Digitally Enabled Cross-Cultural Communication of Cantonese Opera: Audience Cognition and International Communication Strategies

Abstract

Digital media have greatly increased the global visibility of traditional Chinese culture, but being seen does not always mean being understood. Taking Cantonese opera as a case, this study explores the difficulties that audiences from different cultural backgrounds face when encountering Chinese intangible cultural heritage through digital media and considers how digital communication can improve cross-cultural understanding.

Based on cross-cultural communication and cultural translation, the study develops a Form – Spirit – Meaning (FSM) framework. "Form" refers to visible cultural symbols such as costumes, facial makeup and props; "Spirit" concerns performance conventions and emotional expression; and "Meaning" refers to the historical and cultural values behind the performance. A questionnaire survey of 500 respondents from different cultural and linguistic backgrounds was combined with a case-based analysis of Xiang Yao from Princess Changping.

The results show a clear decline from Form (M = 3.47) to Spirit (M = 3.23) and Meaning (M = 2.98). Among cross-cultural respondents, the Meaning score was even lower (M = 2.56), suggesting that deeper cultural understanding remains the main challenge. Respondents particularly preferred multilingual subtitles, brief cultural annotations and explanations of historical background and cultural allusions.

Based on these findings, the study proposes an FSM digital translation model that combines visual explanation, contextualised interpretation and cultural storytelling. The model follows a principle of "preservation with explanation", aiming to improve cultural understanding without reducing the distinctive features of Chinese culture. It may also provide a practical reference for the digital communication of other forms of Chinese intangible cultural heritage.

Keywords: digital communication; Cantonese opera; cross-cultural cognition; cultural translation; intangible cultural heritage

1. Introduction

Over the past decade, short-video applications have brought Chinese opera to the attention of very large numbers of people who had not previously looked for it. UNESCO has treated the safeguarding of intangible cultural heritage as a shared international responsibility since 2003, and digital platforms have undoubtedly enlarged the potential audience. A larger audience, however, is not necessarily a more comprehending one. A short clip of an elaborate headdress may attract considerable attention online while leaving viewers with no idea of why the character wears it, what rank or situation it signals, or how it bears upon the drama as a whole.

The present study therefore addresses a wider international question: how culturally specific forms of intangible heritage can achieve genuine cross-cultural understanding, rather than mere digital visibility, when communication takes place through platforms.

The question carries implications for communication strategy rather than for audience measurement alone. Conventional indicators such as viewing time, viewer numbers and follower counts can all rise while comprehension remains exactly where it was. If the narrative and the emotional force of a performance fail to reach the viewer, an appreciation of costume alone does not develop into an understanding of the opera, and the phrase "reaching a wider audience" ceases to describe genuine communication at all.

Cantonese opera brings the difficulty into sharp focus. Inscribed on the UNESCO list in 2009, it concentrates a great deal within a compact performance: a vivid visual code, a fixed grammar of gesture and song, and libretti dense with allusion. Its best-known passage, the death duet Xiang Yao from Tang Dik-sang's Princess Changping (1957), appears constantly on YouTube and TikTok. A cross-border "cultural discount" has been well documented, in that cultural content tends to lose value when viewers lack the codes needed to interpret it (Hoskins & Mirus, 1988), and Hall (1980) observes that audiences decode messages through their own cultural frames, so that even a careful production may be read as little more than spectacle. On the basis of a survey of 500

overseas and cross-cultural viewers, this study asks where comprehension fails between watching and understanding, and what forms of translation might remove the obstacle. The problem is not confined to Cantonese opera. Research on intangible heritage and traditional performing arts suggests that platform visibility rarely turns into cross-cultural understanding unless explicit explanation is provided (Li, 2022; Yang & Lee, 2024; Zhao & Zheng, 2022), and Chinese-language scholarship has begun to describe short-video heritage communication as a process of re-embedding cultural meaning for a cross-cultural community (Zhou & Wang, 2024).

2. Research Questions and Framework

This study is organised around three research questions:

RQ1. What cross-cultural cognitive barriers do audiences encounter when engaging with digitally mediated Cantonese opera, particularly across the form, spirit and meaning dimensions?

RQ2. How do audiences from different cultural backgrounds differ in their recognition of cultural forms, emotional engagement, cultural appreciation and behavioural intention?

RQ3. On the basis of the empirical findings, how might a form-spirit-meaning digital translation model be developed in order to improve the international communication of Cantonese opera?

