penida's textile traditions. In 2021, Paramita documented the utilization of natural resources as textile pigments. The study revealed that local communities maintained the capacity to harness environmental potential in fabric production, particularly for natural dyeing processes, during a period before Nusa Penida became heavily impacted by mass tourism (Darmara Pradnya Paramita, 2021). In their 2022 ethnomathematical analysis of Balinese woven fabrics, Putra and colleagues identified the diamond-shaped motifs of rangrang fabric as two-dimensional geometric forms comprising four equal sides. This finding suggests that the neutral character of rangrang motifs makes them suitable for both sacred and daily use (Adiana Putra, Sauri Peradhayana, & Wardika, 2022). This finding provides valuable insights into the symbolic dimensions embodied in the weavers' creative processes.

Recent scholarship has examined the contemporary challenges facing rangrang weaving. A study by Amelisa and colleagues published in 2023 examined the relationship between product innovation and marketing strategies. The study revealed that minimal innovation is a significant constraint on the market performance of rangrang fabric. The research indicated that weavers exhibit a strong reliance on conventional markets while neglecting to leverage electronic media platforms to their full potential (Amelisa, Asrida, & Firmani, 2023). In their 2024 investigation, Gelgel and colleagues positioned the rangrang fabric as a sustainable tourism communication symbol through storytelling and experiential marketing approaches (Gelgel, Wima, & Sugianingrat, 2024). This research demonstrated how these factors introduce rangrang fabric to consumers in ways that impact its commercial viability, indicating that rangrang weaving has entered Indonesia's broader textile market, though its recognition remains below the highest tier.

Despite the proliferation of literature on the subject, significant lacunae remain in our understanding of the human dimensions of rangrang weaving. A substantial body of research has been dedicated to the study of textile values, marketing strategies, and tourism linkages. However, weavers have been largely overlooked as active agents in cultural preservation, despite their potential to contribute significantly to the field. The creation of material culture is contingent upon the presence of human actors, and the transmission of knowledge is paramount to the preservation of traditional rangrang production. The present research is innovative and distinctive in its emphasis on the behaviors of rangrang weavers in response to environmental transformations. It explores how changes in textile values and motifs occur precisely because artisans are adapting to changing circumstances in their place of residence (pudji_w, 2025).

The adaptation processes among Nusa Penida's weavers reveal phenomena that have not been previously addressed in studies of this kind. While significant scholarly attention has been directed towards the forms and patterns of produced textiles, the lived experiences of weavers reflect considerable challenges. The process of recognizing the distinctive weaving motifs of Nusa Penida has undergone fluctuations, akin to the undulating patterns that characterize the surrounding sea. The evolution from agal or kling weaving defined by rudimentary linear motifs that represent the nascent textile tradition to cepuk weaving, which introduced more intricate patterns concomitant with the advent of ATBM looms to the advent of rangrang weaving exemplifies a cultural metamorphosis. Each phase in this developmental sequence is not merely a representation of sequential stages; rather, they are also indicative of adaptive strategies employed for the purpose of maintaining cultural identity. These strategies are employed in order to ensure survival in an island environment characterized by harsh and arid ecological conditions (Dijani, Zahra, Medyawati, & Azahwa, 2025).

This research employs ethnographic methodology to investigate how local communities construct their own perspectives on their environment through observable behaviors (Ahimsa-Putra, 1985). Within

this theoretical framework, shifts in material culture exert a profound influence on knowledge and human cognition, thereby establishing the foundation for specific activities. Humans have the capacity to modify their physical environment and devise survival strategies, which are employed both collectively and individually. This study delineates the activities of contemporary rangrang weavers as a manifestation of human adaptation to evolving living environments. It seeks to address two primary research inquiries. First, it aims to describe the local knowledge system of rangrang weaving within Nusa Penida's local communities. Second, it seeks to describe the adaptation processes of rangrang weavers in response to ecological changes on Nusa Penida Island.

