

Virtual reality as a new opportunity for public diplomacy: Examining the effects on foreign publics' perceived relationships and attitudes toward countries and their citizens

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Abstract

The COVID-19 pandemic has accelerated changes in public diplomacy, particularly the integration of digital communication tools into traditional practices. However, scholars have not sufficiently investigated the current use of these digital technologies in public diplomacy. This study aims to address this gap by examining how virtual reality (VR) as a tool for public diplomacy influences the perceived relationships of foreign publics with and their attitudes toward countries, citizens, and governments. The findings suggest that for governments to leverage VR effectively as a tool for public diplomacy, VR environments must be designed to reflect reality closely, foster user interaction and engagement, and resonate emotionally with users to capture the complexity of the experience. Additionally, governments must consider the existing political or cultural perceptions of foreign publics when crafting their messages to prevent cognitive disruptions that could lead to negative outcomes.

Keywords: Public diplomacy, cultural diplomacy, organization-public relationship, virtual reality

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The term “public diplomacy” has gained momentum in the twenty-first century, given globalization and advances in communication technologies. These developments have transformed traditional public diplomacy through new approaches. In particular, one-way informational objectives have shifted to two-way interactive public exchanges (Snow, 2009), and building networks and expanding people-to-people relationships have become essential for public diplomacy (U.S. State Department, 2010). The roles of foreign publics have become significant (Golan & Yang, 2015) in that they have engaged in building networks and relationships with governments (Ki, 2015). Thus, the twenty-first-century approach to public diplomacy has focused on engagement, collaboration, and relationship-building between governments and foreign publics (Zaharna et al., 2013).

New communication technologies have created new virtual environments for publics to connect in real-time or to experience simulations. For example, multiplayer online role-playing games such as World of Warcraft enable real-time interactions across different geographical areas (Cull, 2008). These virtual spaces function as supranational meeting places with international participants (Arsenault, 2009). Virtual reality (VR) also creates realistic environments and experiences (Burdea & Coiffet, 2003). During the COVID-19 pandemic, VR technology provided virtual travel experiences when travel restrictions prevented in-person exploration (Michel, 2020). The pandemic also accelerated changes in public diplomacy practices, integrating digital communication tools into in-person practices (Wang & Tang, 2023). The digitalization of public diplomacy has persisted, with diplomats leveraging VR, augmented reality, and immersive environments (Manor, 2023). However, scholars have not sufficiently examined the use of these digital technologies in public diplomacy (Kshetri et al., 2024; Manor, 2023).

VR offers opportunities for public diplomacy efforts. For instance, the Center on Public Diplomacy (CPD) 360 at the University of Southern California explored the potential of VR in public diplomacy through activities such as rehearsals for the East-meets-West musical *Soft Power* (CPD, n.d.). Mexican film director Alejandro González used a VR installation to foster empathy and cross-cultural understanding between immigrants and U.S. audiences (CPD, 2018b). Bjola et al. (2019) noted that foreign ministers could leverage VR to help garner public support for negotiated resolutions by allowing citizens to experience global crises firsthand. Kaneriya (2019) proposed VR as a tool for those who have not traveled abroad to experience foreign cultures, fostering empathy through immersive experiences. Understanding these virtual environments and their applications for public diplomacy is essential for governments in the digital era. Nevertheless, despite VR’s potential in public diplomacy, there is limited empirical evidence of its impact on public perceptions and attitudes toward governments. This study aims to address this gap by examining how VR use in public diplomacy influences foreign publics’ perceived relationships with and attitudes toward countries, citizens, and

governments.

Scholars have emphasized the convergence of public relations and public diplomacy theories (e.g., Golan et al, 2015; L'Etang, 1996; Signitzer & Wamser, 2006). Public diplomacy has also emerged as a new distinctive theme in global public relations research from 2010 to 2019 (Ki et al., 2021). For example, Signitzer and Coombs (1992) encouraged public relations scholars to apply public relations theories to public diplomacy, supporting the convergence of these fields. Additionally, Yun (2006) noted that applying public relations frameworks to measure the effectiveness of public diplomacy advances both public relations and public diplomacy scholarship. In particular, the relational approach has become an important subject in public diplomacy (Golan et al., 2015; Ki, 2015). This study uses the organization-public relationship (OPR) framework to analyze public diplomacy efforts, focusing on how VR can improve foreign publics' perceived relationships with governments. Moreover, drawing from Yun's (2014) identification of attitudes toward countries as a central variable for public diplomacy research, this study examines how VR in public diplomacy affects foreign publics' attitudes toward countries, citizens, and governments. This study contributes to the literature on the digitalization of cultural diplomacy by analyzing how culture and technology intersect to shape foreign publics' views of countries, citizens, and governments. Using the OPR framework, this study also demonstrates how public relations theory supports public diplomacy scholarship.

Literature Review

Digital Public Diplomacy

The term *public diplomacy* was coined in 1965 by Edmund Gullion, who founded the Edward R. Murrow Center of Public Diplomacy (Cull, 2009). The Murrow Center provides a convenient summary of Gullion's concept and notes that public diplomacy

deals with the influence of public attitudes on the formation and execution of foreign policies. It encompasses dimensions of international relations beyond traditional diplomacy; the cultivation by governments of public opinion in other countries; the interaction of private groups and interests in one country with another; the reporting of foreign affairs and its impact on policy; communication between those whose job is communication, as diplomats and foreign correspondents; and the process of intercultural communications. (Cull, 2020, p. 13)

In the post-Cold War era, public diplomacy became associated with *soft power*, “the ability to establish preferences”, which “tends to be associated with intangible assets such as

an attractive personality, culture, political values and institutions, and policies that are seen as legitimate or having moral authority” (Nye, 2004, p. 6). This period marked a shift from traditional public diplomacy approaches to new practices emphasizing two-way, interactive communication (Snow, 2020).