The three questions shape the structure of the paper as a whole. RQ1 is addressed in Sections 4.1 and 4.3, RQ2 in Section 4.2, and RQ3 in Section 5.

The analysis uses a three-layer framework of form, spirit and meaning (FSM). The form layer consists in recognising outward signs such as makeup, costume, stage props and percussion. The spirit layer involves reading the performance itself together with the feeling it carries, as when a parting between characters is sung rather than spoken. The meaning layer refers to an apprehension of the history and values that lie beneath the performance, for example the fall of a dynasty or the particular Lingnan temper of the writing. These three layers are further developed into a five-step sequence of exposure, recognition, emotional engagement, cultural appreciation and behavioural engagement.

Comprehension develops through these steps but may come to a halt at any point along the way, and the practical task is to identify where it stops.

The FSM scheme is an analytical framework developed for this study rather than an established typology applied wholesale, and its three levels rest on three lines of theory. First, Hall's (1980) encoding/decoding model demonstrates that meaning is not received automatically; because audiences decode a message through their own cultural frame, even a faithful production may be read as little more than spectacle. Second, the cultural discount thesis (Hoskins & Mirus, 1988) accounts for the loss of value that occurs when viewers lack the interpretive resources a work requires, which corresponds closely to the decline observed here from form to meaning. Third, translation studies increasingly treat translation as interpretation rather than as the substitution of words (Bachmann-Medick, 2016; An, 2024), which is why the model works at the level of forms, spirits and meanings instead of relying on surface subtitles alone. The division into three levels is therefore deliberate rather than arbitrary. It traces cognition from the visible surface (form) through performative feeling (spirit) to cultural meaning (meaning), enabling a communicator to locate with some precision the point at which understanding fails.

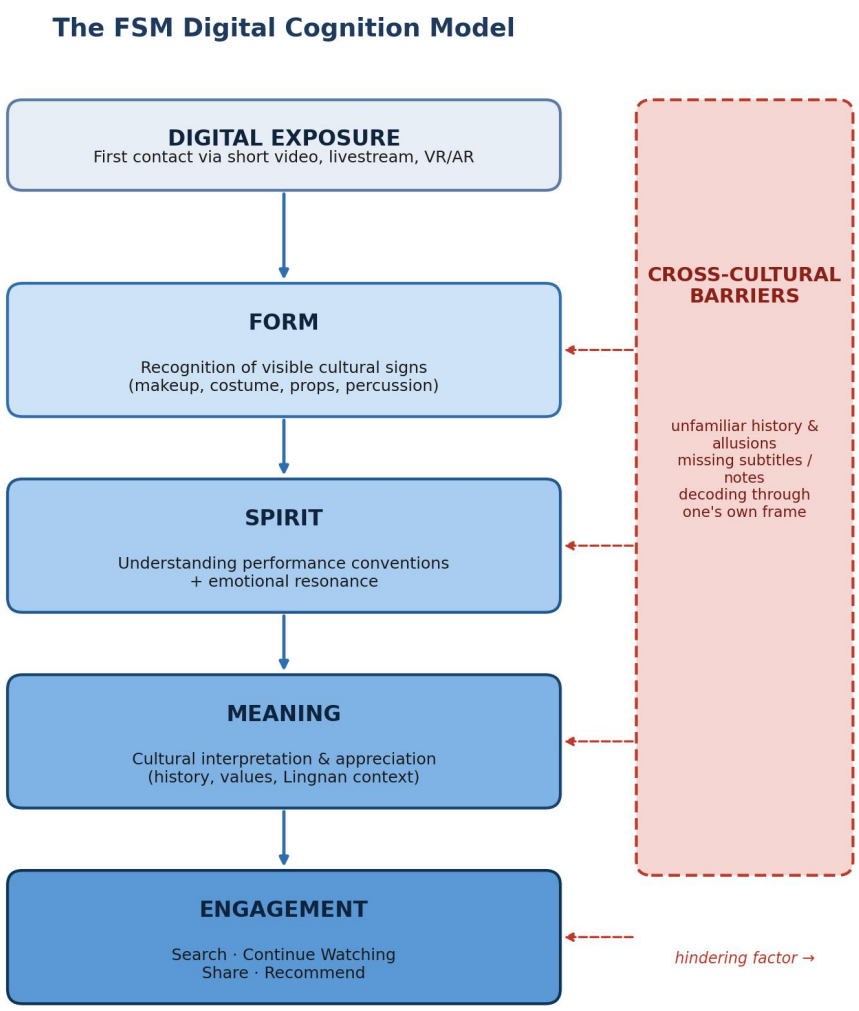

Figure. The FSM digital cognition model (form–spirit–meaning) and the cross-cultural barriers that hinder progression from one layer to the next.

