-RESEARCH ARTICLE-

INFLUENCING FACTORS OF IMMERSIVE NEWS REPORTING ON THE BRAND CITY IMAGE: ANALYSIS BASED ON THE USE AND SATISFACTION THEORY MODEL

Juan Liu

School of Multimedia Technology and Communication,
College of Arts and Sciences,Universiti Utara Malaysia,
06010, Sintok, Kedah, Malaysia
&
Xingzhi College of Xi'an University of Finance and Economics,
710038, Xi'an , Shannxi, China
ORCID: https://orcid.org/0009-0009-4031-4569
Email: liu_juan@ahsgs.uum.edu.my

Rohana binti Mijan (Corresponding Author)

School of Multimedia Technology and Communication, College of Arts and
Sciences,Universiti Utara Malaysia, 06010, Sintok, Kedah, Malaysia
Email: rohana.mijan@uum.edu.my
 ORCID: https://orcid.org/0000-0002-1078-2312

─Abstract─

 Grounded in the theory of uses and gratifications from communication science, It emphasizes how mass communication meets people's specific needs and how this satisfaction affects people's behaviors and attitudes from the perspective of the audience. This paper investigates the factors influencing the impact of communication. It examines immersive news reports related to urban culture and development, specifically using "Kusunda" and "Greenland Melting" as case studies. The study proposes potential variables through which immersive news might affect the perception of urban cultural images. Data was collected via a questionnaire survey and analysed using SPSS 26.0 software. This analysis encompassed reliability testing, validity testing, correlation analysis, and regression analysis to ascertain the actual impact of immersive news on urban cultural imagery. The results indicate that city brand image perception, sense of scene, sense of

interaction, and narrative strategy significantly enhance the city's cultural image. The city brand image perception is an intuitive embodiment of city charm. The creation of a sense of scene makes people immerse themselves in the cultural atmosphere of the city through well-designed urban space and cultural soft clothes. At the same time, the enhancement of the sense of interaction has made the city have closer ties with residents and tourists and promoted the spread and exchange of culture. Finally, the application of narrative strategy endows the city with deeper cultural connotation and emotional value by telling the story of the city. These findings highlight the positive influence of immersive journalism on urban image enhancement.

Keywords: Immersive News Reporting; Satisfaction Theory; City Image; Regression Analysis

INTRODUCTION

Immersive news reporting refers to a technologically driven approach to news production that allows audiences to experience events or scenarios described in the news from a first-person perspective (De la Peña et al., 2010). This method primarily utilizes Virtual Reality (VR) technology, which provides an immersive media experience. VR can replicate either real-world environments or imaginative spaces, thereby creating a fully engaging experience for the user (Vicente & Pérez-Seijo, 2022).

Tthe definition of Virtual Reality Journalism, a study by the Columbia University School of Journalism, is the most concise and comprehensive: VR is an immersive media experience. The world it replicates may come from the real environment or imagination (Pavlik, 2019). The way users interact with the VR world is also immersive.

"Kusunda" is a 23-minute interactive, immersive newsreel released in 2021 that employs volumetric video and digital animation to explore the language and culture of the Nepali people. The film features Lil Bahadur, a Kusunda monk who has gradually forgotten his native language over time. His granddaughter, Hima, is determined to revive this language, which she views as a vital connection to their heritage (Aaley & Bodt, 2023). In contrast, "Greenland Melting" is a sci-fi immersive news short film presented at the 74th Venice Film Festival in 2017 (Phyak, 2021). This film follows a journalist and scientist investigating the accelerating rate of glacier melting and its implications.

Utilizing the uses and gratifications theory of communication, this paper examines the effects of communication by analysing immersive news reports related to urban culture and development. By investigating cases such as "Kusunda" and "Greenland Melting," the study hypothesizes that immersive news reports impact the perception of city culture and development. SPSS 26.0 was utilized to analyse the collected data, focusing on reliability, validity, correlation, and regression analyses. This analysis was conducted

to identify the factors influencing the image of city brand culture as shaped by immersive news reports.

The research presented in this paper is built upon several crucial aspects. Initially, we ensured the scientific reliability of our analyses by verifying the validity of the hypothetical variables. This process involves not only the definition and measurement of variables, but also the construction of theoretical models and the setting of assumptions. Finally, the validity of these assumptions is verified by data collection and sample establishment.

The study also contributes valuable data that will support future research by other scholars. To ensure the representativeness of the selected variables, we employed expert consultation and a comprehensive review of the literature. We explained the purpose, background and preliminary variable framework of the study to experts in detail. Based on their own professional knowledge and experience, experts put forward valuable opinions and suggestions on the choice of variables. The feedback from these experts provides an important reference for us to optimize the choice of variables.

In addition, through careful reading and analysis of these documents, the author sorts out the variables and their measurement methods used by predecessors in similar studies. The author pays special attention to those variables that have been cited, verified and recognized many times, as well as their performance and application in different research situations.