Globalization and advances in communication technologies transformed public diplomacy, prioritizing two-way, networked interactions over one-way, informational objectives (Snow, 2020). Radio and television communications, which had dominated as one-way communication tools, became outdated (Arsenault, 2009). New communication technologies, such as mobile phones and the Internet, facilitated instant communication among foreign publics, allowing access to a wider array of information sources (Zaharna, 2010). These publics began participating in dialogue and collaboration on various issues and disseminating information rapidly and independently of governmental oversight (Arsenault, 2009). This shift diminished the influence of national boundaries and political gatekeepers while empowering these publics through greater access to and participation in information production (Arsenault, 2009; Zaharna, 2010).

Non-governmental organizations, commercial entities, and individuals also became influential in the networked society (Cull, 2019; Rugh, 2009). In the current digital age, platforms such as Facebook and Google “have become bigger than governments, wealthier than most countries, and relatively unaccountable content publishers” (Snow, 2020, p. 3). These platforms play a significant role in influencing mass behavior, often more so than governments (Snow, 2020). For example, during the 2022 Russia–Ukraine war, Ukrainian president Volodymyr Zelenskyy utilized social media to share short videos encouraging resistance and used Zoom to address protests and parliaments across Europe, shaping international beliefs and perceptions (Manor, 2023). Today, messages circulate horizontally through peer networks (Cull, 2019). The multidirectional nature of contemporary communication networks necessitates public diplomacy strategies that engage interconnected communities (Zaharna et al., 2013).

In the twenty-first century, foreign publics seek active participation in dialogue and engage, collaborate, and compete with one another (Snow, 2020). Online virtual environments have become essential mechanisms for bringing foreign publics together, enabling real-time interaction that transcends budgetary, geographic, or cultural barriers (Cull, 2008). These environments support the development of strong relationships and foster trust and credibility among foreign publics, serving as critical tools for understanding a nation’s foreign policy and the society that shapes it (Arsenault, 2009). The digitalization of public diplomacy began in 2008 when nations launched digital embassies in the virtual world of Second Life (Manor, 2023). For example, the Swedish embassy hosted film festivals and gallery exhibits on the platform (Manor, 2023).

VR is among the most prominent technologies for creating online environments and can enhance the effectiveness of public diplomacy, contingent on how governments use it to engage with foreign publics (Bjola et al., 2019). This study examines VR technology as a tool for creating virtual public diplomacy environments and assesses foreign publics' attitudes toward countries employing this technology for their public diplomacy initiatives.

Virtual Reality (VR) Technology as a Public Diplomacy Environment

VR uses computer graphics to create a dynamic, realistic world that responds to user input, such as gestures or verbal commands. A fundamental aspect of VR is its real-time interactivity, through which the system recognizes user input and instantaneously modifies the virtual environment (Burdea & Coiffet, 2003). Users are immersed in an alternate reality that can replicate an actual place or an imagined setting (Sherman & Craig, 2019). VR is defined as “a medium composed of interactive computer simulations that sense the *participant's* position and actions and replace or augment the feedback to one or more senses giving the feeling of being mentally immersed or present in the simulation (virtual world)” (Sherman & Craig, 2019, p. 16, emphasis in original). It simulates environments in three dimensions and enables real-time user interaction.

Various VR systems currently include cave automatic virtual environments (CAVE), head-mounted displays (HMD), and desktop VR. CAVE is a projection-based system that allows users to move within a room-sized cube while wearing 3D glasses. HMD systems consist of head-mounted goggles that render the virtual environment based on the user's head orientation and position. Desktop VR facilitates interaction through a computer monitor but does not envelop the user in the virtual space (Makransky & Lilleholt, 2018). CAVE and HMD systems are more immersive than desktop VR, as they isolate users from their physical surroundings and provide motion feedback (Srivastava et al., 2019).

During the COVID-19 pandemic, VR usage grew significantly. For example, Spacial, which offers a VR alternative to Zoom, reported a 1,000% increase in usage from March until July 2020 (Higginbottom, 2020). VR allowed people to climb Mount Everest from the comfort of their homes, watch sports in simulated pub settings (Skinner, 2020), and attend live concerts on VR platforms (Skandalis, 2020).

Scholars have explored VR across various fields. For example, Pantelidis (2009) reviewed its educational applications, noting benefits such as maintaining student attention, fostering engagement, and changing interactions with subject matter. Gamito et al. (2015) studied a VR application for neuropsychological rehabilitation, observing significant improvements in attention and memory. Bujić et al. (2020) investigated VR's potential to influence attitudes

toward human rights, finding that immersive journalism can lead to positive changes if driven by user involvement with content. However, a limited number of studies have analyzed VR as a public diplomacy environment. This study addresses that gap by focusing on cultural diplomacy, which has become crucial with globalization and the rise of digital technologies, enhancing access to new markets and potentially fostering global peace and stability (Institute for Cultural Diplomacy, n.d.). Cultural elements, such as art, values, and ideas, not only reflect political systems but also provide key insights into other nations (Schneider, 2009).