A practical implication follows from this. If comprehension proceeds in layers, then a count of views provides information about the first layer only. For practitioners, the FSM framework offers a workable checklist: at each level, what do audiences currently take from a performance, and what would enable them to move on to the next?

3. Research Design

3.1 Survey

An online questionnaire was administered to 500 respondents from a range of language and cultural backgrounds. The principal division is by cultural background: 325 respondents were classified as cross-cultural (150 with no connection to the Chinese diaspora, 75 overseas Chinese or descendants of overseas Chinese, and 100 international students or long-term residents in China), while 175 were mainland residents with cross-cultural experience. The sample comprised 230 men and 270 women; the largest age group was 19-25 (285 respondents), and only 15 respondents were over 45. Chinese proficiency ranged from none (135) to native or near-native (45). Prior knowledge of the art form was limited, in that 100 respondents had never heard of Cantonese opera and only 15 described themselves as very familiar with it. The instrument measured six constructs on five-point scales, namely cross-cultural barriers (CB, five items, α = .76), digital media support (DM, five items, α = .79), form-symbol recognition (FR, three items, α = .73), performance and emotional resonance (EE, three items, α = .75), meaning comprehension (CA, three items, α = .78), and intention to share (BI, four items, α = .74). Respondents were also asked how they had first encountered the opera and what form of mediation they would prefer, and one open question was included. Participation was voluntary and anonymous.

3.2 Case-based translation analysis

To complement the survey, a small case-based analysis was conducted of Xiang Yao from Princess Changping. Three modes of digital presentation, namely literal subtitles, contextualised subtitles with cultural notes, and an annotated short-video format, were compared through the FSM framework. The case analysis is illustrative rather than experimental: audience responses to the three versions were not directly tested, and Table 4 presents a structured reading of the clips rather than a survey result. It is included in order to show how the FSM layers translate into concrete design choices, and not in order to claim measured effects.

3.3 Data analysis

Descriptive statistics and reliability checks were calculated for the six constructs, the two cultural-background groups were compared, and responses to the multiple-choice, single-choice and open questions were tabulated. No causal model is proposed.

4. Findings

4.1 A descending gradient across the three layers

Table 1 summarises the main result. Digital media support records a moderate mean of 3.67, while the perceived barrier is almost identical at 3.68, which suggests that audiences may possess the necessary tools and still feel excluded from the meaning of what they watch. The three FSM levels decline as they deepen, from 3.47 for form to 3.23 for emotional resonance and 2.98 for meaning, with the intention to share falling between them at 3.11. Viewers thus appear to register the surface of a performance, to respond to it partially, and to reach its cultural meaning only rarely. This pattern is consistent with the cultural discount described in the literature, now observable in the survey figures.

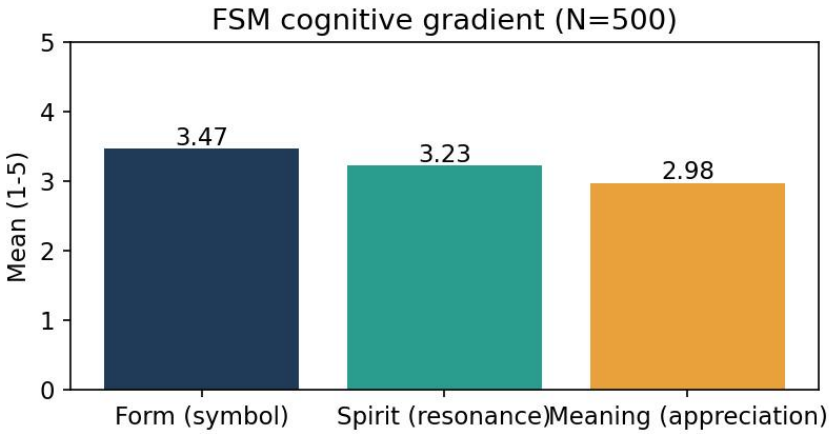

Figure 1. FSM cognitive gradient across the three layers (N = 500).

Table 1. Construct means, SD, and reliability (N = 500, five-point scales).

