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Media Effect on Resident Attitude Toward Hosting the Olympic Games: A Cross-National Study Between China and the USA

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MEDIA EFFECT ON RESIDENT ATTITUDE TOWARD HOSTING THE OLYMPIC GAMES
A CROSS-NATIONAL STUDY BETWEEN CHINA AND THE USA

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DEDICATION

献给最亲爱的父亲母亲！

This dissertation is dedicated to my father Lu Xuesong and my mother Zhao Suhua. Without their support and love, I could not be who I am today.

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ABSTRACT

News media helped individuals think about and understand the impacts of hosting the Olympic Games, enabling them to clarify or construct their own opinions toward an Olympic bid. The purpose of this study was to explore to what extent the public opinion of hosting the Olympic Games was affected by the newspaper media content to which the public was exposed. Based on social exchange theory, social representation theory, and agenda setting theory, two research questions were proposed: (1) Do different news media contents about the impacts of hosting the Olympic Games lead to different attitudes among the local residents? (2) Does the media effect on residents' attitude toward hosting the Olympic Games differ between China and the US?

Experimental design was applied in this study. Two different kinds of newspaper articles analyzing the impact of hosting the Olympic Games were created: "High Benefits & Low Liabilities" and "Low Benefits & High Liabilities". A total of 962 residents from Beijing and Hebei Province, China, and the Commonwealth of Massachusetts, U.S.A. participated in the pretest-posttest experiment. They were randomly assigned with one newspaper article about the bid for the 2022 Winter Olympic Games and the 2024 Summer Olympic Games, respectively.

The difference score model was conducted to test the effect of media content and nation on resident attitude change, while controlling for the effect of interest in the Olympic Games. Inferential analysis indicated that media content was a statistically significant main factor in affecting resident attitude change. Descriptive analysis showed

that the attitude change caused by the "High Benefits & Low Liabilities" newspaper article was slight and positive, whereas the attitude change associated with the "Low Benefits & High Liabilities" newspaper article was moderate and negative. Furthermore, the more interest in the Olympic Games, the more evident the media effect was. More decrease in public support was observed among Chinese participants than American participants, across the experimental groups. The difference of media effect between China and the US fell short of significance at the .05 level.

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LIST OF ABBREVIATIONS

CIOG .... Centered Interest in the Olympic Games

COA .... Community Attachment

IOG .... Interest in the Olympic Games

POA .... Posttest Attitude toward Hosting the Olympic Games

PRA .... Pretest Attitude toward Hosting the Olympic Games

CHAPTER 1

INTRODUCTION

1.1 Introduction

The history of the Olympic Games begins at least 3,000 years ago in ancient Greece. While celebrating physical excellence, the modern Games also plays a cultural, economic, and political role across the world (Toohey & Veal, 2007). Organizing the Olympic Games involves great commitments of host cities, in terms of financial, political and human resources. Therefore, it is appropriate to study the public opinion in the host area as an object of academic inquiry. To date, most studies have evaluated the impact of hosting the Olympics as perceived by the local residents and how their attitudes are influenced by various individual factors. But the existing literature rarely examines how the public support for hosting the Olympics is formed under the influence of some macro, non-individual factors. The purpose of this dissertation is to explore to what extent the public opinion of hosting the Olympic Games is affected by the news media to which the public is exposed.

The guiding principle of this study is the news media's attribute agenda setting theory, which hypothesizes that certain issue attributes emphasized in the media become salient in the public's mind. This, in turn, will lead to greater support of hosting the Olympic Game and verify the value of social exchange theory. Specifically, an experimental design attempts to explore the relationship between the news media

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content about hosting the Olympics and the public perceptions of the benefits and liabilities as well as their general attitudes, support or opposition. Additionally, a cross-national study between the US and China is conducted to examine the significance of nations as a moderator in the above relationships.

This chapter provides a background explanation of and support for the study. Subsequently, the research question is defined and the theoretical basis for the study is explained. Major propositions with associated hypotheses are presented. The chapter is concluded with a discussion of the contribution of the study.

1.2 Background of the Study

As the most high-profile mega sport event in the world, the Olympics are virtually unassailable as an event of continuous public attention and discussion because the Games are such an intriguing mixture of sport, politics, and commerce (Essex & Chalkley, 1998; Hiller & Wanner, 2011; Rose & Spiegel, 2011). They usually emerge as engines for tourism and even national economic development within the hosting area. In particular, the magnitude of the event, the political and economic importance attached to the event, the prominence of the Olympics in the media, the frequent controversy surrounding the city and country and the attractiveness of the events make the Games a very popular phenomenon (Getz, 2008). Moreover, the history and global significance of the Games attract many nations and cities, both from the developed and developing worlds, to compete to host the Olympic Games even though very large costs are incurred.

Despite the popularity of hosting the Olympic Games, however, different problems emerge during the process of hosting the event. The financial burden following huge investment and infrastructure construction seems to be a nightmare for the hosting

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cities, for which the Montreal 1976 Olympics and the Athens 2004 Olympics are typical examples. It took almost 30 years for the taxpayers in Montreal, Canada to pay off the Olympic debt (Doucet, 2012). In Greece, the expensive Olympics in 2004 was criticized for high public spending which later contributed to the country's financial crisis (BBC, 2010). Actually, during the past decade the financial cost of hosting the Olympic Games have increased exponentially from 2004 Athens' USD$11 billion (Gatopoulos, 2011), to 2008 Beijing's USD$42 billion (Fowler & Meichtry, 2008), to the most recent 2012 London's USD$15 billion (SPORT, 2012). Notably, the extremely high cost of the 2014 Sochi Winter Olympic Games, more than USD$51 billion, scared away potential host cities, leaving only China and Kazakhstan to bid to host the 2022 Winter Olympics (Zinser, 2014). As bidding for the Olympics gains momentum, more perceived negative impacts become widespread and then generate more refined examination and criticism on this topic.

Traditionally, mega event planning involves a predominantly political planning approach, which allows little input from local residents apart from the initial election of political representatives (Roche, 1994). It is stated that the Olympic elites appear to commandeer key resources at the expense of ordinary citizens in the hosting city and even across the country (Giulianotti, Armstrong, & Hales, 2014). However, considering the unique size, scope and complexity, for a city to host a successful Olympic Games, many years of careful and precise planning are required, with all of the relevant organizations, authorities and stakeholders working together. Thus, a more democratic approach to such planning has emerged as an alternative, which combines both technical rationality and participatory democracy in the overall planning process (Getz, 1991;

Haxton, 1999). In the academic field, residents' perceptions of, and/or attitudes towards hosting mega events have already emerged as a major research and theoretical theme (Mihalik & Simonetta, 1998; Mihalik, 2000; Frater & Mihalik, 2001; Deccio & Baloglu, 2002; Gursoy & Kendall, 2006; Mihalik & Madanoglu, 2007; Kim, 2012; Lee & Krohn, 2013; Giulianotti et al., 2014).

The reasons why it is imperative to study the local residents' attitudes toward hosting the Olympics are twofold. First, a supportive community is one of the specifications and requirements of selecting the host city within the International Olympics Committee (IOC). In 2002, the IOC (2002) has made the new plan clear:

> In relations to the sustainability of the facilities and projects of the Olympic cities, maintaining the quality of the facilities for the athletes, but avoiding any form of luxury and those investments that cannot be justified in the long-term benefit of the citizens. The host city should be aware of the opportunities offered by the organization of the Games, but also the risks (p. 4).

The governments and social elites have gradually realized that examining the residents' opinion can help them listen carefully to what the public expects. It is the democratic process to have the public actively participate in such a political decision (Kim & Han, 2005). Obviously, achieving the goal of favorable community support for hosting the Olympics will require an understanding of the local residents' attitudes toward bidding for the Olympics and how such attitudes are formulated.

The second reason is demonstrated by the outcome of the residents' opposition against the Games—withdrawal. Actually, the withdrawal from the bidding process is not particularly rare in history. The Denver 1976 Olympics are a typical example. Recently,

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Oslo, Norway withdrew from bidding for the 2022 Winter Olympics because more than 50 percent of the population was against the hosting of the Games, leaving Beijing and Almaty in Kazakhstan as the only contenders. Residents' support is very important and necessary for winning the bid and successfully hosting the Olympics. Therefore, it is imperative to investigate the residents' attitudes before the bidding or, at least, at the early stage of the bidding process to avoid unnecessary waste of financial or human resources. Otherwise, it is very possible that active opposition to hosting the Olympics may lead to delays, legal action, and abandonment of events (Gursoy & Kendall, 2006).

Both the IOC and the hosting governments have become well aware of the fact that active public support is likely to transform the Games into an urban festival and then lead to the modernization or potential regeneration of the host city. Thus, in an attempt to gain the wider public support for the decision to bid for hosting the Olympics, consensus building is regarded as the key democratic planning approach. In this case, the news media plays a key role in formulating the consensus through its propaganda model. Just as stated by Herman & Chomsky (1988), the propaganda model of media asserts that, as part of their influence, the media echo, maintain and propagate the viewpoints of those who have power, specifically government and social elites. The propaganda model is based on the premise that, in Western capitalist societies, the dominant media are firmly embedded in the market system and thus mass media discourse is shaped by ownership and profit orientation (Toohey & Taylor, 2006).

The connection between the Olympic Games and mass media has long been of interest to academics. Regarding the relationship between the mass media and the Olympics, Slater (1998) claims that "the press is traditionally reviewed as having four

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principal functions: to inform (the news function), to persuade (the advertising function), to entertain (the features function), and to pass the cultural heritage (the educational function)" (p. 51). Through these functions, and because of their global reach, the media are active in defining and shaping contemporary cultures. However, in fulfilling these functions the media editors and journalists are neither unbiased nor without other agendas. Specifically, by their selection of what is worth reading, hearing and seeing, owners, editors and journalists involved in the media perform a gate-keeping function (Toohey & Veal, 2007). They choose which material to publish or broadcast and then add their interpretation to it. Meanwhile, the media may also omit many important stories through a system designed to sift out material that falls outside what is considered to be acceptable socio/political boundaries (Toohey & Veal, 2007).