Cultural Diplomacy

Cultural diplomacy refers to the exchange of cultural aspects such as art, values, and ideas between nations and their citizens to foster mutual understanding (Cummings, 2009). Cultural exchanges are a core aspect of cultural diplomacy (Schneider, 2009). The rise of digital platforms has influenced these exchanges by allowing people to personalize their cultural experiences and affecting the accessibility of cultural content (Goff, 2020). For example, while music and food were once confined to physical locations, digital media now make diverse music and recipes readily available online (Howard, 2011). Although nation-states remain primary actors in international politics, globalization and technological advancements have weakened their exclusive status due to the cross-border movement of people, products, media, technology, and capital (Ang et al., 2015). Government-led cultural diplomacy has thus become just one part of the broader landscape, with individuals and non-state actors also contributing to the exchange of ideas, images, and perceptions (Ang et al., 2015).

Goff (2020) emphasized that diplomacy has evolved to engage active publics and emphasize information, communication, values, and ideas to foster understanding. This shift has increased the significance of cultural diplomacy in twenty-first-century political and social relations. Professor Corneliu Bjola from the University of Oxford argued that cultural diplomacy adopts new technologies as they gain widespread usage (Manor, 2021). For example, social media became integral to diplomatic efforts once it became embedded in daily and political life. Similarly, public diplomacy is expected to extend to VR, augmented reality, and the metaverse as these platforms attract more users (Manor, 2021). Seoul, the capital of South Korea, announced plans to offer public services and cultural events in the metaverse, an immersive virtual reality internet (Squires, 2021). The Bureau of Educational and Cultural Affairs (ECA) at the U.S. Department of State also organized a program with Egyptian publishers and content creators that utilized VR technology to build cross-cultural connections (U.S. Department of State, 2021).

Cultural institutions are exploring digital spaces further. For instance, the Metropolitan Opera and the Cleveland Inner City Ballet have live-streamed performances, while other

groups have developed VR-specific environments. Virtual experiences such as walks through the New York Botanical Garden have become available (Feinstein, 2020). Virtual museums incorporate interactive digital elements, such as reality games, to enhance educational engagement with artifacts and deepen visitors' understanding (Boboc et al., 2022). Recognizing these developments, this study investigates VR as a new medium for public diplomacy, focusing on cultural aspects to assess how VR-based cultural experiences influence foreign publics' perceived relationships and attitudes toward a country, its people, and its government.

Organization-Public Relationships (OPRs)

The concept of organization-public relationships (OPRs) has become central to public relations research and practice since Ferguson (1984) highlighted the need for public relations to focus on relationships. OPR is defined as "the patterns of interaction, transaction, exchange, and linkage between an organization and its publics" (Broom et al., 2000, p. 18). Since the 1990s, scholars have extensively analyzed these relationships (e.g., Bortree, 2010; Gallicano et al., 2012; Ki & Shin, 2006; Kim, 2001; Ledingham & Bruning, 1998; Waymer, 2013; Yang & Taylor, 2014), marking a shift in emphasis from communication to relationships. Scholars (e.g., Ledingham & Bruning, 1998; Ledingham, 2003; Ki et al., 2015) have developed relationship management theory as a framework, underlining the importance of OPR.

The indicators for measuring OPR quality outcomes have also evolved. Broom and Dozier (1990) proposed assessing agreement and accuracy levels between organizations and publics as relationship indicators. Ledingham et al. (1997) initially identified 17 dimensions, later narrowed to five: trust, openness, involvement, investment, and commitment (Ledingham, 2008). Hon and Grunig (1999) created a widely adopted scale for measuring OPR quality, including four key dimensions: control mutuality, trust, commitment, and satisfaction. These are applicable in public diplomacy (Ki, 2015).

Scholars have recognized the potential of public relations frameworks to enhance public diplomacy research (Fitzpatrick et al., 2013). Yun (2006, 2008) examined the relevance of excellence theory (Grunig et al., 2002) in public diplomacy and analyzed its connection with Hofstede's (1980) cultural dimensions. Kruckeberg and Vujnovic (2005) advocated for using public relations theories and the two-way symmetrical model to inform U.S. public diplomacy, emphasizing community building and dialogue over traditional political and international relations theories. Kim (2015) extended the situational crisis communication theory to the field of public diplomacy.

OPR theory has also been applied to public diplomacy research. Lee and Jun (2013) explored OPR measures within public diplomacy and found significant links between South

Korean students' perceived relationships with the U.S. embassy and their attitudes and behavioral intentions toward the U.S. and its citizens. Storie (2018) examined relationship cultivation among public diplomacy actors and observed that participants viewed public diplomacy as fostering relationships. Tam et al. (2018) tested relational dimensions within a public diplomacy model incorporating antecedents, relational dimensions, and megaphoning. They identified positive associations between antecedents and relational dimensions and between relational dimensions and positive megaphoning and negative associations between relational dimensions and negative megaphoning.

Despite these findings, little is known about the impact of VR experiences on the relationships between foreign publics and governments. Immersive technologies offer significant potential for fostering cultural understanding and enhancing diplomatic relationships. VR can provide virtual services and experiences to foreign publics who might otherwise lack access because of geographical barriers (Dick, 2021). It enables new avenues for communication, collaboration, and community building through immersive experiences that promote empathy and cross-cultural dialogue globally. Thus, this study investigates the perceived relationships foreign publics have with governments. The following research question guides this investigation:

RQ1. To what extent does VR experience influence foreign publics' perceived relationships with governments, particularly in terms of relationship outcomes (control mutuality, trust, commitment, and satisfaction)?