Construct	Items	M	SD	α
Cross-cultural barriers (CB)	5	3.68	0.85	.76
Digital media support (DM)	5	3.67	0.77	.79

Form – symbol recognition (FR)	3	3.47	0.76	.73
Spirit – performance & resonance (EE)	3	3.23	0.80	.75
Meaning – cultural appreciation (CA)	3	2.98	0.84	.78
Behavioural intention (BI)	4	3.11	0.81	.74

4.2 The cross-cultural gap

The decline is considerably steeper among the cross-cultural group (Table 2). Their mean barrier score is 4.00, against 3.09 for the mainland group, and their scores fall from 3.20 at the form level to 2.91 at the spirit level and 2.56 at the meaning level, whereas the mainland group remains close to 3.97, 3.82 and 3.75. Both groups follow the same order, with form higher than spirit and spirit higher than meaning, but the cross-cultural respondents lose most ground at the level of meaning. This is the strongest indication in the data that being watched should not be equated with being understood.

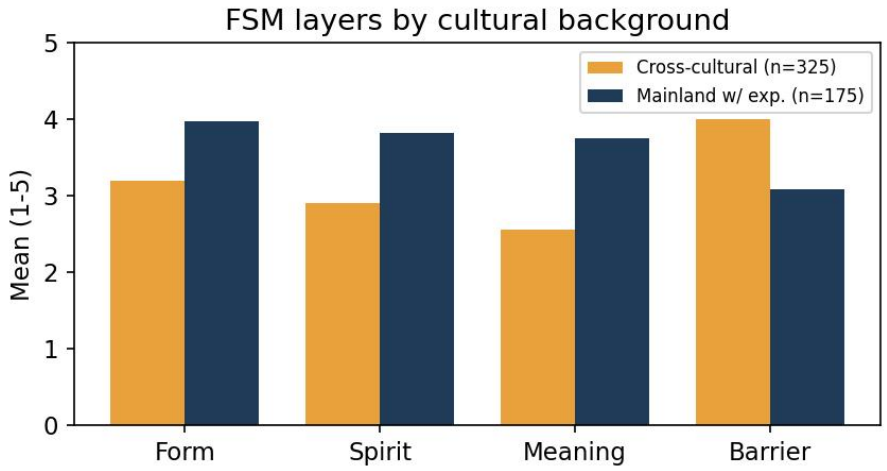

Figure 2. FSM layers and barriers by cultural background.

Table 2. FSM layers and barriers by cultural background.

Group	**n**	**FR (form)**	**EE (spirit)**	**CA (meaning)**	**CB (barriers)**

Cross-cultural	325	3.20	2.91	2.56	4.00
Mainland (cross-cultural exp.)	175	3.97	3.82	3.75	3.09

4.3 Audience Needs for Digital Cultural Mediation

Most respondents first encountered Cantonese opera through short-video and social media applications. TikTok, YouTube and Instagram together account for 49.0% of first contact, while Douyin, Bilibili and Xiaohongshu account for 38.0%, ahead of livestreamed performances (27.0%) and school or exchange programmes (33.0%). What respondents ask for appears to exceed what is currently available. The most frequent requests were multilingual subtitles (73.0%) and brief on-screen notes (62.4%), followed by animated explainers (57.0%) and short video series (54.4%). These preferences point to a perceived need for explanatory features that go beyond simple visual exposure. When asked which aspects most required explanation, respondents cited the historical background of the story (67.0%), its poetic and cultural allusions (63.6%), the symbolism of face colour (61.6%), and the meaning of costumes and headpieces (58.0%), all of which belong to the spirit and meaning layers rather than to the wording of the libretto. With regard to style, the largest group (215 respondents, 43.0%) preferred the opera to be preserved as it is and accompanied by short, plain explanations, a preference well ahead of translation alone (70 respondents).