Similar to other kinds of social issues, the media helps individuals think about and understand the Olympic bid, enabling them to clarify or construct their own opinions (Stamm, Emig, & Hesse, 1997). There are some real examples showing the direct relationship between the news coverage about the Games and the public attitudes and reactions. Due to the large amounts of reports and criticism on the fact of the USD$51 billion cost of hosting the Sochi Winter Olympics, which is reported as the most expensive in history, both governments and citizens in the Western world have become wary of hosting the Games. It is considered the major reason that led to the withdrawal of Norway from the bidding of the 2022 Winter Olympics (Guardian, 2014). Another example is given by Shaw (2008) about the 2010 Vancouver Olympics. He argues that had Vancouver-based journalists done a solid expose of the Salt Lake Winter Olympics and provided this information during their pre-plebiscite period, Vancouverites could

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have made a far more informed choice. Consequently, there is a strong link between the media content and the public opinion about hosting the Olympics.

As the first and second biggest economies in the world, both the US and China have the history of hosting the Olympic Games, including the St. Louis 1904, Los Angeles 1932 and 1984, Atlanta 1996, and Beijing 2008. When the study was conducted, Beijing was in the process of bidding for the 2022 Winter Olympics while Boston was chosen by the United States Olympic Committee to bid for the 2024 Summer Olympics (Longman, 2015). However, with different cultures, economic situations, and media systems, the two countries will have different purposes when bidding for the Olympics and meanwhile, the American and Chinese residents will have different attitudes toward the mega-event.

1.3 Statement of the Problem

For the purpose of sustainability, the bid cities are recommended to host an Olympic Games best fitting into their long-term social, sports, ecological and economic development. In previous literature, it has been argued and demonstrated that to get the local community involved in the event planning is conducive for the long-term success and post-event sustainable development (Lamberti, Noci, Guo, & Zhu, 2011). The IOC (2002) also emphasizes that "the Games are a community project, involving the whole host population" (IOC, 2002). But, in reality, governments seldom consult with the local citizens about the decision of bidding for the Olympics or further event planning (Hiller & Wanner, 2011). A survey is required by the IOC to confirm the public support among the local community during the bidding phase. After the IOC announces the winner, the host officials would not bother to collect public opinion (Hiller & Wanner, 2011). More

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often than not, to gain the public support, the Olympic officials are more inclined to sell the hosting decision rather than to seek a dialogue with local residents (Bennett, Bennett, Alexander, & Persky, 2013).

Rather than just being passive observers, the local community encounters the Games in different ways and develops their own perceptions in terms of the impacts from hosting the Games. On one hand, the residents' perceptions of the impacts from hosting the Olympics and their attitudes toward the events depend on the individual's economic status, ecocentric attitude and attachment to community (Jurowski, 1994; Deccio & Baloglu, 2002; Gursoy & Kendall, 2006). On the other hand, news media reports, as well as the mobilization efforts by the IOC and local Olympic officials, play important roles in formulating the community consensus within the host cities (Hiller & Wanner, 2011). As Hiller (2000b) states, the international influence of the Olympic Games is related not only to millions of in-person attendance and billions of global television viewers, but specifically to the fact that in some significant sense, "the mass media carries the event to the world" (p. 183). Moreover, the news media editors and journalists serve as the gatekeepers of any information about the powerful background objectives of hosting the Olympic Games for the purpose of justifying and rationalizing the event. In other words, just like other political issues, the news media functions as a conduit of political information, through which the citizens obtain information about public affairs (Mastin, 2000). Therefore, to examine the local residents' attitudes toward hosting the Olympics, we need to update our understanding of how the local people acquire the knowledge about the events on which they base their final attitudes. Specifically, what kind of role does the news media play in formulating the public opinion toward hosting the Olympic

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Games? To what extent is a local resident's perception of hosting the Games affected by the media coverage about this public issue?

1.4 Research Questions

It is noted that residents' attitudes toward hosting mega-events, such as the Olympics, is becoming an area of growing interest among tourism and sport researchers. Apparently, the extraordinary characteristics of the Olympics have made it a significant municipal, even national, decision-making choice to bid for the Games. Therefore, a reasonable degree of consensus is needed for long-term success, and this can only be achieved where the event planners have a thorough knowledge of the views held by the host population (Ritchie, 1988; Fredline & Faulkner, 2001a; Martin & Barth, 2013). The previous studies have shown that local residents' attitudes toward hosting the Olympics are determined by both the benefits and costs perceived (Mihalik & Simonetta, 1998, 1999; Deccio & Baloglu, 2002; Gursoy & Kendall, 2006; Lee & Krohn, 2013). The major perceived benefits come from the international recognition, increased future tourism, economic benefits, Olympic facilities development, increased citizen pride, and so forth (Mihalik & Simonetta, 1998; Mihalik, 2000). All of these positive perceptions provide the mechanism to justify broad public support (Crompton & McKay, 1994). The liabilities or negative consequences perceived by the local residents mainly refer to the traffic congestion, price gouging, strain on law enforcement, increased crime, and to a lesser extent, unfair distribution of resources, civic unrest, bad attitude of tourists, bad attitude of residents, and increased terrorism (Mihalik & Simonetta, 1998, 1999; Mihalik, 2000). Most importantly, overestimating the economic gains and underestimating the

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costs involved for preparing the events are the biggest concerns for the public (Barclay, 2009).

Despite these liabilities, there are still some countries or cities that are keen to host the Games. In their haste to justify the huge public expenditure, governments and organizers marshal evidence of economic, social, and other benefits (Hiller, 1998). Just as in a political campaign, the Olympic officials are carefully "massaging the truth" (Greising, 2009). The current literature focusing on media effects on public events and political participation has laid the groundwork. First of all, according to Rothenbuhler, Mullen, Delaurell, and Ryu (1996), news media directs people's attention from purely individual matters to larger political and community issues. That is, the media identifies issues that need social attention, encouraging citizens to become interested in dealing with these issues. Further, news media also functions by providing important information that helps citizens make a judgment about the issue and candidates (Popkin, 1991). In other words, the media helps individuals think about and understand the issues, enabling them to clarify or construct their own opinions (Stamm et al., 1997). Undoubtedly, this informational function is particularly important given the controversial facts about hosting the Olympics, especially about a variety of discussions on the impacts perceived by the local community including both the benefits and the costs that were brought about in the hosting area.

Actually, variation in media coverage about hosting the Olympics has existed since the conception of the Games. Accurate and comprehensive information about the impacts are infrequent in publication. In this case, the major purpose of this study is to explore the media effects on the public opinion about hosting the Olympic Games.

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Specifically, the causal relationship between the media coverage and the public opinion about hosting the events will be tested. Specifically, the following primary research question is addressed in this study: Do different news media contents about the impacts of hosting the Olympic Games lead to different attitudes among the local residents?

In this study, an attempt to incorporate cross-national research into local residents' attitudes toward hosting the Olympic Games is made as well. This is because, according to McCombs (2004), the correlated relationship between the media coverage and the public opinion varies with the openness of the media system, the relevance and uncertainty of the issue itself. Apparently, the media effects on the public opinion about hosting the Olympics may differ across nations with different political and media systems. In addition, citizens' current knowledge about this public issue also may have an influence on the correlation to be tested. In this case, nation is considered as a moderator in this study. Through the comparison between Chinese residents and American residents, the intercultural validity of the relationship between the media content and the public opinion of hosting the Olympics is to be tested in this study. The secondary research question to be addressed is: Does the media effect on residents' attitude toward hosting the Olympic Games differ between China and the US?

1.5 Theoretical Foundation

The study has its theoretical basis in social exchange theory, social representation theory, and attribute agenda setting theory.

1.5.1 Social Exchange Theory

Social exchange theory was introduced in 1958 by the sociologist George Homans with the publication of his work *Social Behavior as Exchange*. The basic

concept of social exchange theory is that individuals are likely to participate in an exchange if they believe they are likely to gain benefits without incurring unacceptable costs (Homans, 1974). Numerous tourism researchers have utilized social exchange theory to explain why and how people react to and support tourism development (Deccio & Baloglu, 2002; Gursoy & Kendall, 2006; Kim, 2012; Lee & Krohn, 2013). The empirical findings from these studies have demonstrated that the public support relies heavily on perceived benefits rather than costs. Subsequently, the logic and propositions of social exchange theory were generally acceptable as a theoretical framework for research on people's reactions to tourism and mega-events and the relevant development.

1.5.2 Social Representation Theory

Social representation theory is based on a conception of society as organized into groups and subgroups (Rosa, 1992). Social representations are defined as the "concepts, statements and explanations originating in daily life in the course of inter-individual communications" (Moscovici, 1981, p. 181). The connection between attitudes and social representations was put forward by many scholars (Moscovici, 1981; Billig, 1993; Pearce, Moscardo, & Ross, 1996) as attitudes were seen as the product of social value (Farr, 1987). In an effort to capture the variations of how local residents react to the impacts of hosting the mega-events, and the underlying reasons for their different reactions, social representation theory has been advanced as a theoretical framework for in-depth analysis (Fredline & Faulkner, 2000, 2001a, 2001b; Kim, Gursoy, & Lee, 2006; Zhou & Ap, 2009; Cheng & Jarvis, 2010). According to Fredline and Faulkner's (2000) interpretation, the social representations are divided into three categories—direct experience, social interaction, and the media. These social representations can be clarified

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as the antecedents of residents' perceptions and attitudes. News media, both the contents and the format, has the potential to influence people's perceptions of the events (Fredline & Faulkner, 2000).