Attitude

Attitudes are based on overall evaluations of objects (Eagly & Chaiken, 1993). They relate to aspects of a person's world, including other people, physical objects, behaviors, or policies, and are shaped by salient beliefs at specific times (Ajzen & Fishbein, 1977; Fishbein & Ajzen, 1975). Despite various existing definitions of attitude, most scholars agree that an individual's attitude represents an "evaluation of the entity in question" (Ajzen & Fishbein, 1977, p. 889).

Scholars have examined foreign publics' attitudes toward public diplomacy as an important outcome measure (e.g., Fullerton & Kendrick, 2013; Park et al., 2019; Yun, 2014). Lee and Jun (2013) noted that attitudes are one of the "focal variables of interest in assessing public diplomacy outcomes" (p. 412). For example, Kendrick and Fullerton (2004) assessed the United States's Shared Values Initiative, the first public diplomacy campaign, and found that international audiences had significantly more positive attitudes toward the U.S. government after viewing the campaign's commercials. Lee and Jun (2013) explored the relationship

between South Korean college students' perceived relationships with the U.S. embassy and their attitudes toward the U.S. and its citizens, finding significant connections. However, there is limited knowledge on how VR affects foreign publics' attitudes toward governments. This study investigates whether VR can be an effective tool for influencing attitudes toward governments and asks the following question:

RQ2. Do attitudes toward the government, people, and country change among participants after viewing the VR simulations?

Previous travel experiences influence attitudes toward other countries and intentions to revisit (Juaneda, 1996; Perdue, 1985). For example, memorable travel experiences can evoke nostalgia, which increases the likelihood of returning (Hu & Xu, 2021). Familiarity with a country and its people gained from previous travel can also impact future travel decisions (Crompton, 1992; Woodside & Lysonski, 1989). Conversely, individuals who felt unsafe during past travels were less inclined to return (Pennington-Gray et al., 2011; Sönmez & Graefe, 1998). Furthermore, friendships with individuals from another country enhance cultural understanding through interactions and intellectual exchanges, fostering positive feelings toward that country (Pruitt, 1978; Ward & Kennedy, 1993; Woolf, 2007). Considering these influences on attitudes toward a country and its people, this study also asks the following question:

RQ3. Is the effect of VR on attitudes toward the government and people moderated by factors such as previous travel experience or having friends or acquaintances in these countries?

Method

This study used a pre–post quasi-experiment design involving U.S. citizens to assess whether cultural experiences through VR impact foreign publics' perceived relationships and attitudes toward a country, its citizens, and its government. Participants completed a pretest questionnaire, viewed a VR video using head-mounted displays (HMDs), and then completed a posttest questionnaire identical to the pretest. As an incentive, participants had the opportunity to enter a drawing for one of five \$20 Starbucks gift cards upon completing both questionnaires.

Sample

As the world's most populous country and second-largest economy, China has positioned itself as a significant player in the international arena (Albert, 2018). Its rising influence has posed a challenge to the Western-led world order dominated by the U.S. (Laila, 2024). To enhance its global image, China has invested billions in soft power efforts to counter perceptions of the "China threat" among Western audiences (Albert, 2018). Therefore, this study recruited U.S. citizens, representing the Western-dominated context, to evaluate the effectiveness of a VR video produced by the Hong Kong Tourism Board (HKTB), a government-supported body in Hong Kong, a special administrative region of China. Hong Kong was chosen for its support of digital technology in the cultural sector and its unique blend of Eastern and Western cultures, making it a popular destination known for its cityscapes, cuisine, and natural beauty (Glasshour, 2023).

Hong Kong holds a distinct political status as a Special Administrative Region of China, operating under the "one country, two systems" framework. This arrangement provides Hong Kong with governance and economic systems separate from those of mainland China (Corichi & Huang, 2023). In recent years, however, Beijing has expanded its control over the region, prompting protests and international criticism. In 2020, the Chinese government enacted a national security law that curtailed Hong Kong's political and legal autonomy and restricted freedoms of speech, assembly, and the press. Several countries responded by condemning the law and implementing retaliatory measures. The United States, for example, sanctioned Chinese officials, suspended defense exports to Hong Kong, revoked the city's special trade status, and advised U.S. firms of heightened risks associated with operating there (Maizland & Fong, 2024).

Participants were recruited using flyers distributed in public locations, including libraries, churches, and university campuses. The flyers invited U.S. citizens aged 18 and older to participate in a study examining the effects of VR. Interested individuals contacted the research team by scanning a QR code provided on the flyer. A total of 98 U.S. citizens were recruited, all of whom expressed an interest in cultural elements such as food, art, and music. The sample consisted of 27 males (27.6%), 65 females (66.3%), two transgender participants (2%), two nonbinary participants (2%), and two participants who preferred not to self-describe. The mean age was 28.13 years. Of the participants, 80 (82%) reported a strong interest in cultural aspects such as food, art, and music, while 18 (20%) indicated a potential interest. Most participants (96, or 98%) had never visited Hong Kong; two (2%) had previously traveled there. About half of the participants (50, or 51%) had friends or acquaintances in or from Hong Kong.

Stimulus

The study used an existing VR video created by the HKTB as a stimulus. The HKTB aims to promote Hong Kong as a travel destination and enhance visitors' experiences (HKTB, n.d.). The VR video showcases cultural aspects of Hong Kong, such as food, local people, and outdoor areas, which are essential components of cultural diplomacy for fostering stronger relationships and mutual understanding (Schneider, 2009). The 2-minute 5-second, 360-degree video (Hong Kong, 2020) featured images of Hong Kong's countryside, including sites such as Lion Rock, Pok Wai, Hong Kong Science Park, and Kowloon Peak, and promotional messaging designed to encourage international travel (see Appendix for screenshots of the stimulus). Although this format captures the full scope of the environment, it has a lower resolution compared to regular videos, as the pixels are distributed over a larger viewing area. The Oculus Quest 2, a standalone VR headset that offers a quality immersive experience, was used. Its resolution is 1832x1920 per eye, which is not particularly high.

