



Quantitative Research on the Influence of Students' Cultural Participation on Digital International Communication Based on SOR Model

Xiaojie Kang ^a, Qinyao Lin ^b, Mengting Jiang ^c, Jiankang Zhang*

Zhejiang International Studies University, Hangzhou, Zhejiang, China

^a 2804236271@qq.com; ^b 923520003@qq.com; ^c 1176039660@qq.com;

* zhangjk@zisu.edu.cn

Abstract. Based on the theoretical model of SOR (Stimulus-Objective-Response), we put forward a research hypothesis and constructed a theoretical model of "Cultural Participation-Cultural Identity-Digital International Communication". We collected data through questionnaires and used SPSS software to verify and analyse the data. The correlation coefficients between cultural participation, cultural identity and digital international communication are less than 0.01, showing a significant correlation. Media exposure ($p = 0.000$, $t = 3.80$, $\lambda = 0.431$) and physical experience ($p = 0.000$, $t = 4.26$, $\lambda = 0.436$) had a significant impact on the formation of cultural identity and digital international communication, enabling foreign language university students to improve their regional international communication skills through participatory communication.

Keywords: cultural participation; cultural identity; international communication

1 Introduction

Digitization is the process of taking numbers, data, and processing and analysis them in a uniform way using a computer, the process of converting information into a digital (i.e. computer-readable) format, which refers to the conversion of any continuously varying input such as the lines of a drawing into a string of separated units, represented in the computer by 0s and 1s. An analogue-to-digital converter is usually used to perform this conversion. In recent years, successful cases of digital narrative have emerged in the international communication practice of "telling China's story well". The interactive, participatory, and immersive characteristics of emerging digital technologies have become an important revelation. According to the interviews so far, there are fewer spaces with long-term language practice conditions, and international students' multi-dimensional knowledge of China's excellent traditional culture is missing, making it difficult to meet their cultural needs from an international perspective. The psychological mechanisms involved will be explored

next from three perspectives: cultural identity research, digital international communication path research, and SOR theory.

2 Study Hypotheses and Model Construction

2.1 Research hypothesis

Cultural participation and cultural identity.

When Yao Junxi[1] investigated the relationship between language learning, media use and cultural identity, he found that there was a significant effect between Chinese language learning and Chinese cultural identity among foreign students. Identity is not only a subjective identification, but also a symbolic process that can strengthen the identity of the "national community" through the construction of symbolic meanings and constant repetition and reinforcement[2]. In modern times, digital media have a strong influence on young people's thoughts, values and ideologies. Bai Yin et al[3] believe that current digital technology has changed the symbolic structure of communication language, which means the consensus can be built and audience values can be influenced through the media. In addition, He Yinchun et al[4] found that the strength of cultural identity was influenced by embodied experience when they studied the formation of students' identity with heritage culture during study tours. Therefore, the hypothesis is proposed in this paper:

H1: Cultural learning has a significant effect on cultural identity.

H2: Media exposure has a significant effect on cultural identity.

H3: Embodied experience has a significant effect on cultural identity.

Cultural participation and digital international communication.

According to Wang Aiping^[5], when second language learners are motivated to "integrate", feel close to the target language and the culture it represents, and are eager to participate in the activities of the cultural community, they will be motivated by a strong and lasting passion for learning. Foreign language colleges and universities have abundant resources for Chinese and foreign students to learn a second language, and they have a considerable natural advantage in identifying with the corresponding culture. According to Zhang Bing, the new path of international communication in the digital era needs to be based on the precise international communication object and target, and carry out precise interactions for its own demands, so as to realize precise international communication^[6]. Cross-cultural identity is an inevitable product of cross-cultural communication. This identity not only reflects the communicator's tolerance and open-mindedness^[7]. Reflecting on and portraying culture through the media without criticism or staring helps international students to recognize cultural harmony. Bicultural identity integration positively affects mental health and intercultural behaviors, promotes willingness to communicate internationally, and facilitates the development of intercultural communication and cooperation^[8].

H4: Cultural learning has a significant effect on international communication.

H5: Media exposure has a significant effect on international communication.