Throughout the study, both expert interviews and literature methods were utilized to develop the hypothetical variables concerning the impact of immersive news reporting on urban cultural image. Data was collected through on-site questionnaires and analysed using SPSS 26.0 software. Finally, group discussion methods were used to substantiate the argument regarding the influence of these variables.

LITERATURE REVIEW

Immersive News Reporting

Several articles explore the concept of immersive news, which predominantly employs VR technology. Immersion is a key characteristic of VR, allowing users to experience news events with a high degree of sensory involvement. By utilizing appropriate equipment, users can achieve a near-authentic perception of the events, encompassing visual, auditory, tactile, gustatory, and olfactory sensations. This comprehensive sensory engagement facilitates an immersive experience, as detailed in the works of (Godulla et al., 2021;Goutier et al., 2021; Matyushina, 2022). In immersive news environments, user interaction is primarily manifested through the interface between the user's body and the scene technology. Users engage with virtual scenarios by

wearing VR headsets or other monitoring devices. These wearable technologies enhance the immersive experience by capturing relevant data from the user's body, thereby optimizing the interaction within the virtual scene (Koenitz et al., 2018; Wolfe et al., 2022).

Immersive news scenes create a sense of immersion not only through technical factors but also by employing narrative strategies designed to captivate users. This approach highlights that immersive news is particularly effective in environments with rich content and strong visual expression (Fearghail et al., 2018). Furthermore, because each user engages individually within the virtual scene created by immersive news, and either "experiences" or "witnesses" the event, they access content within a relatively independent and enclosed spatial context (Bhide et al., 2019; Wolfe et al., 2022). This paper will analyse how factors such as immersion, interaction, and narrative strategies influence the cultural image of city brands within the context of immersive news reporting.

Brand City Image

The city brand image is shaped by various differentiated brand elements, including the analysis, refinement, and integration of unique factors such as the city's endowments, historical and cultural heritage, and industrial advantages (Ruiz-Real et al., 2020). This image evolves gradually as the city promotes its brand. When a city's brand becomes well-known and reflects a specific value, it can lead to changes in experience, influencing both foreign investment and domestic consumption (Iordanova & Stylidis, 2019). This transformation affects the city's production methods and lifestyle, ultimately establishing its core competitiveness and development potential (Morgan et al., 2002; Shimul, 2022). Bernarto et al. (2020) argued that brand image can be assessed quantitatively. Using an online questionnaire with 1,000 respondents, He identified six key dimensions—such as brand awareness, brand reputation, and brand influence—and found that brand awareness and reputation are crucial evaluation metrics for city image. Based on a review of existing literature, it is evident that these dimensions are pivotal for evaluating the city brand image and that their combination can significantly enhance brand influence.

Impacts of Immersive News Reporting on the Cultural Image of City Brands

When utilizing immersive news to design and shape a city's cultural image, it is essential to emphasize the city's unique attributes to maximize social benefits. The historical accumulation and regional characteristics of each city, developed over thousands of years, embody the city's distinct temperament and spirit (Zhang, 2022). Highlighting these unique features through immersive news can effectively showcase the city's individuality and cultural richness. The unique characteristics of each city, shaped by its regional styles and cultural backgrounds, contribute to its distinctive image (Salazar

Flores, 2023). In an era of information overload, it is challenging for a city to differentiate itself and gain recognition without a clear positioning and compelling viewpoint to engage its audience (Dhanesh & Rahman, 2021). Virtual reality technology offers a novel approach by providing immersive and dynamic interactive content. A comprehensive understanding of VR technology and its application in designing and shaping city images can significantly enhance both the promotion and development of a city's brand image (Kim et al., 2020). "Kusunda" and "Greenland Melting" are examples of immersive news reporting. These short films focus on urban change, offering viewers a 360-degree experience of the city's culture and transformations. By engaging with these immersive reports, users can assess the impact of such reporting on the city's brand image.

THEORETICAL PERSPECTIVE

Palmgreen (1984) introduced "Uses and Gratifications Theory" as an early communication effect theory, initially focusing on the perspectives of communicators and media to assess whether communication campaigns achieved their objectives or their impact on the audience. Over time, the research has shifted towards examining user perspectives, specifically analysing how communication activities affect users by exploring their motivations for engaging with media and the needs these engagements fulfil (Camilleri & Falzon, 2021). Users select media and content based on their needs, and their satisfaction or dissatisfaction with these needs influences their future media choices and behaviours (Eginli & Tas, 2018). Based on "Uses and Gratifications Theory," this paper categorizes the factors influencing a city's cultural image into three key aspects:

The user's perception of the city's cultural brand image and their exposure to media that provides cultural immersion experiences.

The extent to which users' perceived needs are satisfied through exposure to city culture immersive news.

The extent to which users' perceptions of the city's cultural image are fulfilled through immersive news reports.