Measurements

Relationship Perceptions

Hon and Grunig's (1999) relationship measures were used to evaluate how foreign publics perceive their relationships with governments, focusing on relationship outcomes such as control mutuality, trust, commitment, and satisfaction. All variables were assessed using a 7-point Likert scale, where 1 indicated strong disagreement and 7 indicated strong agreement.

Control Mutuality

This dimension measured the balance of power and engagement between the Chinese government and foreign publics. Participants responded to statements such as "The Chinese government really listens to what foreign publics like me have to say" and "The Chinese government and foreign publics like me are attentive to what each other says."

Trust

Participants rated their trust in the relationship with the Chinese government using items such as "The Chinese government treats foreign publics like me fairly and justly" and "I feel very confident about this government's skills."

Commitment

This dimension assessed participants' perceptions of their long-term relationship with the

Chinese government through items like “I feel that the Chinese government wants to maintain relationships with foreign publics like me” and “There is a long-lasting bond between the Chinese government and foreign publics like me.”

Satisfaction

Participants indicated their satisfaction levels with statements such as “I am happy with the Chinese government” or “Most foreign publics enjoy dealing with the Chinese government.”

Attitude

This study measured foreign publics’ attitudes toward China using a 7-point semantic differential scale (unfavorable–favorable), a standard approach for assessing attitudes (Lee & Jun, 2013). Items adapted from the Pew Global Attitude Study (Pew Research Center for the People and the Press, 2012) included “How favorable or unfavorable do you feel toward the people of China?”, “How favorable or unfavorable do you feel toward the Chinese government?”, and “How favorable or unfavorable do you feel toward China?”

Results

Reliability and Validity

Cronbach’s alpha values were used to assess the internal reliability of the OPR measures. The pretest Cronbach’s alpha for relationship quality outcomes was .81, and the posttest was .92, both indicating good reliability (Pallant, 2013). To evaluate the validity, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity were conducted. The KMO value was .65 for the pretest and .76 for the posttest, both meeting the minimum acceptable threshold of .60 (Pallant, 2013). These results confirmed the suitability of the data set for analysis.

Paired Sample t-test

To address RQ1, which examines how VR experiences affect foreign publics’ perceived relationships with governments in terms of relationship outcomes (control mutuality, trust, commitment, and satisfaction), paired sample t-tests were performed. Statistically significant differences were found in some relationship outcomes among participants who viewed the VR content (see Table 1).

Table 1. Foreign Publics' Perceived Relationships with the Chinese Government in terms of Relationship Outcomes

	Item	Pretest		Posttest		Paired sample t-test	Effect size (Cohen's d)
		Mean	SD	Mean	SD		
Control Mutuality	The Chinese government really listens to what foreign publics like me have to say.	3.65	0.81	3.17	0.72	4.45*	.45
	The Chinese government believes the opinions of foreign people like me are legitimate.	3.62	0.63	3.06	0.90	5.12*	.52
	The Chinese government and foreign people like me are attentive to what each other says.	3.44	0.77	3.16	0.82	2.48*	.25
	The Chinese government gives foreign people like me enough say in decision-making processes.	3.85	0.79	3.5	0.74	3.17*	.32
	In dealing with foreign people like me, the Chinese government has a tendency to throw its weight around.	2.66	0.69	2.73	0.60	-0.82	.08
Trust	The Chinese government has the ability to accomplish what it says they will do.	2.31	0.58	2.35	0.59	-0.54	.05
	Whenever the Chinese government makes an important decision, I know they will be concerned about foreign people like me.	3.83	0.69	3.38	0.95	4.13*	.42
	I feel very confident about the Chinese government's skills.	3.08	0.98	2.64	0.88	3.30*	.33
	Chinese government treats foreign people like me fairly and justly.	3.41	0.72	3.09	0.75	3.16*	.32
	The Chinese government can be relied on to keep their promises.	3.38	0.79	3.29	0.76	0.80	.08
Commitment	I believe that the Chinese government takes the opinions of foreign people like me into account when making decisions.	3.72	0.74	3.23	0.89	4.21*	.43
	I feel that the Chinese government wants to maintain relationships with foreign people like me.	3.42	0.92	2.77	0.87	5.06*	.44
	Compared to other governments, I value my relationship with the Chinese government more.	3.89	0.91	3.46	0.98	3.64*	.37
	There is a bond between the Chinese government and foreign people like me.	3.63	0.80	3.26	0.98	2.82*	.28
	I feel that the Chinese government is trying to maintain a commitment to foreign people like me.	3.46	0.84	2.90	0.89	4.41*	.44
Satisfaction	I would rather work together with the Chinese government than not.	2.81	1.16	2.59	0.93	1.45	.15
	Generally speaking, I am pleased with the relationship the Chinese government has established with foreign people like me.	3.50	0.83	3.24	0.87	2.04	.20
	Most foreign people enjoy dealing with the Chinese government.	3.80	0.66	3.42	0.64	4.14*	.42
	Both the Chinese government and foreign people like me benefit from the relationship.	2.97	0.89	2.89	0.98	0.61	.06
	I am happy with the Chinese government.	3.76	0.76	3.49	0.86	2.26	.23
	Most foreign people like me are happy in their interactions with the Chinese government.	3.52	0.66	3.24	0.69	2.81*	.28