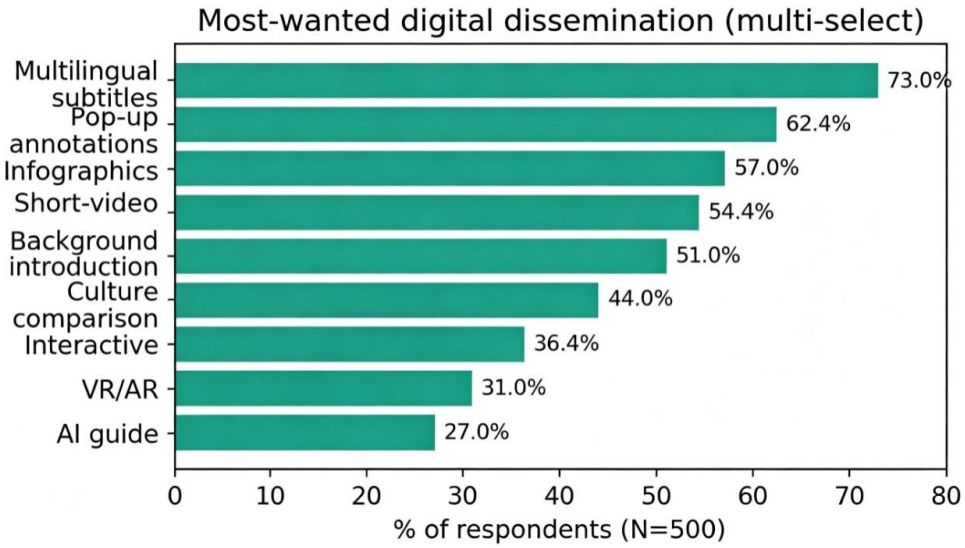

Figure 3. Most-wanted digital dissemination features (Q15, multi-select).

Table 3. Most-wanted digital dissemination features (multi-select, N = 500).

Feature	n	%
Multilingual subtitles	365	73.0
Short pop-up cultural annotations	312	62.4
Animated infographics of symbols	285	57.0
Short-video series	272	54.4
Pre-performance background intro	255	51.0
Chinese–foreign cultural comparison	220	44.0
Interactive digital content	182	36.4
VR/AR immersive experience	155	31.0
AI Q&A cultural guide	135	27.0

Table 3b. Content respondents most want explained (Q14, multi-select).

Content most needing explanation	n	%
Story-related Chinese historical background	335	67.0
Poetic / cultural allusions	318	63.6
Symbolism of facial colours	308	61.6

Meaning of costumes / headpieces	290	58.0
Singing–reciting–acting–fighting conventions	253	50.6
Lingnan culture and values	238	47.6
Character relations / social background	205	41.0

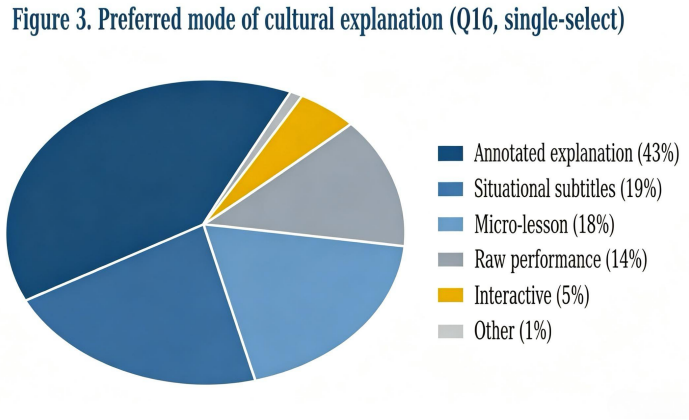

Figure 4. Preferred cultural explanation style (Q16, single-select).

4.4 The role of familiarity

Prior familiarity with Cantonese opera is thin, since only 15 of the 500 respondents knew the art form well, and the scores appear to reflect the depth of respondents' engagement rather than the mere fact of exposure. The cross-cultural group, which had the least prior contact, records the lowest score at the meaning level (2.56), whereas the mainland group with cross-cultural experience, who know the opera better, remains close to 3.75. Reach on its own does not seem to build understanding; the findings suggest an association between greater familiarity and deeper cultural appreciation, although the cross-sectional design does not permit any causal inference. The barrier items point in the same direction. The most difficult aspects were unfamiliar history and references (CB4 = 3.84) and the absence of foreign-language subtitles or notes (CB5 = 3.80), both of which are problems of translation rather than of output volume.

4.5 What audiences say.

The open-ended responses yielded seven recurrent themes: (1) pop-up notes for opera terms should be added in place of word-for-word translation; (2) short clips dealing with makeup, gesture and props are preferable to complete recordings; (3) comparison with dramas the audience already knows is helpful; (4) light and inexpensive VR is sufficient, so that elaborate equipment is unnecessary; (5) the opera should be placed on YouTube and TikTok before platforms accessible only within China; (6) translators should be acquainted with both the opera and the target culture; and (7) simplification should not be carried so far that the local character of the form disappears. Themes (1), (2) and (7) repeat what the quantitative results already indicated, namely that explanation should be supplied on screen, that content should be divided into short units, and that adaptation should not be taken too far.