METHOD

The present study employed a qualitative research design with ethnography as the primary analytical framework to investigate the sociocultural adaptation of Rangrang weavers on Nusa Penida Island. The selection of this approach was grounded in the objective of describing cultural phenomena, as ethnographic methods enable researchers to explore practices, perspectives, and meanings constructed by local communities within their specific cultural contexts (Spradley, 2007). The ethnographic approach furnished the requisite instruments for a comprehensive examination of Rangrang weaving, encompassing both its technical intricacies and the lived experiences, decision-making processes, and adaptive strategies employed by weavers in response to the rapid development of tourism. This methodological decision is rooted in the recognition that cultural phenomena are best understood through an immersive engagement that captures the complexity and nuance of human behavior within specific social and ecological settings (Geertz, 1973). The qualitative approach established researchers as the primary instrument for data collection, thereby facilitating the establishment of close relationships with informants and enabling the collection of rich, contextual data that would otherwise remain inaccessible through structured survey methods (Denzin & Lincoln, 2009).

The data for this study was collected through participant observation and unstructured interviews, which served as the primary means of gathering primary data. Fieldwork was conducted over a period of two months, from This to September 2025, during which the primary researcher spent extended time in Pejukutan and Tanglad villages to engage deeply with weaving households and establish the contextual depth required for a thick ethnographic description. Data analysis followed a qualitative thematic analysis framework involving iterative cycles of coding and categorization. First, interview transcripts and observational field notes were thoroughly read to achieve immersion in the data. Initial open coding was then conducted to identify key recurring actions, patterns of knowledge transmission, and adaptive behaviors among weavers. Subsequently, these codes were grouped into broader thematic categories such as intergenerational learning pathways, market-driven adaptations, and community-based preservation networks allowing for a systematic interpretation of both emic and etic perspectives.

Participant observation permitted researchers to directly engage with weavers in their quotidian activities, observing not only the technical processes of weaving but also the social interactions, routines, and embodied knowledge that characterize the transmission of weaving skills across generations (Fetterman, 1989). This method proved particularly valuable in documenting how knowledge was transferred from grandparents to grandchildren in families such as that of I Putu Suartama, where learning occurred through habitual presence rather than formal instruction. Unstructured interviews were used to complement observational data, thereby enabling researchers to explore informants' perspectives, life histories, and reflections on the changes they had witnessed in their communities. This approach prioritized flexibility and responsiveness to informants' narratives, allowing themes to emerge organically rather than imposing predetermined categories of analysis (Lexy J. Moleong, 2019). The integration of observational methods and informal interviews enabled the accumulation of data that encompassed both observable practices and the meanings ascribed by practitioners to these practices.

The selection of informants employed purposive sampling techniques to focus on individuals possessing specialized knowledge relevant to the research objectives (Lexy J. Moleong, 2019). To ensure data trustworthiness and rigor, the research incorporated triangulation, member-checking, and researcher reflexivity. Data triangulation was achieved by cross-referencing field observations, in-depth interviews, and relevant local documentation. Member-checking was conducted by returning key findings and interpretations to the informants to confirm the accuracy of their narratives. Additionally, researcher reflexivity was maintained throughout fieldwork to consciously minimize subjective bias during data collection and interpretation. Key informants included active weavers, family members involved in weaving households, and local customary leaders (kepala banjar) who possessed comprehensive knowledge of community structures and cultural traditions. The identification of

informants commenced with local leaders who functioned as gatekeepers, providing initial introductions to weaving households and facilitating the establishment of trust between researchers and community members. This approach acknowledges that ethnographic research depends fundamentally on the quality of relationships established with informants and that access to intimate knowledge requires demonstrated respect for local social structures and protocols (Spradley, 2007). From these preliminary contacts, researchers identified four key informants spanning two villages at Desa Pejukutan and Desa Tanglad. Given this targeted sample, the findings are intentionally framed as an illustrative case study rather than a broad generalization of all weaving communities in Nusa Penida. These two households represent distinct, illustrative models of intergenerational transmission, gender roles, and levels of commercial engagement. This approach allows the study to provide nuanced, context-specific insights into the lived experiences and adaptive strategies of local artisans without assuming cultural homogeneity across the entire region.