* $p < .05$

Source: Authors own work

Attitude Analysis

To answer RQ2, which investigates whether attitudes toward the government, people, and country improve among participants after viewing the VR, a paired sample t-test was conducted. Table 2 presents the results of the analysis, which showed significant differences in the scores for attitudes toward the Chinese government between the pretest ($M = 5.01$, $SD = 1.000$) and posttest ($M = 4.51$, $SD = 1.278$) conditions; $t(97) = 3.105$, $p < .05$. Attitudes toward the people of China also showed significant differences, with pretest scores ($M = 2.69$, $SD = 1.134$) compared with posttest scores ($M = 2.35$, $SD = 1.006$); $t(97) = 2.520$, $p < .05$. Additionally, significant differences were observed in the scores for attitudes toward China as a country, from pretest ($M = 3.54$, $SD = 1.027$) to posttest ($M = 3.03$, $SD = 1.060$); $t(97) = 3.662$, $p < .05$. These results indicate that VR experiences impact the foreign publics' attitudes toward the government, people, and country.

Table 2. Attitudes of Foreign Publics toward the People of China, the Chinese Government, and China

Item	Pretest		Posttest		Paired sample t-test	Effect size (Cohen's d)
	Mean	SD	Mean	SD		
How favorable or unfavorable do you feel toward the people of China?	2.69	1.13	2.35	1.01	2.52*	.25
How favorable or unfavorable do you feel toward the Chinese government?	5.01	1.00	4.51	1.28	3.10*	.62
How favorable or unfavorable do you feel toward China?	3.54	1.03	3.03	1.06	3.66*	.86

* $p < .05$

Source: Authors own work

To address RQ3, which examined whether the effect of VR on attitudes toward the government and people is moderated by factors such as previous travel experience or having friends or acquaintances in these countries, an ANCOVA was conducted. The analysis revealed no significant effect of VR on attitudes toward the government when controlling for previous travel experience, $F(1.95) = .319$, $p = .57$, or having friends or acquaintances in China, $F(1.95) = .744$, $p = .39$. Similarly, no significant effect of VR on attitudes toward people was found when controlling for previous travel experience, $F(1.95) = .108$, $p = .74$, or having friends or acquaintances in China, $F(1.95) = .011$, $p = .96$.

Discussion

Advances in digital communication technologies have altered the ways people connect, with the COVID-19 pandemic accelerating shifts already underway in global communications (Wang & Yang, 2019). The context for public diplomacy has similarly evolved, as governments increasingly incorporate digital tools like VR into their practices (Manor, 2023). VR changes how individuals experience the world by immersing them in a digital environment and offering an interactive experience through VR headsets (Al-Ansi et al., 2023), presenting new possibilities for enhancing public diplomacy. However, empirical evidence of VR's effects on public perceptions and attitudes toward governments remains sparse. This study examines VR as a public diplomacy tool, assessing its influence on foreign publics' perceived relationships with and attitudes toward other countries, citizens, and governments.

The results indicate that VR experiences reduced foreign publics' perceived relationship quality with the target government, affecting both relational outcomes and attitudes toward the government, its people, and the country overall. VR environments are designed to evoke a sense of presence, or the feeling of "being there" in a simulated setting (Slater & Wilbur, 1997), and effective engagement requires both presence and interactivity (Weber et al., 2021). According to media richness theory (Daft & Lengel, 1986), the more immersive the medium, the greater its potential impact on attitudes (Nikolaou et al., 2022). In this case, limited immersion—such as the absence of embodied presence or two-way interaction—may have weakened engagement, reducing message effectiveness.

In addition, cognitive dissonance may have contributed to negative effects. Participants may have held preexisting views of China and its government that conflicted with the positive diplomatic framing of the VR content. Cognitive dissonance theory (Festinger, 1957) posits that contradictory beliefs create psychological discomfort, which can prompt shifts in evaluation. The VR experience may have introduced inconsistencies that challenged participants' prior attitudes, particularly when the stimulus message did not align with cultural or political predispositions, resulting in less favorable assessments.

In addition, the quality of VR experiences largely depends on how closely the VR environment replicates the real world. Elements such as visual, auditory, and overall fidelity are critical in immersing individuals and enhancing their sense of presence (Hameed & Perkis, 2024). VR systems need to deliver an environment that is inclusive, expansive, immersive, and vivid, creating a compelling illusion of reality that positively impacts users' psychological experience of presence (Slater & Wilbur, 1997). In this study, however, the VR video may not have met participants' expectations for interacting with VR, engaging with virtual characters, or evoking emotional responses within the virtual setting. This finding suggests that if governments aim to use VR as a tool in public diplomacy to positively shape

foreign publics' perceived relationships and attitudes, they should design VR environments that not only foster a sense of presence but also allow interaction, engagement, and emotional resonance to capture the full richness and depth of the VR experience.

Digital diplomacy often blurs the boundary between message and action, as governments not only convey information but also perform actions with diplomatic intent and implications (Bjola et al., 2019). Thus, it is essential for governments to gauge how foreign publics perceive themselves in relation to a particular diplomatic message before delivering it, as this can mitigate the risk of disrupting preexisting perceptions. When deploying VR as a medium for public diplomacy, governments should consider the existing political and cultural perceptions held by foreign publics to minimize potential cognitive inconsistencies.