1.5.3 Attribute Agenda Setting Theory

News media plays an important role in the process of defining a social problem. The media frames an issue in a certain way, telling the audience about what is important and how to think about it (Gitlin, 1980). The attribute agenda setting theory refers to significant correspondence between prominent issue attributes in the media and the agenda of attributes among audiences. The original agenda setting hypothesis deals with the transmission of issue salience from the media to the public. By emphasizing or frequently mentioning particular issues, the media increase the salience of these issues among the public. In a similar way, attribute agenda setting hypothesizes that certain issue attributes emphasized in the media become salient in the public mind (McCombs & Shaw, 1972; McCombs, 2004). An important outcome of attribute agenda setting is its priming effect. Issue attributes emphasized in the media are functioning as important standards by which the audience evaluated the plan (Kim, Han, Choi, & Kim, 2012). Therefore, it can be concluded that attribute agenda-setting theory extends the understanding of how the news media shape public opinion on the issues of the day.

The attribute agenda setting model has guided inquiry in public opinion and mass communication about social and political issues for more than three decades. Widely conceived, the attributes refer to the properties, characteristics, or aspects of an object that can be employed to evaluate or think about the same object (McCombs & Evatt, 1995). In the case of hosting the Olympic Games, the impacts, both positive and negative,

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discussed in the news media and perceived by the public are the attributes focused in the present study. They are both influential to the public opinion on the political decision in bidding for the games. Public opinion is directly associated with the news media coverage about the diverse impacts of hosting the Games on the local community. The news media also are indirectly associated through the mediating effect held by the local residents' perception of benefits and liabilities caused by hosting the Olympics. That is, the media coverage directly affects people's perception of the benefits and liabilities of hosting the Games and, at the same time, the latter also has direct influence on their general attitudes toward the public issue of bidding for the Olympics.

The psychological explanation for the transfer of salience from the media agenda to the public agenda refers to the need for orientation which describes individual differences in the desire for orienting cues and background information (Lane, 1959). The greater an individual's need for orientation in the realm of public affairs, the more likely they are to attend to the agenda of the mass media (McCombs, 2004). Conceptually, an individual's need for orientation is defined in terms of relevance and uncertainty. Only under the conditions of high relevance and low uncertainty, the need for orientation is high (McCombs, 2004). Otherwise, it is moderate or low. Specifically, when the public issue has high personal relevance or relevance to the larger society and meanwhile people don't have accurate information and stable opinions, then people will have a higher need of orientation and pay more attention to the news media agenda. In this case, the attributes of the public agenda are more inclined to be identical with the attributes of the media agenda. Consequently, the relevance and uncertainty level of the public issue serve as the moderator in the attribute agenda-setting theory.

1.6 Theoretical Framework

Based on the research questions and theoretical foundations, a theoretical model demonstrating the relationship between media content and public opinion is proposed to examine the media effects on public opinion of hosting the Olympic Games. The model illustrates the causal relationship these two constructs relating to an Olympic bid. It is proposed that the public opinion is directly affected by the media content about the impacts of hosting the Olympics. In this study, pretest-posttest experimental research is employed to test the potential cause-effect of media content on resident attitudes toward hosting the Olympics. The media content is manipulated through creating different news scenarios presenting different information about the impact of hosting the Olympics in terms of benefits and liabilities. The public opinion is measured through surveys both before and after the participants are randomly assigned into different news scenario. Meanwhile, nation is analyzed in this experimental design to determine its moderating role in the relationship between media content and resident attitudes toward hosting the Olympic Games. Figure 1.1 represents the theoretical model in the study.
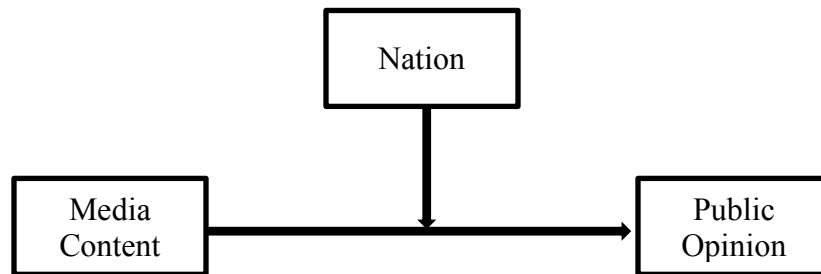
Figure 1.1 Proposed framework of media effect on public opinion about the Olympics

1.7 Contribution of the Study

The potential contributions of this study can be discussed from both theoretical and practical standpoints.

On one hand, the study contributed to a theoretical enhancement of the current level of knowledge in the existing literature on media effects and resident attitudes in the field of mega-events. This was achieved by empirically testing the causal relationship between the media content and the public opinion of hosting the Olympics. Additionally, the intercultural validity is examined through the cross-national study between the US and China.

On the other hand, the study provided a new perspective to interpret the level of public support and/or opposition about public affairs likewise the bid for the Olympic Games for the local governments, policymakers, and businesses. This experimental study explores the informative role played by news media among the local residents when formulating their perceptions and overall attitudes toward hosting the Olympic Games. It also sheds light on the significance of the news reporters taking a neutral standpoint to reveal all the facts – both the benefits and liabilities – associated with the mega-events for the purpose of better utilization of the public resources and services.

1.8 Organization of the Study

Chapter I presents the overview of the study, which includes the background of the study, statement of problem, the research questions, theoretical framework, and the theoretical model proposed for this research. Chapter II consists of a review of the available literature pertaining to media effects and the residents' attitudes toward hosting the Olympics. The theoretical background and previous conceptual and empirical

research findings are discussed. Chapter III focuses on the research framework, research questions to be answered, a detailed discussion of the research design, the development of the survey instrument, sampling, and procedures of data analysis. Chapter IV reports the results of the empirical analyses of the proposed theoretical model that was tested for the hypotheses. Chapter V discusses the findings of the study; the implications and conclusions of the research are delineated. Finally, the study's limitations and future research suggestions and directions based on this study are presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of the literature pertaining to the constructs of the theoretical model proposed in this study in the areas of Olympic impacts study, residents' attitudes study, and media effects study. The discussion of the previous research serves as the research background for the research questions and the study's objective. This chapter also presents the full theoretical model with the proposition established by the theoretical framework of the study to be empirically tested.

2.2 Olympic Games as Mega-Events

The Olympic Games belonged to the so-called mega-events (Bottero, Sacerdotti, & Mauro, 2012). Ritchie (1984) defined such events as:

> Major one-time or recurring events of limited duration, developed primarily to enhance the awareness, appeal and profitability of a tourism destination in the short and/or long term. Such events rely for their success on uniqueness, status, or timely significance to create interest and attract attention. (p. 2)

From the perspective of tourism management, Getz (cited by Fayos-Solá, 1998) also categorized mega-events mainly based on the magnitude and significance of the impacts on the host area in terms of tourist volumes, visitor expenditures, publicity effects, and infrastructural and organizational developments, which would substantially increase the destination's capacity and attractiveness. In short, mega-events were "short-term events

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with long-term consequences for the cities that stage them" (Roche, 1994, p. 1). Moreover, they possessed "a dramatic character, mass popular appeal and international significance" (Roche, 2000).

According to the above definitions, besides the Olympic Games, mega-events could range from the World Fairs and Expositions to the FIFA World Cup. These events were primarily targeted at the international tourism market and were suitably described "as mega by virtue of their size in terms of attendance, target market, level of public financial involvement, political effects, extent of television coverage, construction of facilities, and impact on economic and social fabric of the host community" (Hall, 1992b). Thus, the major characteristics of mega-events could be summarized as follows: (1) bringing short-term international participation and attention, (2) needing large investments in sport facilities and supporting infrastructure, and (3) having long-term consequences (Essex & Chalkley, 1998).

Different from the other mega-events, the Olympic Games were regarded as the world's "most prestigious" mega-events (Essex & Chalkley, 1998), "the largest" (Müller & Steyaert, 2013) "the most complex" (Kaplanidou & Karadakis, 2010) and the "most important international" (Rose & Spiegel, 2011) sporting event, and even labeled as the "global properties" (O'Reilly, Lyberger, McCarthy, & Séguin, 2008). Since 1896, except during the First and Second World Wars, the modern Olympic Games have been held every four years for over a hundred years. Their high popularity was not only because of the large volume of participants and long history, but also its influential role of blending sports, human equality, and worldwide peace into its philosophy shared by diverse nations and ethical groups. According to the Olympic Charter (IOC, 2013), "Olympism is

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a philosophy of life, exalting and combining in a balanced whole the qualities of body, will, and mind" (p. 12). "Olympism seeks to create a way of life based on the joy of effort, the educational value of good example and respect for universal fundamental ethical principles" (p. 12). This made the Games more than just a sport competition (Tien, Lo, & Lin, 2011).

For the purpose of restoring the municipal gymnasium of ancient Greece and with the expectation of social peace (Coubertin, 1967), Coubertin revived the Olympic Games in 1896. Real (1996) described the birth of the modern Olympic Games as:

> The high hopes of Renaissance humanism, the industrial revolution, the theory of evolution, universal education, and urbanization all came together in the modernist hope to create an efficient, abundant life for all, one periodically celebrated in the modern Olympic Games. (p. 12)

Rather than as an isolated phenomenon, Coubertin (1967) considered the modern Olympics as the "logical consequences of the great cosmopolitan tendencies of our times" (p. 10). In order to promote and diffuse the Olympic spirit of freedom, progress and equality Coubertin established the principle that the Olympics should be hosted in different locations every four years throughout the world (Grupe, 1991).