The research employed dual analytical perspectives, integrating emic and etic approaches to achieve comprehensive understanding of the phenomena under investigation. The emic perspective centered on comprehending how local weavers themselves conceptualized their practices, challenges, and adaptive strategies, prioritizing indigenous categories of meaning and local interpretations of change (Harris, 1979). This dimension was essential for comprehending the significance of decisions such as Pak Putu's reactivation of natural dyeing techniques in response to evolving market demands, or Pak Ngurah's establishment of Ngurah Gallery as a response to exploitative tengkulak. The etic perspective complemented the insider view by providing analytical frameworks drawn from anthropological theory. These frameworks enabled researchers to situate local experiences within broader patterns of cultural adaptation, economic transformation, and intergenerational transmission of knowledge. By integrating these perspectives, the research circumvented the pitfalls of both romanticized insider accounts which often overlook structural constraints and reductionist external analyses that fail to capture local meaning-making. This dual analytical strategy aligns with contemporary ethnographic practice, which recognizes that robust cultural analysis requires continuous movement between insider and outsider frames of reference. Furthermore, the researchers explicitly acknowledged their positionality as academic outsiders to the Nusa Penida community. To address potential insider/outsider power dynamics and subjective biases, the researchers cultivated trust through sustained engagement with community members and local customary leaders (kepala banjar), practicing continuous reflexive self-scrutiny throughout data collection and interpretation.

RESULT AND DISCUSSION

1.1 Results

The household of I Putu Suartama in Pejukutan Village exemplifies a weaving family, where textile production is not merely a means of subsistence but an integral dimension of daily existence. The traditional Balinese house which has stood for three generations, serves simultaneously as a residence, a production space, and a site for the intergenerational transmission of weaving knowledge. When it comes to this household, Mr. Putu, along with his wife and grandmother, continue to practice weaving as a means of livelihood. Meanwhile his eldest daughter has recently initiated the acquisition of fundamental skills related to the traditional *cak-cak bloom* technique.

A distinguishing feature of Mr. Putu's family is the unique pattern of knowledge transmission observed. Mr. Putu did not acquire his proficiency in weaving from his parents, who did not engage in the craft. Instead, he acquired his skills from his grandparents, with whom he shared a close emotional bond. During his formative years, he demonstrated a marked preference for spending afternoons in the company of his grandfather, rather than engaging in activities with his peers. The learning process was entirely informal and organic. As Mr. Putu recalled:

> “Sejak kecil, saya lebih suka duduk di samping *kakiculturaC* saat *kaki* sedang menenun daripada bermain di luar. *Kaki* tidak pernah memberikan pelajaran atau petunjuk formal, saya hanya memperhatikannya setiap sore hingga tangan saya secara alami menangkap irama alat tenun tersebut.” (Mr. Putu, 2025).
>
> *"Since I was a child, I preferred sitting next to my grandfather while he was weaving rather than playing outside. Grandfather never gave me formal lessons or instructions, I simply watched him every afternoon until my hands naturally caught the rhythm of the loom."* (Mr. Putu, 2025).

The transmission of knowledge occurred through daily proximity, repeated observation, and gradual hands-on involvement. It is evident that the process in question engendered a profound

transformation, whereby weaving was no longer perceived as a mere obligation, but rather as a deeply ingrained and comforting activity.

The initial loom presented to Mr. Putu was the cak-cak, a rudimentary traditional apparatus designated after the acoustic emission it engenders. Through the utilization of this instrument, he acquired practical knowledge regarding thread tension, pattern interpretation, and work rhythms. This skill is developed gradually through repetitive practice rather than abrupt leaps. The knowledge he absorbed was largely implicit, as he learned through example rather than verbal explanation, as was typical in his upbringing. Upon the death of his grandfather, Mr. Putu became the beneficiary of both the tangible assets of the weaving enterprise and the symbolic responsibility of perpetuating the family's cultural practice.

Since 2017 Mr. Putu has managed the business independently. However, he did not maintain it in its original form. He expanded the gallery's operations to include fabrics produced by neighboring weavers, thereby transforming Dharma Gallery from a domestic enterprise into a node connecting the local weaving community. His matrimony with a woman from a weaving family further solidified this orientation, thereby uniting two weaving traditions within a single household. The subject's spouse contributes her own techniques and perspectives, thereby engendering an environment of mutual knowledge exchange.