The themes were derived through qualitative coding. Two members of the research team coded the open-ended responses independently, similar codes were grouped into recurring themes, and disagreements were resolved through discussion. The themes are reported as the emphases expressed by respondents themselves rather than as a measured construct.

5. A Chinese Solution: The FSM Digital Translation Model

What distinguishes the proposal as a Chinese solution, as opposed to a generic digital communication strategy, is not the fact that it is applied to a Chinese art form but its underlying logic of translation. A generic strategy would tend to replace culturally specific elements with globally familiar ones until the opera no longer reads as Chinese. The FSM model proceeds in the opposite direction, following a principle of preservation with explanation: the visible form is preserved, the performative spirit is interpreted, and the cultural meaning is contextualised. Digital mediation thus serves cultural intelligibility without erasing cultural specificity. In this sense the Chinese dimension of the model is a principle of cultural agency. The decision as to what should be retained and what should be explained remains with the source culture, so that a global problem in the communication of intangible heritage is answered from a Chinese position on cultural subjectivity.

5.1 Translation at each layer

The answer to RQ3 follows the three levels. At the form level, multilingual notes should be placed on screen, with pop-up explanations for makeup, costume and props, which responds to the 73.0% who requested subtitles and the 62.4% who requested cultural annotations. At the spirit level, brief notes on the acting conventions should be combined with a well-chosen comparison, for instance by placing the death duet alongside a tragic duet with which the viewer is already familiar. At the meaning level, the history should be stated plainly, the libretto should be translated properly, and immersive formats should be used in moderation. This layered design follows directly from the evidence. The meaning layer is where cross-cultural audiences score lowest (CA = 2.56), and the features they most often request, namely explained historical background (67.0%) and explained poetic and cultural allusions (63.6%), are precisely needs at the meaning level, so that the FSM meaning layer addresses a gap that has been measured rather than assumed. The case of Xiang Yao shows how the design works. A literal subtitle preserves Tang Dik-sang's rhyme but leaves every reference locked inside the text; a version that identifies the 1957 setting and the political dilemma it implies moves the farewell from something heard to something felt; and a short annotated clip opens a route towards meaning, provided that the notes do not overcrowd the frame. This reading of the three clips illustrates the framework and is not presented as a survey finding.

Table 4. Three digital treatments of Xiang Yao and the cognitive layers they reach.

Treatment	**What it delivers**	**Cognitive layer reached**
A. Literal subtitles	Preserves meter and imagery of the libretto; elegant but opaque without background	Form only
B. Contextualised subtitles + notes	Adds the 1957 setting, borrowed pipa melody, and lovers' political dilemma; enables plot-level empathy	Form and spirit
C. Annotated short-video edit	Pop-up glosses for facial patterns, costume, and props, plus a one-line	Opens a path to meaning, if

	analogy to a familiar tragic duet; links to explainer content	annotation density is controlled

5.2 Matching the medium to the layer

Each level is best served by a different medium. Notes on form belong naturally in short video, where most viewers first encounter the opera. The spirit level requires sustained attention, so conventions and comparisons are better placed on streaming platforms and in short explanatory videos. The meaning level requires longer form, such as documentary notes, virtual exhibitions, or a continuous narrative. The aim, in short, is a ladder rather than a single video that attempts to do everything: each clip ends with a one-line backstory and a link to further material, so that no individual item has to carry all three levels at once. This ladder logic is consistent with evidence from digital storytelling research, which indicates that staged and explanatory formats convey cultural meaning across communities more effectively than a single overloaded video (Zort et al., 2023; Nisi et al., 2023).

5.3 Localisation for overseas audiences

Localisation involves more than a change of words. It requires analogy, whereby an unfamiliar aria is presented alongside a drama the audience already knows; it requires subtitles in languages other than English, since respondents asked for subtitles in their own language rather than in English alone; and it requires translators who know the opera, because the open responses (theme 6) placed considerable weight on professional translation. Machine output alone is unlikely to carry the allusive lines, and such work should be undertaken in cooperation with the fan communities that already circulate the repertoire. These measures are in line with recent research on cultural translation, which indicates that explanation rather than substitution carries heritage across platforms, and that translation must go beyond surface wording in order to convey deep cultural and emotional meaning (An, 2024).