To Coubertin and his successors, the foundations of modern Olympics were "the modernist ideals of amateurism and the celebration of the human body and elite physical culture" (Real, 1996, p. 12). However, the significant growth of communication technology and media rights fees has simultaneously transformed the Olympics from an event that expressed the ideals of modernism into a postmodern phenomenon (Dayan & Katz, 1992; Real, 1996; Essex & Chalkley, 1998). They brought the dynamics of late

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capitalism (Mandel, 1975) into the Games where public and commercial support have become more and more prominent (Real, 1996). Along with the politicization and commercialization of the modern Olympics, hosting the Games has become a tool of propaganda with the help of large, advanced media coverage.

As the product of Western civilization (Guttmann, 1992), the Olympic Games were not merely a single sporting event like the World Cup or Super Bowl but many events occurring simultaneously (Real, 1996). For instance, the opening and closing ceremonies were considered as the most important show time apart from the sport competitions. Consequently, in the post-modern society, hosting the Games was considered as "urban spectacle" through which the hosts could express their personality, enhance their status and market their position on the global stage (Harvey, 1989). Furthermore, due to the largest exposure to the tourists and television audiences, the host cities supposedly grabbed this worldwide "show off" opportunity to improve their infrastructure and upgrad their landscape and environment (Essex & Chalkley, 1998). Gradually, the Olympic Games have been acknowledged as a major program for urban regeneration, a significant catalyst of urban change, and a key instrument of urban policy (Essex & Chalkley, 1998; Hiller, 2000b). Taken together, in the modern global economy where the major world cities competed for investment, consumers, and leisure tourists, the Olympics represented a "unique publicity platform and opportunity for place marketing" (Essex & Chalkley, 1998, p. 201).

Meanwhile, the increased scale of the Olympics Games and the infrastructural requirements raised a number of social issues (Essex & Chalkley, 1998). The question contested was whether the urban public investment for such events was worthy to

continue. Although the host cities and/or nations showed some variation in their commitment to major facility investment and infrastructural improvement (Essex & Chalkley, 1998), the long-term preparation, large amount of public subsidy, and the distributional effects of the profits caught the public's attention, not only in the host area, but among all possible candidate cities. The main problem facing any government was: what degree of support was warranted? The answer to this question varied for different benefits and liabilities actually associated with specific events (Dwyer, Mellor, Mistilis, & Mules, 2000b). Put more plainly: were the costs for the new infrastructure, facilities, security, and marketing worth the gains from tourism expenditure, sport tickets, and event trade business (Fourie & Santana-Gallego, 2011)? Different schools of opinion provoked substantial social debate and stimulated the study of the impacts caused by hosting the Olympic Games.

2.3 The Impacts of Hosting the Olympics

During the last 30 years, a veritable flood of research has examined all kinds of impacts of the Olympic Games. Notably, with the rapidly expanding body of literature and expertise on this topic, an academic conference, themed as *The Impact of Mega Events*, for the first time, was held in Sweden in 1997, in which special attention was given to the Olympics. Acknowledging the potential of mega-events as a tool of employment and income creation for society, the conference dealt not only with the immediate, direct impacts of mega-events but also, more importantly, with the long term issues and indirect effects of such events (Fayos-Solá, 1998). Through discussion, it became clear that mega-events had varying costs and benefits dependent upon the types of actors and the rules applied. Therefore, the conference scholars called for a

methodological framework to classify and analyze the event bidding, selection, organization, management and effects, especially the application of long-term data and in-depth discussion of case studies (Fayos-Solá, 1998). In short, this conference served as an intensive effort to advance the following years' research in this area.

The distinguishing feature of mega-events was the international profile. They were expected to produce large-scale effects on the global stage within a particular territorial context (Bottero et al., 2012). Prior studies have been conducted on the Olympic Games and other mega-events from a series of different perspectives since the 1980s (Ritchie & Aitken, 1984), such as that of social impacts (Mihalik & Simonetta, 1998; Waitt, 2003; Minnaert, 2012; Richards, Brito, & Wilks, 2013), economic impacts (Burgan & Mules, 1992; Crompton, 1995; Dwyer, Mellor, Mistilis, & Mules, 2000a; Preuss, 2004; Lee & Taylor, 2005), urban impacts (Hiller, 1990, 2000a, 2000b), and so forth. Generally, the impacts brought by hosting the Olympic Games were considered to be diverse and complex. Dwyer, Mellor, Mistilis, and Mules (2000b) proposed a framework to interpret both the tangible and intangible impacts, as well as both positive and negative ones linked to events, festivals, and conventions. Tangible impacts included the economic impacts, media impacts, and fiscal impacts. All social impacts, both positive and negative ones, and some economic impacts were not quantifiable (See Table 2.1). The following section reviews the prior studies based on this framework.

2.3.1 Media Impacts

The primary function pursued by the Olympic organizers was the increased awareness and an enhanced image for the host city in the international marketplace, which could boost the tourism and economic development (Hall, 1989; Ritchie & Smith,

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1991). Ritchie and Smith (1991), for the first time, examined the degree to which hosting the Olympic Games truly increased the awareness and enhanced the image. Through surveying the participants in the United States and Europe, the authors found that the hosting of the 1988 Olympic Winter Games had a significant influence on the levels of awareness and knowledge of Calgary in these two major markets when compared to other Canadian cities.

Table 2.1 Framework of assessing event impacts adapted from Dwyer et al. (2000b)

		Benefits	*Liabilities*
Tangible impacts	Media impacts	• Favorable publicity (media) coverage	
	Economic impacts	• Impacts on output, income, value-added, and employment	
	Fiscal impacts	• Government cost and revenue	
Intangible impacts	Economic impacts	• Long-term tourism promotional benefits • Induced development and construction expenditures • Additional trade and business development • Increased property values due to facility construction/improvement	• Resident exodus • Interruption of normal business • Underutilized infrastructure
	Social impacts	• Community development • Civic pride • Event product extension	• Disruption to resident lifestyle

A similar observation was made on the 2008 Beijing Olympic Games. Gibson, Qi, and Zhang (2008) investigated the image the American young adults held of China as a tourist destination and as the host site for the 2008 Summer Olympic Games. The general image held by the American student population was still perceived as some organic images, for instance, the Great Wall and the crowds of people. This was partially because

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the Beijing Olympic Organizing Committee had not started any marketing campaign when the data was collected four years before the Games. In contrast, after the preparation and promotion projects initiated in Beijing, a leading Western newspaper described the effect of image-building led by the 2008 Beijing Olympics like this: "No project is more symbolic of how China is using the Olympic Games this year to refashion its image and prepare itself for a future once only dreamed of by Chairman Mao's economic planners" (Spencer, 2008), although the empirical evidence did not find substantial change after the Games in terms of China's destination brand perception among the US tourist market (Li & Kaplanidou, 2013).

As a matter of fact, this image-building effect varied across host cities and the Games. Specifically, for certain well-known cities there might be very little impact on the awareness or image because of the original high degree of exposure or the well-established international competitiveness. For instance, Kang and Perdue (1994) argued that the Olympic impacts may be greater for Seoul, the site of the 1988 Summer Olympics, than for a highly exposed and popular destination such as Los Angeles, the site of the 1984 Summer Olympics. For those cities that did experience a marked increase in awareness (such as Calgary), however, there was no hard evidence to show that the improved image would finally translate into a larger amount of tourists and tourist spending. Furthermore, the high level of awareness decreased considerably after a short period of the Calgary Games (Ritchie & Smith, 1991).

It was not always the case that hosting mega-events generated improved image and increased awareness in the world. Rather, there was some danger inherent that the promotion of the desired image was not successful (Gibson et al., 2008). For instance,

Athens was criticized on the environmental issues when Greece failed to protect the natural environment as promised after it won the bid for the 2004 Summer Olympics (Davis, 2004). Although such kind of danger existed, overall hosting the Olympic Games did provide one of the best opportunities for the host cities to raise awareness, improve image, increase public exposure, and then stimulate the international tourism demand in the worldwide.

2.3.2 Economic Impacts

The Olympic Games were seen as essentially an economic initiative (Hiller, 1998). When evaluating the various impacts of hosting the Games, its economic contribution to the host region was the major justification from the perspective of the local elites, while other kinds of impacts were considered minor (Hiller, 1998). In other words, it was not uncommon that the economic benefit was used as the basis for gathering public support and justifying the huge investment in the bidding process and the subsequent operational expenditure (Chalip, Green, & Hill, 2003; Lee & Taylor, 2005). The economic benefits arose from the injection of new expenditure (Burgan & Mules, 1992), mainly from the tourists who would not have visited the host country in the absence of the Games.

Mega-events have been playing an important role in the growth of international tourism (Burgan & Mules, 1992) over the past three decades. This could be attributed to the fact, as has been mentioned above, that hosting the Olympic Games could have significant impacts on a country's image, particularly through the mass media coverage that these events received across the world (Ritchie, 1984; Essex & Chalkley, 1998; Mihalik & Simonetta, 1999; Chalip et al., 2003). For instance, Seoul, through hosting the

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1988 Olympic Games, successfully rebuilt the image for South Korea on the global stage when the city's urban regeneration plan was compressed by 10 years (Ahn, 1987). Additionally, co-hosting the 2002 FIFA World Cup greatly enhanced the overall national image of South Korea as a notable international tourism destination in a short time period (Kim & Morrsion, 2005). It was anticipated that by staging the 2008 Beijing Olympic Games, China would raise awareness among the potential tourist market and then attract more tourists which would lead to a boost in the international arrivals for China's inbound tourism industry (Gibson et al., 2008).

A similar observation was made in the case of the Winter Olympics. By pointing out the effect that the 2006 Winter Olympics had on the regional tourism sector, Bottero, Sacerdotti, and Mauro (2012) showed how the Games positively influenced the local and, more generally, regional tourism system. They produced a new image of the city and increased the tourism trends by creating an innovative approach for governance from a long-term perspective. Moreover, hosting the Winter Olympics has helped Turin and the Italian Piedmont region establish a new scenario where the cultural and touristic policies were identified as the new strategic drivers of the economic development.