Furthermore, visual enhancement plays a critical role, as images can convey complex information in a format that audiences can readily absorb (Bjola et al., 2019). When incorporating visual elements in VR, governments should aim to embed emotional engagement within the VR experience. Emphasizing not only the quality of the information but also the emotional intensity of the content can foster a more intimate and immersive experience for foreign publics. This approach increases the likelihood of achieving high levels of interaction, engagement, and emotional involvement within the VR environment, potentially enhancing the effectiveness of public diplomacy efforts.

Another potential reason for the limited positive effects on participants' perceptions and attitudes may be the inherent challenges of using short videos to influence such outcomes. Short videos, which are typically under three minutes long, have emerged as a popular medium that has reshaped how individuals communicate and share information (Tian et al., 2023; Xiao et al., 2023; Zhang et al., 2024). However, research indicates that sustained engagement is crucial for these videos to influence users' behaviors and perceptions effectively. For instance, Tian et al. (2023) found that users must engage with short-form videos repeatedly to maintain or enhance positive emotions and mitigate negative ones. Additionally, Harrison and Himmelstein (2023) noted that short video content reduces consumers' attention spans, with the average viewer focusing on a single screen for only 47 seconds. This suggests that a single viewing of a short video may have limited potential to create a substantial impact on viewers' attitudes.

With a duration of 2 minutes and 5 seconds, the VR video in this study may not have provided sufficient exposure to foster meaningful positive changes in participants' attitudes or perceptions. The brevity of the experience likely constrained its effectiveness in shaping sustained or deep-seated attitudinal shifts. Future researchers should consider incorporating multiple viewing sessions or repeated interactions with participants to assess whether sustained exposure positively influences their perceived relationships with and attitudes

toward governments, countries, and citizens.

Moreover, the unique political status of Hong Kong may have contributed to the negative perceptions and attitudes observed among participants. In recent years, American public opinion toward China has grown increasingly unfavorable, influenced by various factors, including the pandemic, economic tensions, and policy conflicts. For instance, several Republican candidates in the United States have attributed pandemic-related issues and economic concerns to China, fostering a climate of mistrust (USC, 2022). Trade disputes and opposition to Beijing's policies in Hong Kong have further exacerbated negative attitudes, particularly in response to the national security law imposed by Beijing that has led to the arrest of pro-democracy activists, lawmakers, and journalists while also curbing voting rights and limiting freedoms of the press and speech (Maizland & Fong, 2024).

According to a recent Pew Research Center survey, the majority of Americans hold unfavorable views of China, with 81% viewing China negatively and 43% expressing a very unfavorable opinion (Huang et al., 2024). Such preexisting political perceptions likely influenced the results of this study, underscoring the interconnectedness of public diplomacy and government policy. This study suggests that although VR holds potential as a virtual environment for enhancing public diplomacy and informing or influencing foreign public opinion, these efforts are inevitably influenced by the broader political landscape. Public diplomacy cannot operate in isolation from the policies and actions of the government it represents. Therefore, political contexts can significantly influence the effectiveness of public diplomacy efforts on foreign publics' perceived relationships with and attitudes toward a country, its government, and its people.

The findings of this study underscore the importance of face-to-face interactions in public diplomacy. Wang and Tang (2023) emphasized that many public diplomacy initiatives derive their effectiveness from direct, face-to-face engagement, particularly in long-term cultural diplomacy. Physical co-presence plays a critical role in highlighting commonalities across societies, reducing prejudice and conflicts between groups, and fostering mutual understanding and cooperation among nations. Although this study's results suggest that digital technologies are increasingly influencing perceptions and behaviors, physical presence may still be essential for achieving positive relational outcomes. Therefore, practitioners should seek ways to integrate online and offline environments, ensuring that they complement each other to support the development and maintenance of positive international relationships.

Fitzpatrick (2023) noted that as the fields of public relations and public diplomacy converge, scholarly attention to the relational and communicative dimensions of public diplomacy has grown, which could ultimately "contribute to the development of a new analytical framework for public diplomacy research and practice" (p. 151). By providing

empirical data to assess organization–public relationships within a public diplomacy context, this study advances the conceptual and practical integration of public relations and public diplomacy by applying a public relations framework to explain public diplomacy practices. Signitzer (2008) suggested that concepts from organizational public relations may apply to public diplomacy in ways that support the goal of building and maintaining relationships with publics that are essential to organizational success. This study contributes to these linkages by using OPR theory to explore how governments utilize VR as a public diplomacy tool.

Furthermore, Ferguson (2018) argued that public relations extends beyond communication processes and effects to include a deeper understanding of relationships. The results of this study support the notion that both relationships and the contexts in which they occur are critical. As Bjola et al. (2019) asserted, digital technologies offer diverse opportunities for public diplomacy to foster stronger, more varied, and more enduring relationships between governments and foreign publics. Digital tools not only facilitate relationship-building but also reshape contexts by blurring boundaries between publics and empowering new actors (Bjola et al., 2019). This study emphasizes the importance of understanding the broader context in which public diplomacy operates, as this context influences the success or failure of such efforts. Factors such as expectations of digital technology, existing political perceptions, and policy environments play a significant role.

To enhance the explanatory power of public diplomacy research, scholars and practitioners must consider a wide range of contextual factors, including governmental policies, the richness and complexity of digital technologies, and the potential effects of global challenges like the pandemic. By embracing these varied contexts, public diplomacy efforts can more effectively foster meaningful and sustainable relationships.