5.4 Designing for participation

The findings point to several usable formats: clickable glossaries and pinned comments, community subtitles verified by experts, re-enactment or duet challenges in which amateurs imitate a gesture, and light VR applications (theme 4). Much of this infrastructure already exists, so the remaining task is to convert it into genuine participation, and through participation into a sense of belonging.

5.5 Implementation under real constraints.

Two cautions should govern any rollout. First, on-screen notes must be kept disciplined, since clutter defeats the understanding such notes are intended to serve, and audiences preferred concise explanation (43.0%) to extensive rewriting. Second, adaptation should not be carried beyond a certain point; the resistance to over-simplification expressed in theme 7 marks the point at which trust begins to fail. Success should therefore be judged by comprehension rather than by reach, for example by whether notes are used, whether explainers are viewed to the end, and whether shares are accompanied by comment.

6. Feasibility and Transferability of the FSM Model

6.1 Audience evaluation

Respondents were invited to evaluate the FSM scheme directly and rated it favourably overall ($M = 3.75$). The treatment at the spirit layer received the highest rating (3.83), ahead of the form layer (3.78) and the meaning layer (3.65), which is the layer at which cross-cultural understanding is weakest and explanation most needed. Since these ratings come from the same respondents who supplied the diagnostic data, they indicate perceived usefulness rather than a measured effect.

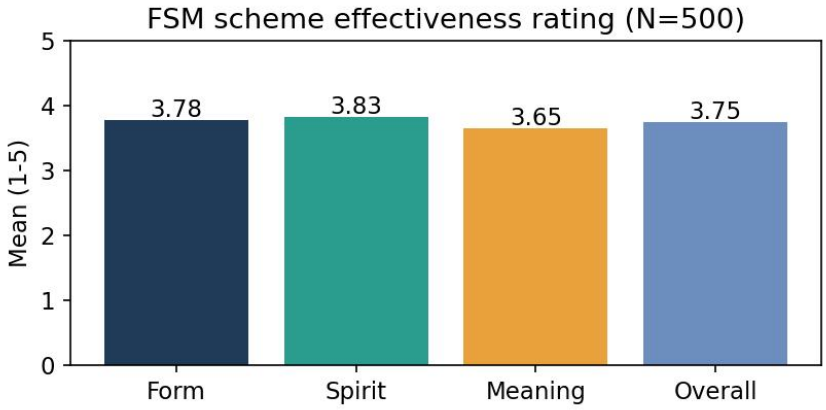

Figure 5. FSM scheme effectiveness rating by layer (N = 500).

Table 5. FSM three-layer scheme effectiveness rating (1–5).

FSM scheme item	M	SD
Form layer: HD visuals + multilingual tags for visual symbols	3.78	0.83
Spirit layer: contextual subtitles + performance explanation + interactive video	3.83	0.85
Meaning layer: digital narrative + cultural comparison + immersive experience	3.65	0.90
Overall (FSM total)	3.75	—

6.2 Implementation feasibility

The model requires no new technology. It operates through the short-video, streaming and annotation functions that platforms already provide, so that its costs are editorial rather than technical. A staged rollout, beginning with a single aria, then varying the density of on-screen annotation, and finally comparing analogy framing with plain explanation, would allow practitioners to retain what proves effective without committing to a full production cycle. The ratings reported above (M = 3.75) and the preference for concise explanation (43.0%) suggest that such a pilot could be conducted at low cost and adjusted while in progress.

6.3 Transferability to other Chinese intangible cultural heritage

The framework is not tied to Cantonese opera. Any tradition whose value is carried in layered symbols can be taken through the same checklist and matched to an appropriate medium: Kunqu and Peking opera share stylised gesture and allusive texts; Chinese instrumental music conceals much of its meaning in scales and instrumentation; crafts and culinary traditions carry it in materials and ritual. What transfers is the method rather than the material, that is, locating the point at which comprehension stops, translating at that level, and selecting the medium suited to it. Read against Nye's argument on soft power (2004), the model represents a low-cost response to the gap between visibility and understanding, requiring not new technology but editorial care. The same layered diagnosis appears to apply to other Chinese traditional opera on social platforms, where high visibility coexists with low interaction and with limited explanation of symbolic content (Yang & Amirrul, 2024).