A substantial adaptation transpired subsequent to 2020, when Mr. Putu reintroduced the utilization of natural dyes knowledge that he had inherited from his grandfather but had not previously activated. This transition was precipitated by evolving market preferences for environmentally sustainable products, underscoring the selective reactivation of traditional knowledge based on contextual factors. However, the scarcity of natural dye materials on Nusa Penida has compelled him to source supplies from outside Bali, thereby illustrating how contemporary traditional practices now function within broader global supply chains. Reflecting on this transition, Mr. Putu explained:

> "*Kaki* menggunakan pewarna alami, namun keluarga kami kemudian beralih ke pewarna kimia karena lebih cepat dan mudah digunakan. Baru setelah tahun 2020, saat produk ramah lingkungan mulai digemari pengunjung, saya memutuskan untuk mengingat kembali dan menggunakan lagi resep-resepnya *kaki*." (Mr. Putu, 2025).
>
> *"My grandfather used natural dyes, but our family later switched to chemical dyes because they were faster and easier. It was only after 2020, when eco-friendly products became popular among visitors, that I decided to recall and reactivate my grandfather's recipes*." (Mr. Putu, 2025).

With regard to the transmission of knowledge to the succeeding generation, Mr. Putu employs a flexible approach. Instead of encouraging his three children to pursue a career in weaving, he prioritizes their formal education. However, they are raised in a milieu where weaving is a persistent element. The eldest daughter has demonstrated sufficient interest to master the fundamental loom operation, acquiring this knowledge from multiple sources, including her father, mother, and grandmother. Mr. Putu positions weaving not as a burdensome obligation but as cultural capital knowledge that his children may choose to activate later if they return to Penida. His own mobility between Penida and Denpasar reflects a broader adaptation: the contemporary weaver must not only sit at the loom but also navigate markets and urban networks. In this context, the transition from artisan to entrepreneur can be regarded as a cultural strategy for preserving tradition rather than relinquishing it.

Mr. Putu's trajectory thus illustrates that the preservation of traditional craft need not be construed as static resistance to change; rather, it constitutes an active, negotiated process wherein economic pragmatism and cultural continuity are reconciled. By assuming the dual role of weaver and market intermediary, he exemplifies a mode of adaptation in which entrepreneurial engagement functions not as a departure from tradition but as an instrument of its perpetuation. This pattern of flexible, oblique transmission wherein cultural knowledge is neither imposed nor abandoned but held in reserve stands in marked contrast to the more disciplined and normatively structured mode of transmission observed within another weaving household on the island, a divergence that becomes evident in the following case.

It is worth noting that this reserve strategy does not signify a diminished commitment to cultural transmission, but rather reflects a calculated response to the changing aspirations of the younger generation, who increasingly regard formal education and urban employment as pathways to social mobility. By refusing to impose weaving as an obligatory vocation, Mr. Putu preserves the possibility of future reactivation without subjecting his children to the tension between filial duty and personal

ambition. This strategy of deferred rather than foreclosed transmission suggests that cultural continuity in Nusa Penida is increasingly measured not by the immediacy of generational succession, but by the durability of accessible knowledge that can be drawn upon when circumstances permit.



Figure 1. Mr. Putu is depicted with the rangrang woven cloth that he personally fabricated.

The family of I Ngurah Hendrawan in Tanglad Village offers a divergent trajectory. Mr. Ngurah's upbringing was characterized by a familial environment where both parents engaged in the practice of weaving. From an early age, he was explicitly directed by his parents to perpetuate the tradition of weaving. The training regimen was characterized by stringent discipline, with a pronounced emphasis on technical precision and physical endurance. This pedagogical approach effectively transmitted not only weaving skills but also a distinctive work ethic and worldview. However, this rigid pedagogical model carried the seeds of its own limitation, as evidenced by its subsequent failure to engage the subsequent generation.

A seminal experience in Mr. Ngurah's formative years was his encounter with tengkulak, which refers to the role of intermediaries who purchased fabrics from weavers at low prices and subsequently resold them at significantly higher prices in urban centers. Mr. Ngurah stated:

> "Saya menyaksikan orang tua saya bekerja siang malam di depan alat tenun, hanya untuk melihat para tengkulak membeli kain mereka dengan harga murah dan meraup keuntungan besar di kota. Saat itu saya bertekad bahwa jika saya meneruskan usaha ini, saya tidak akan pernah membiarkan tengkulak menguasai kerajinan kami atau mengeksploitasi kerja keras kami." (Mr. Ngurah, 2025).
>
> *"I watched my parents work day and night at the loom, only for tengkulak to buy their fabrics for cheap and make massive profits in the city. I swore back then that if I continued this trade, I would never let tengkulak control our craft or exploit our hard work."* (Mr. Ngurah, 2025).