H6: Embodied experience has a significant effect on international communication.

The intermediary effect of cultural identity.

Cultural identity refers to the sense of identification with the culture in which an individual or group is influenced by the culture to which they belong. According to Jin Rongzhou^[9], the process of cross-cultural identity construction is the process of systematic cultural adaptation, the elimination of exclusionary identities and the absorption of new cultural elements by the communicating parties. Yang Dong et al^[10] believe that effective international communication must be one in which the sender and receiver have close or even the same value orientation, and in which the content and mode of communication can maximally satisfy the audience's need for value.

H7: Cultural identity plays an intermediary role between cultural participation and international communication.

2.2 Theoretical model construction

As shown in the Figure 1, based on SOR theory this paper tries to build a mechanism model of "cultural participation-cultural identity-regional international communication willingness" with cultural participation (S) as the independent variable, cultural identity (O) as the intermediary variable, and regional international communication intention (R) as the dependent variable.

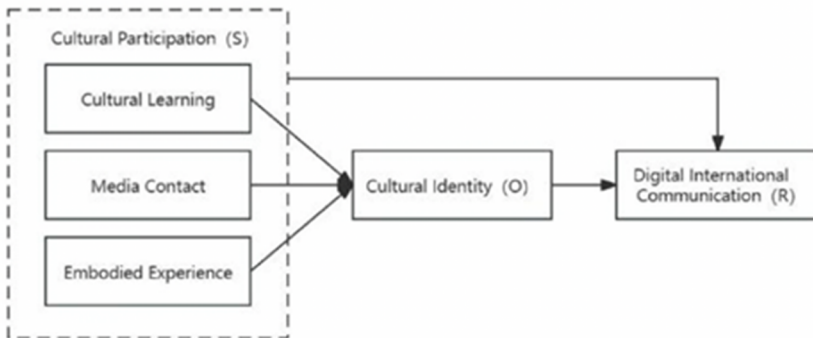


Fig. 1. SOR theoretical model construction

3 Research Design

3.1 Research technique

In order to verify the conclusions drawn from the literature review in this study, and to deepen them on the existing basis, we will use questionnaires to collect sample data for quantitative processing in order to increase the effectiveness, specificity and comprehensiveness of the study. Before the formal launch of the questionnaire, the researchers in this paper selected data for a pre-survey test, the results of its reliability and validity showed good based on the results of the feedback with the survey on the questionnaire to further improve the amendment to generate the final questionnaire now.

3.2 Sample object

By random sampling, a total of 90 questionnaires were distributed to students of all majors in Zhejiang International Studies University. 14 invalid questionnaires were excluded from the length of the answers (all with the same option or obvious rules), and 76 valid questionnaires were left, with an effective rate of 84.4%. Among them, 19 boys and 57 girls; 40 majors and 36; 9,67 undergraduates; 14 in Hangzhou, and 28 in other regions of Zhejiang Province. Of 34 people from outside the province.

3.3 Questionnaire design

According to the needs of this study, basing on the qualitative interview of the dimensions, and referring to the related literature, Three scales of cultural participation, cultural identity and regional international communication behavior were combed and designed. The scale covers 17 items, mainly using the Likert 5 points scoring method (1 "completely inconsistent" to 5 "fully consistent") to calculate the subsequent test results of the scale.

4 Data Analysis And Outcome Testing

4.1 Reliability and validity analysis

In this study, we conducted a KMO sampling adequacy test and a Bartlett's test of spherical using SPSS.25.0 software to ascertain the suitability of the collected data for factor analysis. The KMO test yielded a value of 0.87, indicating high adequacy (>0.8), and the Bartlett's test value was close to 0 (<0.05), supporting the factor analysis assumption. The results demonstrate the validity and reliability of the collected data for further statistical analysis, as shown in Table 1.