RESEARCH HYPOTHESIS AND MODELLING

Research Hypothesis

City brand image perception refers to the impression formed by tourists regarding a specific city, shaped by factors such as the city's tourism brand image design, brand promotion, and tourism management. This perception is closely linked to the tourists' experiences. When tourists' needs are met, it positively impacts the flourishing of the

city's brand culture (Manyiwa et al., 2018). Consequently, this paper proposes the first research hypothesis,

H1: *City brand image perception positively affects city brand image influence.*

Immersive news reporting employs VR and AR technologies to create real or fictional scenes and deliver news from a first-person perspective. This approach provides an immersive experience, reducing the distance between the audience and the news event (Wu et al, 2021). To effectively convey city brand culture through immersive news reporting, users should experience a real-time sense of presence, enhancing their perception of the medium. These perceptions include: (i) the immersive news content should accurately replicate real-life scenes to offer a compelling visual experience; (ii) the VR technology used should deliver an immersive experience that satisfies visual, auditory, and tactile senses (Sharma et al., 2023). Additionally, allowing users to independently select and engage with content further addresses their multi-dimensional needs. Based on this, it can be hypothesized that,

H2: *The sense of scene of immersive news positively affects the cultural image of the city brand.*
H3: *The interactivity of immersive news positively affects the image of city brand culture.*

The narrative strategy employed in immersive news plays a critical role in shaping the user's experience. The variety in narrative perspectives helps to prevent visual fatigue, while a well-considered narrative style can enhance user engagement and interest (Godulla et al., 2021). Consistent narrative time and rhythm foster emotional resonance with users, while diverse narrative structures help mitigate viewing fatigue (Kim et al., 2020). Consequently, the narrative structure significantly influences the user's perceptual experience, which in turn impacts the cultural image of the city brand. Therefore, the following hypothesis is proposed:

H4: *The narrative strategy of immersive journalism positively influences city brand culture.*

Immersive news reporting positively influences the enhancement of city brand culture and can further amplify its impact. Through immersive journalism, audiences gain a unique simulated tourism experience, which not only enhances the effectiveness of communicating the city's brand image, as seen with "Greenland Melting," but also supports the accelerated development of local tourism (Abokhoza & Sobieh, 2021).

Constructing the Model

In this context, this paper develops an extended model (illustrated in Figure 1) based on

"Uses and Gratifications Theory," with the goal of enhancing the city's brand image. By establishing this extended model, the aim is to improve the city's brand image, thereby further amplifying the influence of city brand culture. Figure 1 illustrates the research model, where city brand image perception serves as an indicator for enhancing the city's cultural image. Additionally, the sense of scene, interactivity of immersive news, and narrative strategies are also identified as indicators that contribute to the enhancement of the city's cultural image.
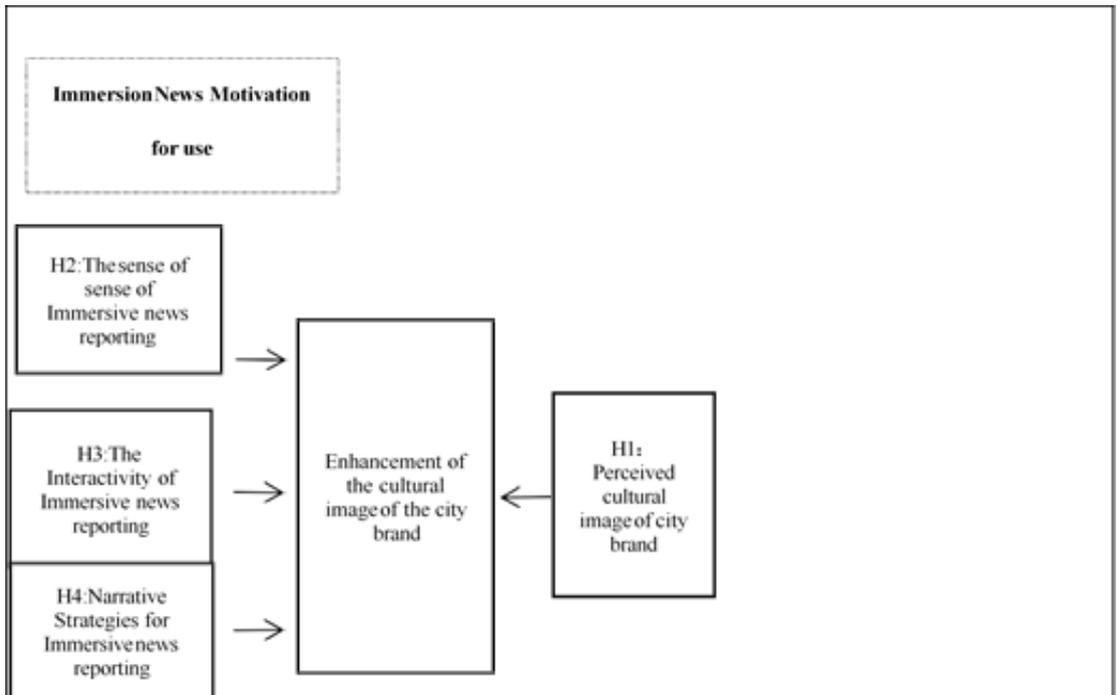

Figure 1: Research Model of the Study

In the conceptual model developed by the author, immersive journalism is proposed as a multifaceted catalyst for improving a city's cultural brand image. The model is grounded in four hypotheses, which collectively position immersive news as a potent tool for shaping public perception. H1 focuses on the perceived cultural image of a city, which is impacted by the enhancement of the city's cultural brand image—central to the model. H2 posits that the depth of immersion in immersive news is crucial for engaging the audience, suggesting that a stronger sense of presence leads to a more significant impact on audience perceptions. H3 highlights the role of interactivity, indicating that user engagement through interactive elements can enrich the experience and strengthen the cultural brand image. H4 examines the effect of narrative strategies in immersive news, proposing that the way stories are crafted and presented can substantially enhance the city's cultural image.