Generally, scholars calculated the economic impacts based on two main parts: the effect of the infrastructure constructions, such as sporting facilities, roads, and so forth, and the total commercial activity that took place during the Games (Barclay, 2009). More specifically, by taking into account the estimate of the numbers of visitors, numbers of days and average spending per day, the total expenditure of visitors could be calculated as the direct impact (Matheson, 2006). With the help of the multiplier, the indirect as well as the total economic impacts could be deduced. There were, however, various issues in

predicting or analyzing the economic impacts of hosting the mega-events (Crompton, 1995; Gelan, 2003; Barclay, 2009). The major one existing in the relevant studies was that the ex-ante impact studies often exaggerated the economic benefits typically by overestimating the gains and underestimating the costs associated (Barclay, 2009).

The explanation for the overestimation of economic impacts, especially the large variation between the forecast tourist arrivals and actual arrivals, could be attributed to some macro accidental factor (e.g., 9/11 terrorist attacks on the 2002 World Cup in Korea). But, more significantly, the overestimation was often associated with the inaccurate estimation methodology applied (Lee & Taylor, 2005). This issue has been dealt with in detail by Crompton (1995), but has also been revised and examined by Barclay (2009).

According to Crompton (1995), many of the economic impact analyses reported inaccurate results due to the growing public scrutiny of the public subsidy on sports events and facilities. There were 11 major problems that often led to such overestimated results: using sales instead of household income multipliers; misrepresenting employment multipliers; using incremental instead of normal multiplier coefficients; failing to accurately define the impacted area; including local spectators; failing to exclude time switchers and casuals; using fudged multiplier coefficients; claiming total instead of marginal economic benefits; confusing turnover and multiplier; omitting opportunity costs; and measuring only benefits but omitting costs. Another comprehensive investigation was made by Barclay (2009) who claimed the inaccurate estimation was closely linked to the methodological errors associated with ex-ante studies, problems with

analyzing external visitors, problems with accounting for those locals who were non-attendees, crowding out, misuse of multipliers, and supply-side leakages.

To summarize the previous studies on economic impact analysis, the main source of controversy has been methodological issues surrounding (1) the measurement and interpretations of expenditure, (2) impacted area, and (3) the use of the multiplier.

Tourist expenditure

The relevant literature showed that the economic impact of the mega-events was mainly expenditure driven (Gelan, 2003) and the expenditures were estimated mostly through collecting data from different spenders including residents, tourists, and local authorities and businesses. However, Crompton (1995) argued that only those tourists who were mainly attracted by the events should be surveyed since only their expenditure would be considered to be the economic impact directly attributable to the events. Crompton (2010) further emphasized the significance of accurate counts of visitors upon which the accurate measurement of economic impact depended. Usually the economic impact was calculated by reasonably extrapolating from a representative sample to the total tourist count.

In detail, two categories of tourist expenditures needed to be excluded in the sampling process: one was time-switchers, those who changed the visit date to coincide with the events; the other was the casual tourist who was already in the host city and was attracted to the event site instead of doing something else. Obviously, both these categories of expenditure would have occurred at another time or another place within the host region. After excluding these two categories, it was concluded that the net

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incremental number of tourists was actually quite small (Burgan & Mules, 1992; Crompton, Lee, & Shuster, 2001; Matheson, 2006).

Multiplier

If the tourist expenditure was regarded as the direct economic impact estimation from hosting the events, the multipliers can help to estimate the indirect impacts (Burgan & Mules, 1992) and then to calculate the total impacts. The multiplier recognized the interdependence among different industrial sectors in the host community (Gelan, 2003). The two most commonly used multipliers in the economic impact analysis of hosting the Olympics were income and employment multipliers. This was because the impact of the increased expenditure on household income and employment was of interest in economic impact analysis for the hosting area. But it was not uncommon in the relevant literature to multiply total tourist expenditures by a sales multiplier that was higher than the income multiplier (Fridgin, 1991; Crompton, 1995).

There was also clear misapplication of the employment multiplier effect. When an employment multiplier was used, it measured the total amount of the full-time equivalent jobs caused by hosting the events (Crompton, 1995). However, this application was not reliable when the event was large and temporary (Mills & Rosentraub, 2013), like the Olympic Games, because (1) most cases were one-off events and thus the extra employment demand was not lasting; (2) the extra demand may be met by the existing staff working overtime (Crompton, 1995); and (3) new employment may be hired from out of the host area (Mills & Rosentraub, 2013). Taken together, employment multipliers can be misleading, as the governmental authorities tended to report the employment effects as full-time equivalent job opportunities (Burgan & Mules, 1992).

Impacted area

To study the economic impact of an event, it was necessary to first clearly define the reference area that hosted the event (Gelan, 2003). There was a high possibility that a good proportion of the total tourist expenditure may not have occurred within the host area and it was highly dependent upon both the nature of the event and the economic characteristics of the host region (Mills & Rosentraub, 2013). For instance, due to the large scale of the Olympic Games, the core host city often cooperated with some neighboring regions, such as the Beijing Summer Games and the Lillehammer Winter Games, and thus the economic influence may vary depending on the distribution of the venues and events (Teigland, 1999). Additionally, from a national viewpoint, Mules (1998) and Gelan (2003) both pointed that only overseas tourists should be considered as the source of the new money for the host country because the non-local domestic tourists are simply switching expenditure within the host country.

In addition, the integrity of economic activity within the host region could influence the investment return on hosting the events (Mills & Rosentraub, 2013). Specifically, the more integrated a regional area and the smaller a host city was compared to its neighbor region, the more likely that the tourists would consume souvenirs, food and beverages imported from the other parts of the country or even from other countries. The similar conclusion came from the economic impact analysis of the British Open where Gelan (2003) claimed that neither the number of tourists nor the size of their expenditure necessarily mattered when measuring the economic impact of hosting events. Rather, the proportion of local goods in the total value of goods and services purchased by tourists provided the most important indicator of economic impact in the study area. In

other words, the smaller the host community the greater the likelihood that a large proportion of the new money may be injected into other locations.

The point to be made from the foregoing discussion was that there was a need to approach the economic analysis of hosting the Olympic Games sensibly with more scientific and accurate estimation. Daniels, Norman, and Henry (2004) demonstrated four models to estimate the income effects of a large, southeastern United States road race and found that each model had its own constraints and further, the analysis results varied significantly based on the model type. First, the input-output analysis, although widely accepted and useful, does not reveal the distributional consequences pertaining to the event across different household income segments (Holland & Wyeth, 1993; Mules, 1998; Gelan, 2003); second, as the extension of input-output analysis, a social accounting matrix model was constructed to determine the distribution of the household income effects generated from tourist expenditure; as to the third and fourth model, in order to distinguish the different impact weights among business sectors, occupation and wage data were incorporated for that, apparently, the tourism-related occupations, such as retail, food and beverage, accommodation, were more likely to be impacted by the mega-events than the non-related ones. In doing so, a more precise estimation of the distribution of economic impacts can be achieved. In the end, the authors concluded that the primary occupations influenced by sport events were service-oriented employment and occupation-based modeling was a better alternative method for the estimation of economic impacts caused by tourist expenditure.

When assessing the economic impact of the 2002 FIFA World Cup in South Korea, Lee and Taylor (2005) used an estimation method that excluded tourists who were

not primarily motivated by the event. It was found that 57.7% of the total tourist arrivals during the period of the event were attracted, either directly or indirectly, by the World Cup. Obviously, it would have resulted in a significant overestimation if the non-event tourists (42.4%) had been included in the input-output model when calculating the economic impact. The study also showed that the oversea event tourists spent approximately 1.8 times as much as those non-event tourists. Thus, it clearly illustrated the importance in adequately distinguishing the event tourists from non-event ones in economic impact forecasting for mega-events.

To improve the estimation accuracy of the tourist expenditure during the mega-events, Lucia (2013) proposed an innovative methodology to track the consumer behavior of the event tourists instead of the traditional survey methods. In her study, passive action-tracking electronic technology (RFID) was used. Specifically, the researcher put a tag on the event tourists to identify and track their relevant behavior through radio waves transmitted to an electronic reader (Holloway, 2006). In this way, the actual consuming and spending behavior of the event tourists could be recorded. Compared with the questionnaire, the integration of such an electronic instrument for collecting primary data of tourists and their expenditure greatly improved the effectiveness of the economic impact analysis and then better supported the investment decision-making in events (Lucia, 2013).

After recognizing the misapplication of multipliers when calculating the economic impact on the hosting area, Mills and Rosentraub (2013) argued that a full understanding of the nature of industry and labor supply in the area was the first step in calculating proper multiplier effects. It was especially true for the highly integrated

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regions. The authors also used detailed examples to show how to use the industry share and commute shed analysis to calculate the capture rates of the new money within the host area.

In addition, because hosting the Olympics required a number of years to prepare mainly on the infrastructure and facilities construction, the economic impact may not be significant right before, after, or during the Games (Tien et al., 2011). Thus, a longitudinal approach to analyze the economic impact aiming to ascertain whether staging the Olympic Games was economically worthwhile was required. Tien, Lo, and Lin (2011) used a nine-year time span for 15 countries and 24 Games after 1964 to examine the economic impacts of staging the mega-event on the GDP performance, unemployment, and investments. The study found that hosting the Olympics did not generate a significant long-term impact on the host countries, but only a short-term impact on the GDP and unemployment. Furthermore, the significant short-term impact only existed before the Games, neither during nor after the event. These findings were similar with the research done by Baade and Matheson (2002) who claimed that the actual economic impacts of hosting the Olympics were more modest than that projected by the event boosters.