7. Conclusion

Digital platforms have made China's intangible heritage easy to see, and visibility has too often been treated as an achievement in itself. The survey of 500 cross-cultural viewers reported here reveals a persistent gap: scores decline from form recognition (3.47) through emotional resonance (3.23) to meaning comprehension (2.98), and the sharpest decline occurs between spirit and meaning, which is where current practice contributes least. The FSM response is translation conducted in layers, with the form annotated, the spirit situated, and the meaning stated, each on the medium best suited to it and carried through to participation. Respondents rated the scheme favourably (3.75), and the survey results, the comparison between groups, and the open comments all point in the same direction. When cultural meaning remains inaccessible, digital visibility alone is unlikely to sustain deeper audience engagement. Moving beyond surface visibility requires translation rather than another upload. What is required is no longer simply to make Chinese heritage visible, but to make its cultural logic intelligible without making it less Chinese.

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Appendix: Instrument Items and Item-Level Statistics (N = 500)

The instrument was administered to 500 respondents. Six constructs were measured on five-point scales, and item-level means (M) and standard deviations (SD) are listed below. A higher CB score indicates a greater perceived barrier, whereas higher scores on DM, FR, EE, CA and BI indicate respectively stronger support, recognition, resonance, appreciation and intention.

Cross-cultural barriers (CB, α = .76; M = 3.68, SD = 0.85)

Item	M	SD
CB1 Cantonese lyrics or traditional language hard to understand	3.71	1.03
CB2 Meaning of facial patterns, costumes, props unclear	3.60	0.97
CB3 "Singing, reciting, acting, fighting" conventions very different	3.47	1.00
CB4 Unfamiliar with the Chinese historical background and allusions	3.84	1.05
CB5 Existing digital content lacks enough foreign subtitles/annotations	3.80	0.96

Digital media support (DM, α = .79; M = 3.67, SD = 0.77)

Item	M	SD
DM1 HD close-ups help identify costumes, faces, props	3.76	0.88
DM2 Multilingual subtitles help understand plot and characters	3.83	0.91
DM3 Explaining faces, costumes, gestures helps cultural meaning	3.70	0.89
DM4 Contextualised historical/allusion explanation helps deep meaning	3.61	0.92
DM5 Interactive immersive experience helps understanding	3.44	0.95

Form – symbol recognition (FR, α = .73; M = 3.47, SD = 0.76)

Item	M	SD
FR1 Can recognise some costumes, faces, props	3.53	0.90
FR2 Notice visual differences from other theatre	3.41	0.87
FR3 Digital media help remember representative elements	3.46	0.89

Spirit – performance & resonance (EE, α = .75; M = 3.23, SD = 0.80)

Item	M	SD
EE1 With subtitles grasp plot and character relations	3.25	0.93
EE2 Read emotions conveyed by movement, aria, stage convention	3.11	0.96
EE3 Perceive basic character emotion despite cultural difference	3.32	0.91

Meaning – cultural appreciation (CA, α = .78; M = 2.98, SD = 0.84)

Item	M	SD
CA1 Cultural explanation makes story and meaning easier to read	3.00	0.98
CA2 Opera helps understand Lingnan history, society, tradition	2.86	1.01
CA3 Background understanding raises interest in the opera	3.09	0.95

Behavioural intention (BI, α = .74; M = 3.11, SD = 0.81)

Item	M	SD
BI1 Willing to search opera-related traditional-culture	3.16	0.92

information		
BI2 With multilingual resources willing to keep watching	3.29	0.90
BI3 Willing to share the opera with different cultural backgrounds	2.93	0.97
BI4 Willing to recommend accessible, quality opera content	3.04	0.93

Sample profile (N = 500).

Gender: male 230, female 270. Age: 18 or below (55), 19-25 (285), 26-35 (115), 36-45 (30), 46 or above (15). Cultural background: international respondents with no Chinese ethnic connection (150), overseas Chinese or their descendants (75), international students or residents in China (100), mainland residents with cross-cultural experience (175). Chinese proficiency: none (135), elementary (130), intermediate (110), advanced (80), native or near-native (45). Familiarity with Cantonese opera: never heard of it (100), heard of it but know little (205), some knowledge (125), fairly familiar (55), very familiar (15). Channels of contact (multiple choice): TikTok, YouTube or Instagram 245 (49.0%); Douyin, Bilibili or Xiaohongshu 190 (38.0%); school or exchange programme 165 (33.0%); online performance or livestream 135 (27.0%); film, game or merchandise 110 (22.0%); offline festival or museum 120 (24.0%); digital museum 90 (18.0%); VR or AR 55 (11.0%).