The author's model is distinguished by its interdisciplinary approach, integrating insights from media studies, psychology, and urban branding to investigate how emerging forms of journalism can reshape public perception. This framework not only provides a theoretical foundation for researchers exploring media's impact on city branding but also offers practical insights for journalists and city brand managers seeking to utilize immersive news to influence cultural perceptions. The presented hypotheses call for empirical research to further refine the model, contributing to a deeper understanding of the dynamics in immersive journalism and its potential to affect the cultural image of urban centres in the digital era.

METHODOLOGY

The author conducted a comprehensive study to identify representative indicators for the hypothetical variables. This process involved in-depth interviews with three experts in the field to gather professional insights and recommendations. Additionally, the author reviewed relevant academic literature to gain an understanding of the current research status and development trends within the field. Based on a thorough analysis of the interviews and literature, the author developed a questionnaire to collect data. The questionnaire was meticulously designed with twenty-three questions, employing matrix questions as measurement criteria. These questions encompass all aspects of the research area, utilizing a Likert scale with a five-point evaluation system: strongly disagree, disagree, neutral, agree, and strongly agree. This approach allows the author to gain a more comprehensive understanding of respondents' levels of agreement with the indicators in the field, thereby providing a reliable foundation for further analyses and comparisons.

The questionnaire was structured into three sections with a total of twenty-seven questions. Initially, respondents were required to view two short immersive newsreels, "Kusunda Talk" and "Greenland Meltdown." Following this, they proceeded to the second section, which contained four questions about their basic information. The third section, the core of the questionnaire, included twenty-three questions related to immersive journalism and city brand image. Sample size calculation followed the rule of thumb suggested by Tabacnick & Fidell (2001), which indicated a minimum sample size of 90, derived from 50 plus 8 times the number of predictor variables. To achieve greater accuracy and account for population proportions, the author aimed to select 200 participants using stratified sampling from students majoring in journalism, communication, and tourism management. The survey was conducted from March to April 2023 at several universities in Xi'an. To ensure the reliability of the data, a pilot test was conducted with 20 individuals before the main survey.

Analysis of Survey Data

The analysis in this study was conducted using SPSS 26.0 software, and the results

concerning validity, reliability, correlation, and regression analyses are detailed as follows:

Frequency Analysis

In this study, a frequency analysis was performed on 200 valid questionnaires to assess the respondents' basic information. Table 1 illustrates that the gender distribution is evenly split between females and males. The educational background is also balanced, with undergraduates and graduates each representing 50% of the sample. Concerning academic standing, freshmen, sophomores, juniors, and seniors each constitute 12.5% of the sample, while first-year and second-year master's students each make up 25.00% of the respondents.

Table 1: Frequency Analysis

Category Option	Frequency	Percentage (%)	Cumulative Percentage (%)
Male	100	50.00	50.00
Gender Female	100	50.00	100.00
Undergraduate Education	100	50.00	50.00
Background Maters	100	50.00	100.00
Freshman	25	12.50	12.50
Sophomore	25	12.50	25.00
Junior	25	12.50	37.50
Grade senior	25	12.50	50.00
Grade 1 Master	50	25.00	75.00
Grade 2 Master	50	25.00	100.0
Total	200	100.0	100.0

Reliability Analysis of Cronbach

The Cronbach's α coefficient is used to evaluate the internal consistency of the measurement scale by assessing the correlation among individual items. The formula used is: $\alpha=(k/(k-1))*(1-(\sum S_i^2)/S_T^2)$. Among them, K is the total number of questions in the scale, S_i^2 is the variance of the score of question i, and S_T^2 is the variance of the total score of all questions. A higher Cronbach's α coefficient signifies a greater degree of correlation among the items within the measurement scale, indicating that the coefficient is directly proportional to the internal consistency of the scale.

From Table 2, it is evident that the reliability coefficient for each item exceeds 0.8, indicating high quality of the research data. The "alpha coefficient if item deleted" values show that removing any individual item does not lead to a significant increase in the overall reliability coefficient, suggesting that no items should be removed. Additionally, the "Corrected Item-Total Correlation (CITC)" values are all above 0.4, demonstrating strong correlations between the items and confirming the overall reliability of the scale. In summary, the high reliability coefficient greater than 0.8

indicates that the data is of high credibility and is suitable for further analysis.