Table 1. KMO and Bartlett Tests

Number of KMO sampling suitability quantities.		0.871
Bartlett spherical test	Approximate chi square	1048.849
	free degree	136
	conspicuousness	0

As shown in the Table 2, Study analysis and results employed the SPSS 25.0 to obtain the Cronbach's Alpha reliability coefficient using the reliability coefficient method. The reliability evaluation criterion for this paper is set to be greater than 0.6. Meeting this standard indicates that the sample data has good internal consistency. If the criterion does not meet the 0.6 threshold, the scale requires revision and further investigation. As indicated in the table below, the analysis of formal survey data reveals that the Cronbach's Alpha coefficient for the three subscales of cultural participation, cultural identity, and regional international communication are 0.844, 0.869, and 0.842 respectively. The Cronbach's Alpha coefficient for the entire scale is 0.93, with both scores exceeding 0.8, thus meeting the standard for an ideal reliability coefficient with high credibility.

Table 2. the Reliability Analysis Test

Dimension	Dimension	Dimension
Cultural Participation	0.844	6
Cultural Identity	0.869	6
International Communication	0.842	5
Total Amount of Table	0.93	17

4.2 Factor analysis

To assess the possibility of common method bias in this study, we used the Harman single factor test. Through conducting homologous variance tests on the data, we found that the first common factor accounted for only 37.645% of the total load, which is less than the accepted threshold of 40%. Thus, it suggests that there is no significant common method bias present in this study, and we can proceed with further data.

Table 3 shows that the number of common factor extracted by each variable is the same as the previous classification, so the previous factor classification is reasonable; the cumulative variance contribution rate of each variable is more than 60%, indicating that the aggregation degree of the questionnaire is good; the KMO value of all variables in the sample is greater than 0.7, indicating that the sample can extract information well.

Table 3. Analysis of the Exploratory Factors of the Variables

Variable	Number of Ingredients Extracted	KMO	Bartlett Spherical Test	the Cumulative Variance Contribution Rate (%)
Regional cultural participation	3	0.795	223.262	60.76
Regional cultural identity degree	3	0.821	322.334	68.63
Regional cultural communication behavior	1	0.84	202.196	68.44

4.3 C. Descriptive analysis

As shown in Table 4, the descriptive statistical analysis results indicate that a majority of students in foreign language universities possess a high level of learning and engage with the local regional culture. Furthermore, they demonstrate a comprehensive understanding of the regional culture and frequently participate in local cultural experiences.

Table 4. Descriptive Statistical Analysis

	Least Value	Crest Value	Mean	Standard Deviations
Cultural Learning	2	5	3.546	0.788
Media Contact	2	5	3.612	0.686
Embodied Experience	1	5	3.553	0.882
Cultural Participation	1	5	3.928	0.652
Cultural Identity	1	5	3.724	0.8
International Communication	3	5	4.099	0.595

The data indicates that the majority of students have a significant association with regional culture, with an average score of 3.72 verifying that college students possess a substantial level of recognition with regional culture. In regards to communication, the majority of students express a desire prepared to exhibit corresponding communication behaviors to achieve this. In order to present a more detailed and intuitive picture of the degree of participation, recognition and dissemination of regional culture by the current university student population, we will take the middle value of "3" in the 5-point scoring method as a "neutral" state; when the mean value of the data is greater than 3, it is regarded as a higher degree of influence, and the dissemination state is "positive"; less than 3, the degree of influence is lighter, and the dissemination state is "negative". When the mean value of the data is greater than 3, it is regarded as a higher degree of influence and the dissemination status belongs to the to actively promote local

regional culture and are "positive" status; when it is less than 3, the degree of influence is lighter and the dissemination status belongs to the "negative" status. Frequency statistics were analyzed and pie charts were drawn, and the results are shown in Figure 2.