2.3.3 Fiscal Impacts

Fiscal impact referred to the government revenue generated through event-related expenditure minus associated government expenditure (Dwyer et al., 2000b). The major source of government revenue was the taxation from the extra event-related spending. Possible government expenditure items included the public expenditure on the construction of facilities and supporting infrastructure (e.g., road works), the public

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expenditure on provision of additional police, ambulance officers, etc., and government subsidies relating to events (Dwyer et al., 2000b). To distinguish financial impact from economic impact, Tien et al. (2011) argued that financial impact narrowly referred to the budgetary or financial balance of the event organization while the economic impact more broadly referred to the impact generated on the national or regional economy.

There may be some ambiguities concerning the precise definition of the fiscal impacts and the categories included in the government expenditure. However, staging mega-events usually imposed a large cost on the host country which outweighed the compensation earned during the event and from the post-event legacy (Rose & Spiegel, 2011). It was almost impossible for Olympic organizers to cover the operating and capital costs from ticket sales and sponsorships (Burgan & Mules, 1992; Matheson, 2006; Tien et al., 2011). Thus, the Games were traditionally financed by the host city in conjunction with the central government of the host country. More often than not, countries usually committed substantial resources to host such kinds of mega-events. As a result, these government grants or subsidies were considered as an injection of new expenditure into the host city economy if the local region was of interest for the economic benefit analysis.

Increasing attention has being focused on the issue of the justification of government subsidies in hosting the mega-events (Mules, 1998; Faulkner et al., 2001; Matheson, 2006; Porter & Fletcher, 2008). There were many examples of Olympic venues that have cost more than necessary (e.g., the Bird Nest in Beijing, the Stadium Australia in Sydney, the Olympic Stadium in London, etc.) and have become a financial liability rather than a benefit for the host cities (Alberts, 2011). It was highly unlikely for mega-events to generate sufficient tax revenue to justify the expenditure of taxpayers'

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funds (Mules, 1998). However, the desire to host the Olympic Games was widely held by both the masses and political elites (Rose & Spiegel, 2011). The sport boosters often predicted large economic benefits for cities hosting the Games regardless of the large amount of financial costs. The great optimism that the Olympic boosters have shown was based on the premise that the expenditure on the Olympic venues and infrastructures should be considered as an investment in the community that can trigger bigger, positive economic returns. This argument has been criticized in academia because the argument was biased (Barclay, 2009). That is, these studies might be commissioned directly by those "who have a vested interest in holding such events" (Barclay, 2009, p. 63) because the results of these studies usually provided the rationale for public and private funding.

Although it was probably that the mega events would operate at a financial loss, at the same time the events could make a positive contribution to the local economy (Burgan & Mules, 1992). Particularly, at the national level, if the events can attract a sufficient number of oversea visitors, they may be worth staging even though the revenue was less than the staging cost, in order to obtain the income that would flow from the tourists' expenditure and the longer-term effects followed. Therefore, further investigation was required to see whether the diverse benefits of hosting the Olympics outweigh the sum of the liabilities associated. Hiller (1998) proposed an adapted political economy model to analyze the broader process from a longitudinal perspective which distinguished three kinds of linkages. Forward linkages referred to the effects caused by the event itself, such as employment creation, tourism increase, road improvements, and community pride. Backward linkages referred to the powerful background objectives which justified or rationalized the event. For example, the event can help attract external

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capital for the host region. Parallel linkages were the side-effects which were residual to the event itself and not directly under the control of event organizers; among them were many urban impacts linked to the events, like better city traffic due to infrastructure improvements and gentrification near a prestigious Olympic site. In this case, not only the tangible economic and fiscal benefits and liabilities, but also the diverse social impacts of hosting the Olympic Games on the local community, need to be addressed within the academic scrutiny.

2.3.4 Social Impacts

Besides the above tangible impacts, there has been a growing awareness of the wide-ranging significant intangible effects of mega-events on the host region. Roche (1992) proposed to go beyond the narrow economistic approach and explore the wider socio-economic impacts of the mega-events. According to the Interorganizational Committee on Principles and Guidelines for Social Impact Assessment (2003), social impacts meant "the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society" (p. 231). It also included cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society. In the field of mega-event studies, social impacts can be discussed from four general perspectives: urban regeneration, social capital, culture and lifestyle, and all the negative impacts.

First, mega-events can be a vehicle for some form of urban transformation (Hiller, 2000a, 2000b, 2003, 2006), a catalyst for local development and regeneration (Hughes, 1993; Mules, 1993), and even greatly affect the modernizing process of the host cities

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(Roche, 1992, 2000). To some extent, the Olympic Games allowed the host cities to quickly complete complex construction projects that would otherwise take much longer to realize or may not be carried out at all (Alberts, 2011). In particular, "the International Olympic Committee deliberately rotates the sites for the Olympics as a means of promoting athletic development in a variety of nations by requiring world-class facilities that otherwise might not be constructed " (Hiller, 1990). These facilities then became not only sites for the Games, but important urban symbols, as a reminder of the city's Olympic history. The local residents considered the hosting history and physical symbols as the urban legacy (Hiller, 2003).

Moreover, since the bidding for the Olympics had a higher requirement on the quality and capacity of the infrastructure, even failed bids for an Olympic Games could be useful for the cities and helped prepare them for the future operation of mega-events, as stated by Smith (2012) when discussing why the "white elephants" – the expensive but unused giant Olympic venues – were built. Additionally, mega-events could bring worldwide attention and publicity to host areas resulting in more people wanting to experience the Games, visit the city, and then perhaps consider living and/or investing there. A similar observation was made by Bondonio's (2011) empirical study which confirmed the urban renewal role played by the Winter Olympics on Turin, Italy by comparing the analysis with other northern Italian cities. Succinctly, "the Games made a difference" (p. 303).

For the first time, Richards, Brito, and Wilks (2013) identified the roles of events in social cohesion, particularly, in developing social capital and participation in local communities. Support for this statement was apparent in the case of the 2010 World Expo

in Shanghai as written by Lamberti, Noci, Guo, and Zhu (2011). The authors argued that such mega-events, due to their wide scope and the prominent role that large groups of stakeholders played in its success, were a driving force for community participation in developing countries. According to their evidence, some initial elements of community participative decision-making have indeed developed around the organization of the Shanghai World Expo within the Yangtze River Delta area.

Another way of increasing the social capital was that hosting the Olympic Games resulting in international attention often have positive psychological benefits in the local community. For instance, the citizens of Brisbane were proud of hosting the 1982 Commonwealth Games, and enjoyed a feeling of importance as a result of media attention and the presence of internationally acclaimed athletes (Burgan & Mules, 1992). Moreover, the global sporting events might provide the opportunities to generate patriotism, increase community attachment, and reestablish place identification within the host area. Such effects were particularly significant among the young and ethnic minorities in the case of the 2000 Sydney Olympic Games (Waitt, 2003). From a more macro point of view, the studies of the 2008 Beijing Olympic Games and the 2010 FIFA World Cup further highlighted these functions, as the host government expected the building of the national cohesion as well as strengthening the national identity beyond the scope of the host city (Lau, Lam, & Leung, 2012; Heere et al., 2013; Jiang, 2013).

Third, from an individual perspective, sports and sporting events raised the community's interest and then led to greater participation in sports. This had obvious community health benefits (Burgan & Mules, 1992). As the International Olympic Committee (2002) stated,

The Olympic Movement and the Olympic Games have left a significant sporting legacy in diverse areas, especially in reference to the athletes as protagonists and their rights. The inclusions of a greater number of sports in the Olympic program, and the increased participation of women have greatly improved the universal practice of sport (p. 3).

This was relevant particularly in the context of using the Games as a vehicle for creating healthy lifestyles through "sport for all" (Mules, 1998). In addition, the far-reaching impact of hosting such large-scale event, to some extent, offered the opportunity to encourage more practices and education in sustainable development, as observed in some individual cases (e.g., 2000 Sydney Olympic Games by Harris, 2014).

While the Olympic Games have been viewed as a catalyst for tourism and urban regeneration, there were numerous potential risks associated with the Olympic Games. First, there was confirmative evidence that mega-events can generate increases in criminal activities (Barker, Page, & Meyer, 2003; Toohey & Taylor, 2008; Schroeder, Pennington-Gary, Kaplanidou, & Zhan, 2013). As Toohey and Taylor (2008) stated, since the 1972 Munich Summer Olympics, there has been an association between terrorism, violence, and the Olympic Games; then, the 9/11 terrorism attack re-escalated concerns about the Games being a terrorist target. In addition, the potential linkage between the mega-events and sexual trafficking has been paid considerable attention as well (Bird & Donaldson, 2009; Matheson & Finkel, 2013).

Tourists' perception toward safety and crime was important because it could affect the tourists' attention in the Games, travel intention, and the overall satisfaction with the event and the destination. Due to the limited local knowledge of the crime risk,

overseas tourists had more demands during the event for safety precautions, safety information, police presence, and the like (Barker et al., 2003). In an attempt to guarantee the secure environment, a strong public and financial commitment to safety at the Games was necessarily made with the organizers undertaking wide-ranging, large-scale risk management initiatives (Toohey & Taylor, 2008), which added a large amount of operation cost of hosting the Games.

Second, since the Olympic facilities were hugely expensive in most cases, the question of reuse was particularly pertinent. New sports facilities and other structures realized for the Olympic Games could become a positive legacy only when they attracted efficient post-Games usage (Alberts, 2011). As a matter of fact, some facilities were either too large or too specialized to be of much use after the Olympics were over (Searle, 2002). The list of examples was endless. For instance, South Korean people complained about the facilities for the 1988 Seoul Olympics as a waste of money and perceived the 2002 World Cup to be a similar case for which a total of ten stadiums were newly built or renovated (Choo, 2002; Kim et al., 2006).