The results of this study underscore the importance of careful VR environment design in public diplomacy. The accuracy of VR content replicating real-world experiences and interactions significantly impacts users' feelings of presence and engagement, which, in turn, influences their perceived relationships and attitudes (Luo et al., 2023; McMahan et al., 2012). A high degree of realism is essential in VR applications, whether they are being used to virtually travel the world (Sarkady et al., 2021) or enhance learning abilities (Poeschl, 2017). Therefore, if governments intend to use VR in public diplomacy to positively shape foreign publics' perceptions and attitudes, they should create VR environments that closely mimic reality, allowing users to experience presence, interaction, and emotional engagement and thereby capture the richness and complexity of real-life experiences.

Moreover, when crafting messages in VR environments, governments must consider the existing political or cultural perceptions that foreign publics may hold to avoid potential cognitive disruptions that could lead to negative outcomes. A VR experience designed

without sensitivity to the audience's background may inadvertently reinforce negative biases rather than fostering positive connections.

This study's limitations are due to its focus on a specific city within a single country, which restricts the generalizability of the results. Future researchers could expand on this by conducting similar studies across different cities and countries to compare findings and broaden the implications of VR content for public diplomacy. Additionally, future researchers should examine the potential negative side effects of VR, such as motion sickness and nausea, which can impact the user experience. Moreover, this study employed a pre–post quasi-experimental design without a control group, which limits causal inference regarding the effect of the VR stimulus on public diplomacy outcomes. In the absence of a comparison group, it remains unclear whether observed changes in perceptions and attitudes were attributable to the VR experience or concurrent external influences, such as media coverage of U.S.–China relations. A tourism-focused VR video may limit the depth of engagement with political content relevant to public diplomacy. Although the video presents cultural and scenic aspects of Hong Kong, it omits policy-related content and references to political relations. In the absence of such context, the stimulus may be perceived as superficial, reducing its effectiveness for diplomatic communication objectives. Given the small sample size in this study, a significance threshold of $p < .05$ was applied. This threshold aligns with standard practices in the field and accounts for reduced statistical power in small-sample analyses (Levine et al., 2008). Results should be interpreted with caution. Replication with larger samples is necessary to assess the robustness of the findings.

Despite these limitations, the findings offer valuable insights for public diplomacy practices and contribute theoretically to both public relations and public diplomacy scholarship. This study highlights the continued relevance of face-to-face public diplomacy in the digital age while also exploring the potential of VR as a new tool to challenge and reshape foreign publics' perceptions of governments, countries, and individuals through immersive experiences. As digital technologies evolve, they will provide governments with more avenues for engaging foreign publics. However, governments should focus not only on message dissemination through VR but also on fostering emotional engagement and interaction to establish meaningful connections with foreign audiences in their public diplomacy efforts.

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Appendix



Figure 1. Screenshot from VR video at timestamp 00:20



Figure 2. Screenshot from VR video at timestamp 00:34



Figure 3. Screenshot from VR video at timestamp 1:25



Figure 4. Screenshot from VR video at timestamp 1:40

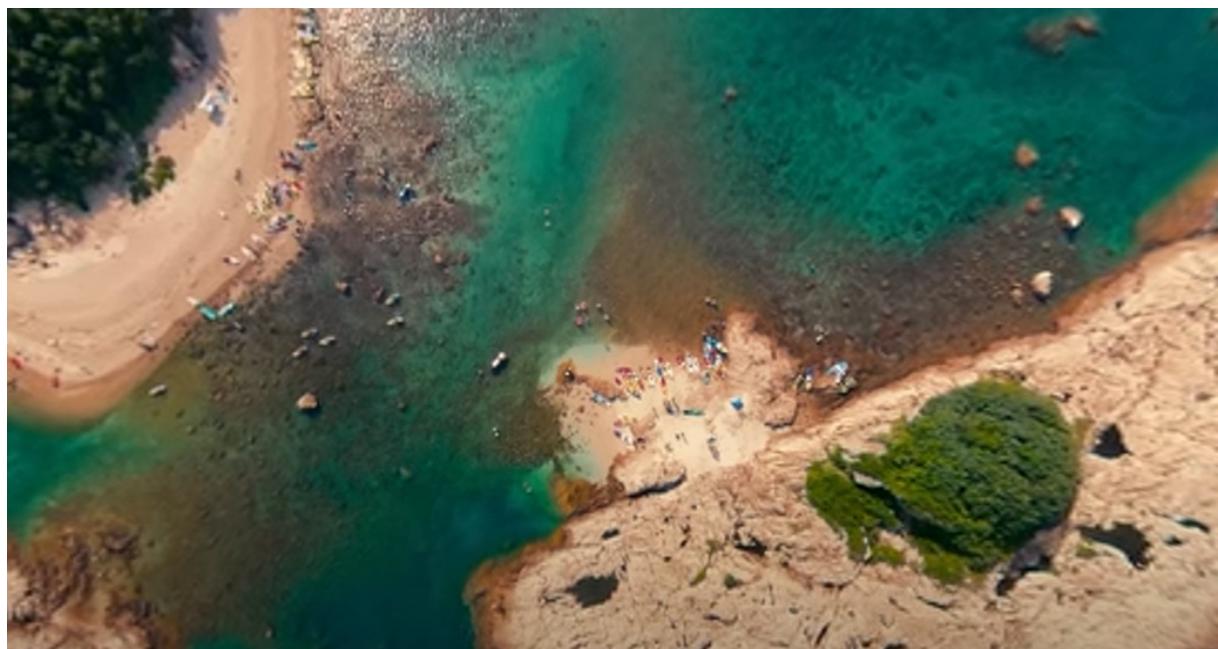


Figure 5. Screenshot from VR video at timestamp 1:43



Figure 6. Screenshot from VR video at timestamp 2:00