Table 2: Reliability Analysis of Cronbach

Title		Correction Item Total Correlation (CITC)	Cronbach's Alpha if Item deleted	Cronbach αCoefficient
Perception of Brand City Image	Q1	0.864	0.8	
	Q2	0.688	0.847	
	Q3	0.643	0.857	0.872
	Q4	0.724	0.839	
	Q5	0.595	0.868	
	Q6	0.879	0.798	
	Q7	0.673	0.85	
Scene Feeling	Q8	0.663	0.852	0.871
	Q9	0.628	0.86	
	Q10	0.689	0.846	
	Q11	0.853	0.817	
	Q12	0.679	0.86	
Interaction and Awareness	Q13	0.701	0.854	0.878
	Q14	0.691	0.856	
	Q15	0.657	0.864	
	Q16	0.829	0.691	
Narrative Strategy	Q17	0.578	0.811	0.825
	Q18	0.677	0.769	
	Q19	0.564	0.817	
	Q20	0.834	0.679	
	Q21	0.602	0.808	
	Q22	0.629	0.797	
The improvement of city's Image	Q23	0.607	0.807	0.829

KMO and Bartlett's test

This study employs factor analysis to examine the concentration of information. Prior to conducting the factor analysis, a suitability test was performed on the research data. As presented in Table 3, the KMO value is 0.791, which exceeds the threshold of 0.6, indicating that the data is appropriate for factor analysis. Additionally, Bartlett's test of sphericity yielded a result of ($p < 0.05$), confirming that the data met the criteria for factor analysis and further supporting the reliability of the study's results.

Table 3: Test of KMO and Bartlett

Kaiser-Meyer-Olkin	Approximate chi-square	0.791
		2454.534
		253

Explanation of Variance, Post-Rotation Factor Loading Coefficients, and Validation Factor Analysis Results

The author's factor analysis revealed the extraction of five valid factors, each with eigenvalues exceeding 1, indicating substantial explanatory power. After rotation, the variance explained by these factors was 14.940%, 14.766%, 14.529%, 11.815%, and 11.667%, respectively, with a cumulative variance of 67.716%. This substantial cumulative variance suggests that the factors collectively provide a high level of explanation and exhibit a strong explanatory effect. Furthermore, the alignment between the items and the factors supports the validity of the analysis, making it suitable for further research.

Subsequently, the author applied the maximum variance rotation method to the research data to elucidate the relationship between the factors and the research items. Upon analysing the 23 data points, it was found that the communalities for all research items exceeded the threshold value of 0.4. This indicates a substantial correlation between the research items and the factors, confirming that the factors effectively captured the relevant information. To further validate the results, the author tested the factor loading coefficients. According to established criteria, a factor loading coefficient greater than 0.5 is deemed acceptable for a meaningful measurement relationship. The analysis of the 23 measurement items revealed that the absolute values of the standardized loading coefficients for each item exceeded 0.6, indicating a significant correlation. This further supports the strong association between the variables and factors, confirming that all study items are valid and should be retained.

Analysis of AVE and CR Indicator Tests, Discriminant Validity Analysis

In this study, CFA was conducted on five factors with twenty-three analysed items. The results, as shown in Table 4, indicate that the AVE for the five factors exceeded 0.5. AVE is defined as the mean value of the squared loadings of the indicators related to each construct, calculated as the sum of the squared loadings divided by the number of indicators (Abboh et al., 2024) Additionally, the CR for each factor was above 0.7. These findings confirm that the convergent validity of the data is robust, demonstrating that the measurement model effectively captures the constructs of interest.

Secondly, the author assessed the discriminant validity among the variables. Discriminant validity measures how well indicators distinguish between different constructs and how uniquely they represent each construct (Fareed et al., 2016). For the variable "city brand image perception," the square root of the AVE is 0.769, which exceeds the maximum correlation coefficient of 0.198, indicating strong discriminant validity. Similarly, for "sense of presence," the AVE square root value is 0.769, surpassing the maximum correlation coefficient of 0.267, demonstrating good discriminant validity. The "sense of interaction" has an AVE square root value of 0.776,

which is higher than the maximum correlation coefficient of 0.283, thus confirming robust discriminant validity. For "narrative strategy," the AVE square root value is 0.756, greater than the maximum correlation coefficient of 0.287, signifying strong discriminant validity. Lastly, "enhancing the urban image" shows an AVE square root value of 0.761, exceeding the maximum correlation coefficient of 0.287, which also supports good discriminant validity.

Table 4: Model AVE and CR Indicators

Factor Value	Mean Variance-Extracted AVE	Values Combined Reliability CR
City Brand Image Perception Degree	0.591	0.876
Scene Feeling	0.592	0.877
Interaction Feeling	0.602	0.882
Narrative Strategy	0.572	0.838
To improve the image of the city	0.573	0.843

Analysis of Model Fitting Indicators

Based on the information presented in Table 5, it is evident that the validation factor analysis yielded favourable results for model fit. Key indicators, including χ^2/df, GFI, RMSEA, CFI, NFI, IFI, and TLI, all fall within acceptable ranges, demonstrating strong conformity to the theoretical expectations. These results indicate that the model exhibits a high level of fit and adheres to the established theoretical criteria. Consequently, it can be concluded that the model's fit is satisfactory.