Some other negative social impacts could range from the disruption to resident lifestyle, like traffic congestion, to the displacement of the urban residents. It was reported that by the Centre on Housing Rights and Eviction (2007) that about 1.5 million Beijing residents were displaced as a result of Olympics-related urban development projects between 2000 and 2008 (about 14 percent of Beijing's permanent residents). Moreover, this forced displacement disproportionally affected the homeless, the poor, and ethnic minorities (Shin & Li, 2013). Moreover, the Olympics could implement a longer-term economic displacement of working class areas of host cities because the

Olympics significantly accelerated the process of inflating real-estate prices. For instance, Kumar (2012) reported that rents in Sydney, host to the 2000 Olympic Games, increased by 40% between 1993 and 1998, whereas Melbourne, the neighboring city in the same period, saw only a 10% rise.

The measurement of social impact was estimated through putting monetary value on different aspects. One way to estimate the monetary cost of traffic congestion was to survey the length of time in traffic and average earnings of the local residents (Burgan & Mules, 1992). Economists also referred to the positive psychological benefits as "psychic income" which can manifest in civic pride, self confidence, or a festival atmosphere (Mihalik, 2000; Gibson et al., 2014). The usual way to measure the psychic income, known as "contingent evaluation", was to survey the population with questions of the "how much are you prepared to pay" variety (Burgan & Mules, 1992). However, due to the multifaceted nature, it was difficult to measure the social dimension of mega-events (Richards et al., 2013).

2.3.5 Implications

Apparently, the major controversy existed in the dispute over whether hosting the Games resulted in net economic and social benefits. From the previous discussion, it can be concluded that "the economic legacy of the Olympic Games was highlighted as being difficult to measure due to the large number of variables involved and in particular when and how these measures are undertaken" (IOC, 2002, p. 2). Although substantial studies showed that great economic and social benefits could be associated with hosting the Games, a growing body of literature suggested that the costs of mega-events may outweigh the associated benefits (Gelan, 2003). The fact that many academic scholars

started to doubt the wisdom of stimulating the economy through hosting mega-events was due to two factors. First and foremost, most of the studies predicting large economic benefits were typically commissioned by the public funding agencies and thus not intended for the academic audience. Mule (1998) classified the motivation of using the taxpayers' money to host mega events into two categories. The first justification was both the tangible and intangible benefits that purportedly accrued to the host community; the second justification was more political, that the governmental leaders could gain favorable publicity with the success in such great accomplishments.

The other reason was that these studies were done before the Games occurred, i.e., ex-ante studies, but there were few studies to examine the realistic data after the Games. With regard to the social impacts, as Rose and Spiegel (2011) argued, the very existence of this intangible spillover was uncertain, let alone its magnitude. This naturally proposed more challenges in the measurement of those unquantifiable impacts. Thus, here, we can summarize the implications of studying the impacts of hosting the Olympic Games as follows:

First, a long-term perspective needs to be employed when studying the diverse impacts. Long-term was defined as the periods beginning with announcement of the mega-event and ending at some point in the future yet to be determined (Kang & Perdue, 1994). As the International Olympic Committee claimed:

It is necessary to research the impact of the Olympic Games avoiding the interpretation of the data just immediately after them. There is a clear need for more research of a longitudinal nature into all aspects relating to Olympic legacy,

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beginning well before the Games and lasting for a sustained period after their completion (IOC, 2002, p. 4).

This was also corroborated with the practical need for a long-term legacy planning of the Olympic Games in the context of sustainable development (IOC, 2002):

Planning in this way protects the environment, but that at the same time brings about social and economic development, for example, the use of technologies for development, the contribution of Olympic architecture and infrastructure as a stimulus for new forms of sustainable and environmentally friendly developments (p. 2).

Even though the long-term impacts of a mega-event have frequently been mentioned and officially advocated, relevant research still mainly focused on the immediate impacts. Importantly, longitudinal studies provided different perspectives to examine the benefits and liabilities associated with hosting the Olympics. For instance, through analyzing the annual observations between 1950 and 2006 for some 196 territories and localities, Rose and Spiegel's (2011) study showed that the countries which have hosted the mega-events, including both the Olympic Games and the World Cup, had exports over 20% higher than the others. Interestingly, strong statistical support also showed that unsuccessful bids to host the Olympics actually increased the exports as well. Rose and Spiegel (2011) argued the Olympic effect on trade is "attributable to the signal a country sends when bidding to host the games, rather than the act of actually holding a mega-event" (p. 652). This was because all countries that bid for the Olympics "experience[d] an increase in outward orientation" (p. 654), not merely the host countries. In other words, bidding to host a mega-event provided a positive signal about

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future policy intentions. Furthermore, the Olympic bids also served as good signals of liberalization because they were "highly visible, infrequent and have long times" (p. 654) and they could confirm foreign investors' confidence.

Some studies have pointed out that the Olympic advocates exaggerated the economic benefits in many ways. In particular, different voices could be heard with regard to the contribution on employment and tourism benefits. Minnaert (2012) stated that although the Olympic Games provided opportunities for local residents, they were not sufficiently targeted to have a great effect on the long-term unemployed. Similarly, the Olympic impact on international tourism was found to be higher in the year immediately following the event, but gradually diminished over a ten-year period, as the data of Korea showed (Kang & Perdue, 1994). Notably, what distinguished the Olympic Games in Sydney was that there has been a substantial public effort to leverage the Games for tourism development (Faulkner et al., 2001). Gradually, a high importance has been placed on how to leverage the tourism opportunities off mega events for longer-term benefits both in the academic and practical realms.

The second implication drawn from the previous discussion was to conduct comparative studies considering the different social-cultural contexts of the host countries. Empirical results of the impact studies varied considerably across countries and the Games (Fourie & Santana-Gallego, 2011). The IOC also stressed the importance of comparative studies for the purpose of "avoiding a historical interpretation of the Games that only draw on a very limited number of experiences and forgetting others" (IOC, 2002, p. 4). Meanwhile, it should also be acknowledged that the "comparisons between host cities are problematic due to local circumstances, objectives and global economic

context in which the Games are held" (IOC, 2002, p. 2). Toohey and Taylor (2008) also emphasized the importance of taking the political climate and cultural practices of the host nation into consideration when studying the non-Western nations.

Last but not least, besides the objective evaluation, subjective evaluation from the perspective of the local residents was supposed to be conducted on the impacts of hosting the Olympic Games. In other words, the residents' perceptions of the hosting impacts and their general attitudes were of importance in terms of measuring the value of hosting the Olympic Games. Different from objective evaluation, exploring residents' perceptions and attitudes could provide a way to measure the relative importance of various impacts, detect the influential variables that affected the impacts within the local residents, and easily assess the implications on the quality of life in the local community (Jeong & Faulkner, 1996).

2.4 Resident Attitude toward Hosting the Olympics

The resident attitude study has been one of the hottest topics in the academic area during the past three decades. An understanding of the local residents' attitudes toward the impacts of hosting the Olympic Games was important for both the public and private sector organizations to gain wide support and to promote the event among the host community (Fredline & Faulkner, 2001a). One point from the foregoing discussion about the current Olympic impact studies was that the measurement of the economic contribution varied across the Games and the authors, not to mention the unquantifiable nature of those social impacts. In practice, the policy makers and event organizers needed information that demonstrated how the mega-event was doing, not only from a quantitative perspective, but also from the qualitative perspective that incorporated how

the host community perceived the contribution on their quality of life (Andereck & Nyaupane, 2011). In some relevant research, the economic and social impacts of hosting the Games were studied through the examination of the local residents' psychological perceptions and support (Lee & Krohn, 2013; Gibson et al., 2014). It could provide the subjective evaluation on the Olympic Games to assess residents' attitudes and their perceptions of all kinds of impacts associated.

The importance of studying residents' attitude and support has been emphasized in the academic area. As Hiller (1990) stated, the key to understanding to what degree a mega-event was successful must be sought in the perceptions of the local residents. In the real world, the wide and active support was likely to transform a mega-event into an urban festival (Hiller, 1990), and, on the opposite, it was also possible that active opposition to hosting it from the locals could lead to delays and even abandonment of projects (Gursoy & Kendall, 2006). Extreme examples were the Denver's rejection of the 1976 Winter Olympic Games and the numerous withdrawn bids during the application phase, like, the most recently, Oslo's voluntary withdrawal from the bidding for the 2022 Winter Games (Guardian, 2014).

The opposition from the local residents in the host country was mainly due to the lack of community involvement in the very beginning stage. According to Waitt (2003), extensive participation in the event planning and trust in the government would lead to positive perceptions among the residents. In many instances, however, the bidding decision was made with very limited public consultation (Martin & Barth, 2013) as well as an incomplete and overestimated evaluation of the social and economic outcomes (Hall, 1992a). Gradually, the politicians and event organizers started to understand the

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value of the community involvement and support for hosting the Games (Gursoy & Kendall, 2006). The psychological support from the local residents played a prominent role in justifying the tangible and intangible impacts, either as perceived benefits or liabilities, from hosting the Olympic Games (Lee & Krohn, 2013). Actually, the IOC commissioned each candidate city to provide firm proof that the local residents favor the bidding for the Olympic Games by conducting a public opinion survey in the local community, and furthermore, included the degree of overall support into the candidature evaluation when selecting the host city (IOC, 2009). The academic scholars confirmed the importance of the public opinion and further proposed to evaluate the mega-events by investigating the changes in residents' psychological perceptions (Kim et al., 2006).

This section reviews the resident attitude study in the field of mega-events, in particular, referring to the Olympic Games. Following the path of the relevant study in the field of tourism research, first, resident general attitude is examined, as well as their perceptions of benefits and liabilities involved; second, the attitude variation is investigated in terms of time change and group difference among the residents; next, the various factors attributable to the variation are explored by employing a more scientific theoretical framework (e.g., social exchange theory, social representation theory) and statistical analysis (e.g., factor analysis, cluster analysis, SEM).