During his formative years, he observed the undervaluation of his parents' arduous efforts.This experience fostered a profound sense of injustice and a resolute determination to liberate themselves from the oppressive grip of exploitative distribution networks. This awareness would subsequently influence his entrepreneurial decisions.

Mr. Ngurah's professional trajectory was characterized by a deliberate and calculated progression. Prior to establishing his own enterprise, he engaged in professional experience and cultivated professional networks. In 2024, he established the Ngurah Gallery, an institution that marked his definitive break from tengkulak. He engaged proactively in government training programs and obtained intellectual property rights certification, not merely as administrative documentation but as symbolic recognition of his family's cultural labor, which had long been marginalized by unfair market structures.

The Ngurah Gallery functions on the basis of a cooperative model that operates beyond the confines of village boundaries. Mr. Ngurah organizes production specialization, with cepuk fabrics being produced in Tanglad and rangrang fabrics originating from Pejukutan. This division is indicative of his comprehensive understanding of the collective competencies inherent in each village. He establishes prices in accordance with market standards and voluntarily increases commissions during periods of peak demand. Through this system, he has cultivated partnerships with dozens of weavers across two villages, transforming his gallery into a hub of both production and cultural transmission.

With respect to the practice of natural dyeing, Mr. Ngurah's family exemplifies a noteworthy degree

of continuity. The utilization of natural dyes can be traced back to prehistoric times, predating their emergence as a market trend (Arista, Aziz, & Kurniawati, 2024). This knowledge is transmitted as a family heritage, with certain techniques kept confidential a mechanism for maintaining competitive advantage. Meanwhile for Mr. Putu who reactivated natural dye knowledge after a period of disuse, Mr. Ngurah exemplifies uninterrupted practice.

The most salient aspect of Mr. Ngurah's narrative pertains to the transmission of his experiences to his own children. Notably, his three children have all chosen not to pursue careers in weaving. The disciplinary methods that were once effective for his generation have become incompatible with contemporary values. His children aspire to pursue higher education in an urban setting and pursue careers in the tourism sector or other industries. Consequently, vertical transmission within the nuclear family has reached an impasse. Mr. Ngurah does not hold his children accountable, yet he also does not attempt to conceal his disappointment. He acknowledges the transformation of social structures, indicating that weaving is no longer the sole viable livelihood and that younger generations exercise choices that were previously unavailable to their predecessors.

Even so, the absence of vertical transmission does not necessarily indicate cultural extinction. Mr. Ngurah has shifted the locus of transmission from kinship to community. The subject of this study places his hopes not in his own offspring, but rather in the network of weavers that he continues to cultivate. The Ngurah Gallery functions not merely as a commercial outlet but as a cultural institution. When considering the concept of transmission failure within the family unit, it is possible to reinterpret this as a success within the broader community. Mr. Ngurah's approach to child-rearing did not involve directly engaging them in weaving; however, he has provided substantial support to numerous artisans across two villages, facilitating the perpetuation of their respective crafts.



Figure 2. Mr. Ngurah who was in the middle of his business gallery.

1.2 Discussion

The empirical findings from the two weaver households illuminate distinct typologies of socio-cultural adaptation and knowledge transmission within an island economy undergoing rapid touristification. Rather than viewing traditional craft decline as an inevitable process, these cases demonstrate how local artisans function as active agents who negotiate cultural continuity through divergent, strategic pathways. The experience of Putu Suartama's household illustrates an oblique, flexible transmission model, wherein traditional knowledge operates as adaptable cultural capital that can lie dormant and be selectively reactivated in response to market shifts toward sustainable eco-tourism. Conversely, Ngurah Hendrawan's household exemplifies a structural shift from rigid vertical kinship transmission to community-based institutional networking, demonstrating how artisans construct horizontal solidarity networks to counter market exploitation and intermediary dominance. Together, these trajectories theorize cultural adaptation not as the static preservation of physical artifacts, but as a dynamic dialectic between structural pressures (overtourism and market fluctuations) and localized agency (re-skilling, market navigation, and institutional reorganization).