Table 5: Model-Fitting Indicators

Commonly Used Indicators	χ^2	df	p	χ^2/df	GFI	RMSEA	RMR	CFI	NFI	NNFI
Criteria of Judgement	-	-	>0.05	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
Value	300.847	220	0.000	1.367	0.888	0.043	0.075	0.965	0.883	0.960
Other indicators		AGFI	IFI	PGFI	PNFI	SRMR	RMSEA			
TLI	>0.9	>0.9	>0.9	>0.9	>0.9	<0.1	CI			
Criteria for Value	0.960	0.860	0.966	0.708	0.768	0.067	0.030	0.054		

Default model: $\chi^2(253) = 2576.939$, p=1.000

RESULTS AND DISCUSSION

This study employs correlation analysis to examine the impact of city brand image perception, sense of presence, sense of interaction, and narrative strategy on the enhancement of city image. Pearson correlation coefficients are utilized to measure the

strength of these relationships. The detailed analysis results are presented in Table 5. The statistical analysis reveals a significant positive correlation between city brand image perception and city image enhancement, with a correlation coefficient of 0.198, which is greater than zero. This indicates a positive relationship between the perception of city brand image and its enhancement. Additionally, the sense of presence, sense of interaction, and narrative strategy each demonstrate a significant positive correlation with the enhancement of city image. Specifically, the correlation coefficients are 0.267 for the sense of presence, 0.283 for the sense of interaction, and 0.287 for narrative strategy, all of which are greater than zero. These results confirm a positive relationship between these factors and city image enhancement. Consequently, the hypotheses are supported, and the validity of the theoretical framework is affirmed.

Table 6: Pearson Correlation

City brand image	Perception degree	Liveness interaction strategy	Feeling Narrative
Correlation coefficient		0.198**	0.267**
To improve the image of the city	0.283**	0.287**p	0.005
	0.000	0.000	0.000

Note: * p<0.05 ** p<0.01

Table 6 presents the results of the linear regression analysis, with city brand image perception, sense of presence, sense of interaction, and narrative strategy as independent variables and enhancement of city image as the dependent variable. The regression model is expressed by the formula: (enhancement of city image = 0.609 + 0.146*perception of city brand image + 0.197*sense of site + 0.207*sense of interaction + 0.247*narrative strategy).   The R-squared value of 0.211 indicates that the independent variables collectively account for 21.1% of the variance in the enhancement of city image. This demonstrates a moderate explanatory power of the model concerning the impact of the independent variables on the dependent variable. The model's significance was confirmed by the F-test (F = 13.003, p = 0.000 < 0.05), indicating at least one significant relationship between the independent and dependent variables. Additionally, a multicollinearity test was conducted, revealing that all VIF values were below 5, suggesting no issues with multicollinearity. The Durbin-Watson (D-W) statistic, which is approximately 2, indicates the absence of autocorrelation within the model, suggesting that there is no correlation between the sample data points. Overall, the model exhibits good performance. For a detailed analysis, refer to the following results.

The statistical results indicate that the regression coefficient for city brand image perception is 0.146, with a t-test value of 2.240 and a p-value of 0.026, which is below the 0.05 threshold. This result demonstrates a significant positive effect of city brand image perception on the enhancement of city image. Additionally, the regression

coefficients for the sense of presence, sense of interaction, and narrative strategy are 0.197, 0.207, and 0.247, respectively. The corresponding t-test values are 3.106, 3.155, and 3.786, with p-values less than 0.01, further confirming that these factors significantly and positively impact the enhancement of city image. These findings offer both theoretical insights and practical implications for city marketing and branding strategies. Based on the comprehensive analyses and summaries, the following conclusions can be drawn city brand image perception, sense of scene, sense of interaction, and narrative strategy all exert a significant positive influence on the enhancement of city image. These findings underscore the substantial impact of immersive journalism on improving city branding and image.

Table 7: Results of the Linear Regression Analysis (n=200)

Perception degree	Non-Standardized Coefficients Standardization Coefficient			t	p	VIF
	B	Standard Error	Beta			
Constant	0.609	0.321	-	1.900	0.059	-
City Brand Image	0.146	0.65	0.144	2.240	0.026*	1.024
Liveness	0.197	0.064	0.202	3.106	0.002**	1.041
Interaction Feeling	0.207	0.065	0.207	3.155	0.002**	1.058
Narrative strategy	0.247	0.065	0.243	3.786	0.000**	1.016
R^2			0.211			
Adjustment R^2			0.194			
F			F (4.195)=13.003,p=0.000			
D-W			2.056			