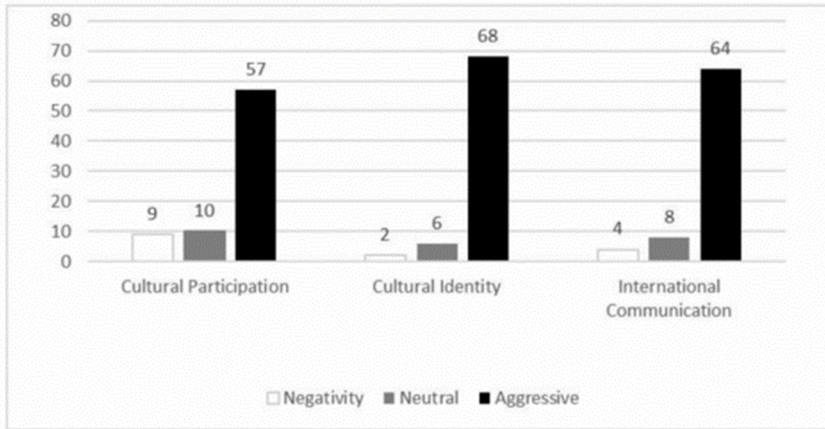


Fig. 2. Statistical Breakdown of Scores for Each Variable

The results of the above statistical analysis (see Figure 2) show that the majority of university students are positive in the three aspects of cultural participation, cultural identity and cultural transmission. The sample size is above 60%. The fact that the majority of university students are in the "positive" state of cultural dissemination proves that most of the university students recognize the regional culture and are able to actively participate in regional cultural activities and disseminate the regional culture. However, a small number of university students show a more closed "negative" status, which may lead to their lack of awareness of regional culture.

This may lead to a narrow understanding of regional culture, which in turn affects their participation in regional cultural activities and dissemination behavior. Therefore, it is reasonable to think that students' attitudes towards regional culture may have an impact on the participation, recognition and dissemination of regional culture, which deserves the attention of universities and colleges.

4.4 Correlation analysis

As demonstrated in Table 5, there were on international communication, implying that the substantial positive correlations between cultural identity cultural involvement of students in higher education and cultural learning ($r=0.42$, $p < 0.01$), media contact facilitate a favorable attitude towards communication ($r=0.64$, $p < 0.01$), and embodied experience ($r=0.65$, $p < 0.01$) with people from other countries. Furthermore, the $p < 0.01$, suggesting that active engagement in cultural identity of college students was found to have activities by college students has a favourable effect on

significant positive correlation ($r=0.72$, $p < 0.01$) with their cultural identity. Cultural education ($r=0.54$, $p < 0.01$), exposure to media ($r=0.66$, $p < 0.01$) and hands-on positive influence of cultural identity on international learning ($r=0.61$, $p < 0.01$) demonstrated a positive impact on international communication intention.

Table 5. Correlation Matrix between the Variables

	1	2	3	4	5
1.Cultural Identity	1				
2.International Communication	0.72**	1			
3.Cultural Learning	0.42**	0.54**	1		
4. Media contact	0.64**	0.66**	0.63**	1	
5.Embodied Experience	0.65**	0.61**	0.51**	0.60**	1

Note: $p < 0.05^*$, $p < 0.01$, $p < 0.001$

4.5 Hypothesis test

Impact of cultural participation on cultural identity.

From Table 6, cultural learning ($p=0.484$, $t= -0.70$, $\lambda= -0.075$) does not have a significant positive effect on cultural identity, which is inconsistent with the hypothesis of H1. However, media contact ($p=0.000$, $t=3.80$, $\lambda=0.431$) and embodied experience ($p=0.000$, $t=4.26$, $\lambda=0.436$) had significant positive influence on cultural identity consistent with the assumption of H2 and H3. The cause for this could be attributed to the norm among higher education students to engage in communicative acts through actual participation, such as partaking in participatory communication activities like short videos and exhibitions, which instills in them a desire to produce and disseminate content. When the cultural participation of college students impacts regional cultural identity, media exposure and embodied experience have a positive effect on regional cultural identity, whereas cultural learning does not produce a notably positive effect. This may be because college students tend to be more susceptible to external influences when evaluating culture, such as media elements like short videos and graphics, as well as embodied experiences like travel, exhibitions and social practices. In contrast, cultural learning lacks the same level of immersion as the former two, and hence has a lesser impact on college students' cultural identity.