The household of I Putu Suartama in Pejukutan Village exemplifies the notion that the transmission of weaving knowledge does not invariably follow a direct parent-to-child lineage. Rather it can occur oblique across generations, through grandparent and grandchild relationships. Mr. Putu's proficiency in weaving was transmitted to him by his grandparents, as his parents did not possess any such skills. The learning process was characterized by its informal nature and daily proximity, as evidenced by the child's preference for sitting beside his grandfather's loom rather than engaging in play with peers (Hidayati, 2017). The transmission of knowledge was primarily achieved through habit, repetition, and physical

presence, rather than through formal instruction. *The cak-cak bloom* served as the artist's inaugural learning medium, introducing him to work rhythms, thread tension, and patience. In contemporary times Mr. Putu's residence functions in a dual capacity as both a dwelling and a production space. This unique environment fosters a lifestyle in which weaving serves as a constant and pervasive backdrop to daily life. The eldest daughter has demonstrated an interest in the subject and has acquired fundamental operation skills, acquiring knowledge from her father, mother, and grandmother in the process.

Meanwhile the family of I Ngurah Hendrawan in Tanglad Village employs a transmission of weaving knowledge that is both vertical and normative. Mr. Ngurah was raised in a household where both parents were active weavers, and from childhood he was explicitly directed to continue the tradition. The training regimen was characterized by stringent discipline, with a pronounced emphasis on technical precision and physical endurance. This pedagogical approach proved effective in Mr. Ngurah's generation, as he assimilated the work ethic and worldview of an artisan. However, his formative experiences also engendered a critical awareness of inequitable economic structures. He personally observed the actions of tengkulak, who were intermediaries that purchased fabrics from his parents at low prices, only to resell them at substantially higher rates in urban centers. This experience subsequently served as a pivotal moment that fueled his motivation to establish the Ngurah Gallery as a means of challenging exploitative distribution systems. However the rigid transmission model did not extend to the subsequent generation (Prasadja & Singgalen, 2025). Mr. Ngurah's three children opted to pursue higher education in Denpasar rather than becoming weavers, thereby engaging in other sectors. However, this failure of vertical transmission within the nuclear family did not result in the complete extinction of the tradition. Instead Mr. Ngurah shifted the locus of transmission from the family to the community through the networks he cultivated.

The two families under consideration serve to illustrate that successful cultural transmission is contingent not merely on the intensity of instruction, but also on the manner and context in which knowledge is transmitted. The reflective approach that fosters autonomy, as exemplified by Mr. Putu's family, engenders robust internalization, as knowledge is cultivated through habit rather than coercion. Meanwhile the rigid normative approach employed by Mr. Ngurah's family yielded positive results in one generation but encountered resistance in the subsequent generation as generational values underwent a shift. Even so Mr. Ngurah demonstrates that the failure of vertical transmission can be compensated through horizontal transmission into the community, positioning him as an agent of transmission beyond kinship ties. In this context, the concept of weaving culture is not confined to the nuclear family but is extended through social and economic organization.

The transformations experienced by Nusa Penida's weavers are indicative of adaptive responses to intersecting ecological and economic pressures. From an ecological perspective, Nusa Penida Island is distinguished by its arid, harsh conditions, which limit the availability of natural resources for textile dyeing. The transmission of knowledge looking at natural dyes has persisted across generations. However, this knowledge has not always been actively engaged with. In Mr. Putu's family, the natural dye knowledge inherited from his grandfather was only reactivated after 2020, when market demand shifted toward environmentally friendly products. This decision underscores the notion that traditional knowledge is not continuously employed, but rather, it is selectively retained and reactivated in accordance with contextual factors (selective retention). However the use of natural dyes is also subject to limitations due to the restricted availability of raw materials within the local context (Zahari & Sabran, 2025). This has prompted Mr. Putu to seek external supplies from beyond the borders of Bali. This phenomenon signifies that conventional practices are now embedded within a considerably more expansive global economic infrastructure, thereby implying a diminution of their reliance on domestic resources.

This pattern of selective retention and reactivation illustrates that ecological constraint functions not merely as an obstacle to cultural continuity, but as a catalyst that reconfigures the boundaries of tradition itself. Rather than abandoning natural dye knowledge altogether in the face of resource scarcity, weaving families have demonstrated a capacity to hold such knowledge in abeyance, retrieving it selectively when market conditions render its revival advantageous.