Dependent Variable: The Improvement of the City's Image * $p<0.05$ ** $p<0.01$

CONCLUSION

As a novel approach to the design and enhancement of city cultural images, immersive news provides a fresh visual experience that aligns with contemporary new media and audience entertainment trends, invigorating the dissemination of city cultural narratives. The application of immersive news extends beyond the news industry into the broader media landscape, though its use in developing city brand images remains relatively unexplored. This study focuses on user experience to evaluate how immersive news reporting influences city brand image. By integrating immersive news with city cultural imagery and analysing its effects through a questionnaire survey, the study provides empirical evidence supporting the positive impact of immersive news on city branding and cultural representation. The findings offer theoretical support for city brand communication strategies and contribute to the advancement of immersive journalism practices. Firstly, our results show a strong correlation among the variables—Perception of Brand City Image, Scene Feeling, Interaction and Awareness, and Narrative

Strategy—with city image enhancement. The Cronbach's α coefficient indicates high internal consistency, and the data credibility coefficient exceeds 0.8, confirming robust reliability and suitability for further analysis. Secondly, KMO and Bartlett's tests confirm the data's suitability for factor analysis. Factor analysis results, including variance explanation and factor loadings, show strong correlations and validate all study items. AVE and CR indicators support convergent validity, and model fitting indicators fall within acceptable ranges, demonstrating a good model fit. Ultimately, this paper employs correlation analysis to investigate the impact of city brand image perception, sense of scene, interaction, and narrative strategy on the enhancement of city image. Using the Pearson correlation coefficient, the analysis reveals that these factors significantly and positively influence the enhancement of city image.

REFERENCES

Abboh, U. A., Majid, A. H., Fareed, M., & Abdussalaam, I. I. (2024). High-performance work practices lecturers' performance connection: Does working condition matter? *Management in Education*, *38*(2), 79-90. https://doi.org/10.1177/08920206211051468

Abokhoza, R. R., & Sobieh, Y. M. (2021). The role of virtual reality to enhance cultural communication. International Journal of Web Portals (IJWP), 13(2), 2035.https://openurl.ebsco.com/EPDB%3Agcd%3A8%3A19516168/detailv2?sid=ebsco%3Aplink%3Ascholar&id=ebsco%3Agcd%3A152124441&crl=c

Aaley, U. R., & Bodt, T. A. (2023). Speak to awaken: Revitalising Kusunda. Living Languages• Lenguas Vivas• Línguas Vivas, 2(1), 7.https://openpublishing.library.umass.edu/livinglanguages/article/id/1859/

Bhide, S., Goins, E., & Geigel, J. (2019). Experimental analysis of spatial sound for storytelling in virtual reality. Interactive Storytelling: 12th International Conference on Interactive Digital Storytelling, ICIDS 2019, Little Cottonwood Canyon, UT, USA, November 19–22, 2019, Proceedings 12, https://doi.org/10.1007/978-3-030-33894-7_1

Bernarto, I., Berlianto, M. P., Meilani, Y. F. C. P., Masman, R. R., & Suryawan, I. N. (2020). The influence of brand awareness, brand image, and brand trust on brand loyalty. Jurnal Manajemen, 24(3), 412-426.https://ecojoin.org/index.php/EJM/article/view/676

Camilleri, M. A., & Falzon, L. (2021). Understanding motivations to use online streaming services: integrating the technology acceptance model (TAM) and the uses and gratifications theory (UGT). *Spanish Journal of Marketing-ESIC*, *25*(2), 217-238. https://doi.org/10.1108/SJME-04-2020-0074

De la Peña, N., Weil, P., Llobera, J., Spanlang, B., Friedman, D., Sanchez-Vives, M. V., & Slater, M. (2010). Immersive journalism: Immersive virtual reality for the first-person experience of news. *Presence*, *19*(4), 291-301. https://doi.org/10.1162/PRES_a_00005

Dhanesh, G. S., & Rahman, N. (2021). Visual communication and public relations: Visual frame building strategies in war and conflict stories. Public Relations Review, 47(1), 102003.https://www.sciencedirect.com/science/article/abs/pii/S036381112030 1302

Eginli, A. T., & Tas, N. O. (2018). Interpersonal communication in social networking sites: An investigation in the framework of uses and gratification theory. *Online Journal of Communication and Media Technologies*, *8*(2), 81-104. https://doi.org/10.12973/ojcmt/2355

Fareed, M., Noor, W. S., Isa, M. F., Shahzad, A., & Laeeq, H. (2016). The Role of Human Capital Development and High Performance Work System in Sustaining the Human Resource Professionals' Effectiveness: A Lesson from Pakistan's Telco Companies. *International Journal of Economic Perspectives*, *10*(4). https://www.researchgate.net/publication/320490050

Fearghail, C. O., Ozcinar, C., Knorr, S., & Smolic, A. (2018). Director's cut-analysis of aspects of interactive storytelling for vr films. International Conference on Interactive Digital Storytelling, https://doi.org/10.1007/978-3-030-04028-4_34

Godulla, A., Planer, R., Wolf, C., Lück, A., & Vaaßen, F. (2021). An immersive journey through flawed technology: users' perceptions of VR in journalism. *Journalism and media*, *2*(3), 454-468. https://doi.org/10.3390/journalmedia2030027