Table 6. Path Analysis of the Impact of Cultural Participation on Cultural Identity

Action Path	t	p	λ	Assume Test Results
Cultural Learning to Cultural Identity	-0.7	0.484	-0.075	not pass
	3.8	0	0.431	pass

Media Contact to Cultural Identity

Embodied Experience to Cultural Identity	4.26	0	0.436	pass
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Impact of cultural participation on international.

communication.

From Table 7 cultural learning ($p=0.210, t= 1.27, \lambda= 0.135$) does not have a significant positive effect on international consistent with the hypothesis of H1. However, media contact ($p=0.000, t=3.80, \lambda=0.431$) and embodied experience ($p=0.000, t=4.26, \lambda=0.436$) had significant positive influence on cultural identity consistent with the assumption of H2 and H3. As shown in Table 6, significant positive associations were found between cultural participation and cultural identity ($r=0.675, p <0.01$), regional international communication ($r=0.711, p <0.01$), and also with other sub-dimensions. A significant positive correlation was also observed between cultural identity and international communication ($r=0.721, p <0.01$), but also with other sub-dimensions.

Table 7. Path Analysis of the Impact of Cultural Participation on International Communication

Action Path	t	p	λ	Assume Test Results
Cultural Learning to International Communication	1.27	0.21	0.135	not pass
Media Contact to International Communication	3.42	0.001	0.392	pass
Embodied Experience to International Communication	3.02	0.004	0.312	pass

4.6 The intermediary effect test

As shown in the Table 8, the results of the mediation model show that cultural participation can significantly and positively predict cultural identity ($\beta=0.59, t=7.87, p<0.01$), which verifies hypothesis one. And cultural participation can significantly and positively predict regional international communication ($\beta=0.71, t=8.71, p<0.01$), testing hypothesis two. When both cultural participation and cultural identity enter the regression equation, both cultural participation ($\beta=0.41, t=4.18, p<0.01$) and cultural identity ($\beta=0.32, t=4.49, p<0.01$) can significantly and positively predict the level of regional international communication. The Paper analyzed the mediation effect utilizing the Process plug-in in the SPSS software and sampled the obtained data using Bootstrap self-sampling. The independent variables pertain to the three dimensions of cultural participation among college students, while the dependent variables are regional international communication intention. The college students' cultural identity serves as the intermediary variable in

line with the theoretical model proposed in this Paper. This test aims to verify if 0 is within the 95% confidence interval. A significant mediation effect occurs when 0 falls outside the interval; conversely, when 0 is within the interval, the mediation effect is insignificant.

Table 8. The Multiple Linear Regression Analysis

variable	model 1		model 2		model 3	
	β	t	β	t	β	t
Cultural participation	0.71	8.71**	0.59	7.87**	0.41	4.18**
cultural identity					0.50	4.49**
R2	0.51		0.46		0.61	
F	75.84**		61.92**		57.80**	

In addition, it is noteworthy that the Bootstrap 95% CI of the mediation effect does not encompass 0, implying a significant mediation effect, and Figure 2 signifies the path diagram of the mediation effect. As a result, anticipated social alienation plays a partially mediating function in the influence of burden sensation on attribution needs, with 42.25% of the overall impact, confirming the H7 hypothesis.

5 Conclusion

It has been identified that university students exhibit positive cultural participation, cultural identity, and willingness to engage in international communication. The primary mode of cultural engagement is through media contact, particularly short videos, which is perceived as more interactive and straightforward, with a low threshold for participation. The findings suggest that the cultural identity of foreign language university students has a partial mediating effect on the relationship between participation in local culture and willingness to engage in international communication. In other words, when foreign language students take part in regional culture, they develop a sense of identity which motivates them to communicate about the local culture internationally. Participation, media contact, and personal experience can have a significant positive impact on the development of internal cultural identity and the ability to communicate internationally. Consequently, foreign language universities and regional governments should dedicate greater attention to promoting social media and organizing offline events, so as to strengthen the willingness of students to disseminate local culture abroad. Change the form of traditional media, and actively introduce new media mainly based on short video. At the same time, it will enhance the experience of offline activities, and promote foreign language college students to form a sense of identity with local culture. In the process of participation, they will use their own language and shooting advantages to spread abroad, so as to improve the regional international communication ability.

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