The persistence of weaving practice across generations, exemplified by Mr. Putu's grandmother, who continues to weave well into her ninth decade, underscores the durability of embodied knowledge even as its material foundations undergo transformation. Her continued engagement with the loom illustrates that the technical and aesthetic competencies underlying rangrang weaving remain embedded in daily practice rather than retained as abstract memory alone. Such generational endurance suggests that adaptation to ecological limitation operates in tandem with, rather than in

opposition to, the sustained transmission of craft knowledge. These ecological dynamics, in turn, are inextricably linked to shifts in the economic dimension of weaving practice, wherein questions of production, distribution, and market positioning assume increasing significance.



Figure 3. Mr. Putu's grandmother is still actively weaving at the age of over 80 years.

From an economic perspective adaptation is most evident in shifts in production and distribution structures. During the agal weaving period, production was subsistence-oriented, meaning that it was focused on meeting household needs. During the cepuk era, production became market-oriented. However, vulnerability to external competition led to a price collapse. In response to this downturn, there was innovation in the form of rangrang motif, which offered stronger differentiation, alongside efforts to establish fairer distribution systems (Novianti, Sanjiwani, Trisnadewi, & Kusuma, 2025). Mr. Ngurah's establishment of the Ngurah Gallery was driven by the objective of establishing an economic institution that would function in a manner independent of the exploitative tengkulak. The pricing strategy is aligned with market standards, with commissions increased during periods of peak demand (Suwena, 2017). The division of production specialization between Tanglad Village (cepuk) and Pejukutan Village (rangrang) is a key aspect of the business model. This transition from artisan to entrepreneur signifies a cultural strategy for preserving tradition by gaining control over distribution channels.

Adaptation also occurs within the realm of knowledge transmission and values. When confronted with the shifting generational values of their youth, who are increasingly opting for employment in the tourism or urban education sectors, both weaving families have been observed to implement different yet equally strategic approaches to ensuring continuity. Mr. Putu opts to bestow upon his progeny the autonomy to chart their own destinies, while concurrently entrusting weaving with the status of "reserve knowledge." This reserve knowledge, in the event that circumstances necessitate, can be reactivated. Mr. Ngurah, having encountered difficulties in transmitting the tradition to his own children, redirects the locus of transmission to the community through the establishment of partnerships and the cultivation of training networks. These two approaches demonstrate that culture is not transmitted as a fixed, rigid package, but rather as a dynamic space of ongoing negotiation between generations. The continuity of tradition is not a static phenomenon; rather, it evolves in response to the shifting sociocultural landscape.

More broadly the adaptive phenomena among Nusa Penida's weavers can be understood as responses to the reality that their island has become a global tourism destination (Adelson & Karyadi, 2019). However, it is important to note that the subsequent tourism surge after 2020 did not result in automatic benefits for weavers. In response to these challenges, some artisans have transitioned to providing tourism-related services, which typically offer more immediate financial returns. Those who remained in the field were confronted with the challenge of navigating intricate market dynamics, price competition, and the imminent threat of losing successors to the industry. The survival of Rangrang weaving in Nusa Penida demonstrates that tradition does not persist by freezing itself a flexibility that has been demonstrated to occur without the loss of their core identity. As this study emphasizes, rangrang fabric is not merely a textile; it represents how people sustain their craft amid unceasing environmental change.

CONCLUSION

The present study reveals that the transmission of weaving culture in Nusa Penida does not follow a singular, uniform trajectory, but manifests as a plural, dynamic, and highly contextual phenomenon mediated by social relations, family structures, shifting generational values, and prevailing economic conditions as demonstrated by the contrasting yet equally adaptive experiences of I Putu Suartama's

family, where transmission occurred through oblique, habit-based grandparent-grandchild pathways that embedded weaving into daily life rather than obligation, and I Ngurah Hendrawan's family, whose vertical, disciplined transmission succeeded within his own generation but met resistance from his children, prompting him to relocate the locus of transmission from kinship networks to community-based economic institutions and thereby proving that cultural continuity can endure through organizational structures even when family-based inheritance falters. This resilience is further reflected in the historical progression of Nusa Penida's weaving forms from agal to cepuk to rangrang, which shows that change is not a threat to cultural survival but the very mechanism through which tradition endures—each motif transformation representing a strategic response to market dynamics, technological pressures, and ecological constraints, exemplified by the resurgence of natural dyeing techniques and the emergence of alternative distribution systems like Ngurah Gallery, ultimately demonstrating that the survival of Rangrang weaving stems not from freezing tradition in an idealized past, but from its capacity to move with and adapt to the changing social, economic, and ecological landscapes in which it is embedded.

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