Goutier, N., De Haan, Y., De Bruin, K., Lecheler, S., & Kruikemeier, S. (2021). From "cool observer" to "emotional participant": The practice of immersive journalism. *Journalism studies*, *22*(12), 1648-1664. https://doi.org/10.1080/1461670X.2021.1956364

Iordanova, E., & Stylidis, D. (2019). The impact of visitors' experience intensity on in-situ destination image formation. *Tourism Review*, *74*(4), 841-860. https://doi.org/10.1108/TR-12-2018-0178

Kim, M. J., Lee, C.-K., & Jung, T. (2020). Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model. *Journal of travel research*, *59*(1), 69-89. https://doi.org/10.1177/0047287518818915

Koenitz, H., Di Pastena, A., Jansen, D., De Lint, B., & Moss, A. (2018). The myth of 'universal'narrative models: expanding the design space of narrative structures for interactive digital narratives. Interactive Storytelling: 11th International Conference on Interactive Digital Storytelling, ICIDS 2018, Dublin, Ireland, December 5–8, 2018, Proceedings 11, https://doi.org/10.1007/978-3-030-04028-4_8

Manyiwa, S., Priporas, C. V., & Wang, X. L. (2018). Influence of perceived city brand image on emotional attachment to the city. Journal of Place Management and Development, 11(1), 60-77.https://www.emerald.com/insight/content/doi/10.1108/JPMD-01-2017-0011/full/html

Matyushina, K. (2022). *Effects of a video tour, interactive map, and 360-degree virtual tour on engagement and interest* University of Twente]. https://purl.utwente.nl/essays/89589

Morgan, N., Pritchard, A., & Piggott, R. (2002). New Zealand, 100% pure. The creation of a powerful niche destination brand. *Journal of brand management*, *9*, 335-354. https://doi.org/10.1057/palgrave.bm.2540082

Nevárez, J. (2020). The urban library: Creative city branding in spaces for all. Springer Nature.https://cir.nii.ac.jp/crid/1130005646618979104

Pavlik, J. (2019). Journalism in the age of virtual reality: How experiential media are transforming news. Columbia University Press. https://www.degruyter.com/document/doi/10.7312/pavl18448/html

Palmgreen, P. (1984). Uses and gratifications: A theoretical perspective. Annals of the international communication association, 8(1), 20-55.https://www.tandfonline.com/doi/pdf/10.1080/23808985.1984.11678570

Phyak, P. (2021). Subverting the erasure: Decolonial efforts, indigenous language education and language policy in Nepal. *Journal of Language, Identity & Education*, *20*(5), 325-339. https://doi.org/10.1080/15348458.2021.1957682

Ruiz-Real, J. L., Uribe-Toril, J., & Gázquez-Abad, J. C. (2020). Destination branding: Opportunities and new challenges. *Journal of Destination Marketing & Management*, *17*, 100453. https://doi.org/10.1016/j.jdmm.2020.100453

Salazar Flores, J. L. (2023). Virtual Mexico: Magical Towns in 360 degrees An exploratory study of the potential of 360-degree video in promoting cultural tourism (Doctoral dissertation, Newcastle University).https://theses.ncl.ac.uk/jspui/handle/10443/5992

Sharma, S., Stylidis, D., & Woosnam, K. M. (2023). From virtual to actual destinations: do interactions with others, emotional solidarity, and destination image in online games influence willingness to travel? *Current Issues in Tourism*, *26*(9), 1427-1445. https://doi.org/10.1080/13683500.2022.2056001

Shimul, A. S. (2022). Brand attachment: a review and future research. *Journal of brand management*, *29*(4), 400-419. https://doi.org/10.1057/s41262-022-00279-5

Tabacnick, B., & Fidell, L. (2001). Using Multivariate Statistics. Fourty Edition Allyn and Bacon. *Inc., 996p., New York*. https://www.amazon.com/Using-Multivariate-Statistics-Barbara-Tabachnick/dp/0321056779

Vicente, P.-N., & Pérez-Seijo, S. (2022). Spatial audio and immersive journalism: production, narrative design, and sense of presence. *Profesional de la información*, *31*(5). https://doi.org/10.3145/epi.2022.sep.19

Wolfe, A., Louchart, S., & Loranger, B. (2022). The impacts of design elements in interactive storytelling in VR on emotion, mood, and self-reflection. International Conference on Interactive Digital Storytelling, https://doi.org/10.1007/978-3-031-22298-6_40

Wu, H., Cai, T., Luo, D., Liu, Y., & Zhang, Z. (2021). Immersive virtual reality news: A study of user experience and media effects. International Journal of Human-

Computer Studies, 147, 102576.https://www.sciencedirect.com/science/article/abs/pii/S1071581920301786

Zhang, S. (2022). The Construction and Communication of City Image by Virtual Spokespersons. Int. J. Front. Sociol, 4, 20-25.https://francis-press.com/uploads/papers/E94VGWixFD1AOnK3zHJJZwCnQsgqeTrZhFjtPKpA.pdf