2.4.1 Benefits vs. Liabilities

Before Ritchie and Aitken, there had been little systematic study or report on the impacts that the Olympic Games had on the host city, in particular, from the perspective of the local residents. As the pioneer, Ritchie and his co-authors conducted a longitudinal research program on the 1988 Winter Olympic Games in Calgary, Canada and monitored

the residents' view concerning the Games from 1983 to 1988 (Ritchie & Aitken, 1984, 1985; Ritchie & Lyons, 1987; Ritchie & Lyons, 1990). This research program was initiated in 1983 and conducted both prior to and after the Games. It mainly investigated through surveys on the local residents' interest, awareness, support, and perceptions toward some specific issues, like liquor regulation and the development of the facilities, and so forth. The results showed that general positive attitudes remained high among the respondents toward the hosting of the 1988 Winter Olympic Games.

More specifically, according to the first study in 1983, the major anticipated benefits by the local residents included (1) the increased awareness and recognition of Calgary both nationally and internationally; (2) the economic and financial returns; (3) new facilities with longer-term benefits; and (4) increased levels of tourism before, during and after the Games. The major potential liabilities perceived by the local residents were (1) the high cost of the Games and the tax burden this might impose and (2) the congestion, traffic and crime that may occur during the Games (Ritchie & Aitken, 1984). The last study of the series assessed the reaction of the local residents shortly after the completion of the Games, and the results indicated that respondents generally viewed the Games as beneficial and successful (Ritchie & Lyons, 1990). Almost half of the respondents believed that hosting the Games brought world recognition for Calgary and a fairly large number of respondents expected the tourism would increase as a result of the Games.

Another seminal longitudinal research program was conducted by Mihalik and his co-authors on the residents' perception toward the various impacts of hosting the Olympic Games in Atlanta (Mihalik & Simonetta, 1998, 1999; Mihalik, 2000; Frater &

Mihalik, 2001). Their research continued with Ritchie's Olympus program and conducted a trend study in Atlanta about the 1996 Summer Olympic Games. The longitudinal data was collected as part of the Georgia State Poll with access to a randomized database containing more than 3,300 households through dialing telephone numbers. The total 12 telephone surveys began in the summer of 1992 and ended in the Post-Olympic Poll in August 1996.

The benefits investigated in this public poll included the following: (1) international recognition, (2) increased future tourism, (3) economic benefits, (4) Olympic facilities development, (5) enhanced image or reputation of Georgia, and (6) increased citizen pride. The negative consequences included the following: (1) traffic congestion, (2) price gouging, (3) strain on law enforcement, (4) street crime, (5) unfair distribution of state resources, (6) civil unrest, (7) terrorism, (8) negative attitude of visitors toward residents, and (9) negative attitude of residents toward visitors. The data analysis showed that Georgia residents rated the international recognition benefit the highest benefit in all Olympic Polls and rated the traffic congestion liability the highest perceived liability in all polls with the exception of the Post-Olympic Poll conducted in August of 1996. After the 1996 Summer Olympic Games, the issue of price gouging from street merchants ranked on the top of the perceived liability list.

Interestingly, it was also found that resident support remained relatively strong over time but meanwhile, with regard to perceived liabilities, Georgians became significantly more concerned about the negative issues associated to the Games as they got closer (Mihalik & Simonetta, 1999). As a consequence, fewer and fewer Georgians expressed a willingness to attend the Summer Olympic Games. The authors further

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argued that this phenomenon could be related to the social exchange theory as the local residents might have perceived not enough value in exchange for the perceived liabilities of hosting the 1996 Summer Olympics.

2.4.2 Social Exchange Theory

Social exchange theory provided the basic theoretical framework for a series of studies on the resident attitude toward hosting the mega-events and it suggested that local community evaluate the events as either positive or negative, according to the expected return on investment (Mihalik & Simonetta, 1999; Deccio & Baloglu, 2002; Waitt, 2003; Gursoy & Kendall, 2006; Kim et al., 2006; Cheng & Jarvis, 2010; Lee & Krohn, 2013; Prayag, Hosany, Nunkoo, & Alders, 2013).

Social exchange theory was introduced in 1958 by the sociologist George Homans with the publication of his work *Social Behavior as Exchange*. The basic concept of social exchange theory was that individuals were likely to participate in an exchange if they believed they were likely to gain benefits without incurring unacceptable costs (Homans, 1974). Numerous tourism researchers have utilized social exchange theory primarily to explain why and how people reacted to and supported tourism development (Deccio & Baloglu, 2002; Waitt, 2003; Gursoy & Kendall, 2006; Kim, 2012; Lee & Krohn, 2013). Subsequently, the logic and propositions of social exchange theory were generally acceptable as a theoretical framework for research on people's reactions to mega-events because of the similar impacts associated.

Since the impacts of the Olympic Games were multifaceted, the majority of studies categorized them into economic impacts, socio-cultural impacts, and environmental impacts (Getz, 2008; Ritchie, Shipway, & Cleeve, 2009; Zhou & Ap,

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2009; Lorde, Greenidge, & Devonish, 2011). Within the framework of social exchange theory, however, the impacts of hosting the Olympic Games perceived by the residents fell into two main categories—benefits and liabilities. On this basis, the overall attitude and/or support were generated. Therefore, both the perceived benefits and liabilities worked as the antecedents of the overall attitude toward the mega-events. Support was sometimes interpreted as the behavior (measured by "willingness to pay a local tax") and thus regarded as a consequence of the attitude (Prayag et al., 2013). However, the majority of the previous studies used these two terms interchangeably. In this study, we make no distinction between attitudes and support, and both support and opposition are regarded as the typology of attitude.

The studies conducted previously differed on how the local residents reacted to the perceived benefits and liabilities across the cases. For instance, the study of residents' perceptions showed that the 2002 World Cup generated more societal and cultural benefits than economic gains for South Koreans in general (Kim et al., 2006). Jeong and Faulkner (1996) examined the local residents' perceptions of both the benefits and liabilities associated with the 1993 Taejon International Exposition, and found that short-term economic liabilities and disturbance on the existing life during the event were the biggest concern. Meanwhile, the longer-term benefits in terms of tourism and urban development were recognized by the local community.

There were two reasons that could explain the resident perception of negative impacts of hosting the Games—distribution effects and displacement effects (Gelan, 2003). The former referred to the unfair distribution of both the benefits and the costs. As Mules (1998) noted, most economic impact analyses concentrated on the aggregate

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effects but tended to ignore "how much such impacts are shared around the community" (p.35). While only a minority of the community benefited from the most economic profits, like from tourism increases, all of the residents had to suffer from the negative unwanted consequences, such as traffic congestion, noises, potential terrorism, and so forth. The displacement effect of mega-events referred to the possibility that the event tourists may displace other tourists and even local residents because of the price increases and limited access to services and facilities (Gelan, 2003). Even though the negative perceptions were significant indicators, resident perception of positive outcomes from the mega-events had the stronger relationship to the general support toward hosting the events (Gursoy & Kendall, 2006; Lee & Krohn, 2013; Reis & Sperandei, 2014).

Drawing on the social exchange theory, Gursoy and Kendall (2006) structured the local residents' support for the 2002 Salt Lake City Winter Olympic Games. The structural model built comprised of five key factors that could directly or indirectly affect the community support for the Games as a mega tourism event. They were the level of community concern, ecocentric values, community attachment, perceived benefits, and perceived costs. Based on the statistical results, the authors argued that the cost and benefit factors interacted to determine the residents' attitudes toward hosting the Games and, notably, the support relied heavily on perceived benefits rather than costs.

Using the case of the 2012 Super Bowl in Indianapolis, Lee and Krohn (2013) examined the local residents' psychological support factors by running structural equation modeling to test the theoretical model. In the model, the importance of positive factors (i.e., image and awareness, leisure resource development, positive economic impact, and business development) was relatively high in predicting the general resident

feeling toward hosting future events than the negative factors (i.e., negative economic impact, traffic problems and crowding, and societal and cultural problems). Therefore, the authors suggested that both the government and the event organizers rely heavily on the positive externalities and mitigate the negative impacts for the purpose of obtaining community support for hosting mega-sporting events in the future.

The overwhelming weight of perceived benefits in determining the public support was confirmed by another empirical study on the 2011 World Rally Championship in Australia (Reis & Sperandei, 2014). In this study, the concepts of the "society of the spectacle" and the economy of appearances were involved to explain the local business managers' "unconditional support" for staging the large-scale events, regardless of the large amount of tangible costs. The in-depth reasons were "the desire to be on the 'world-stage,' be labeled as 'international,' and win a competition with local neighbors [which] overrules the tangible losses incurred by business operations" (p. 243). The authors further claimed that within the capitalist postmodern society, winning the bid to host the mega-events with the competition over the neighbor areas gave the message to its community that they were competitive in the national and even international capitalist market. Although the authors argued that the so-called 'hidden' reason was beyond the liability and benefit analysis when conceptualizing the local support, it still worked under the framework of social exchange theory as the psychological satisfaction was unquantifiable and incredibly outweighed (or overruled) the tangible liabilities.

To better understand the resident attitude toward the Olympic Games, Prayag, Hosany, Nunkoo, and Alders (2013) proposed a more explicit model comprising of six categories: positive socio-cultural, negative socio-cultural, positive environmental,

negative environmental, positive economic and negative economic. The reason for doing this was that resident perception of each of the six impacts affected the overall attitude differently, measured by the direction and the importance. For instance, perceived positive economic impacts had the strongest influence on overall attitude, whereas neither the positive nor the negative environmental impacts were significant predictors. It clearly indicated that combining perceived impacts into summary dimensions (benefits vs. liabilities) was methodologically inappropriate and might lead to misunderstanding of the distinct relationships between specific impact and the attitude. This research highlighted the need for researchers to disaggregate the components of perceived impacts when modeling resident attitude and support for mega-events.

In addition, in the context of social exchange theory, Deccio and Baloglu (2002) examined the nonhost community residents' perceptions of the impacts of the 2002 Winter Olympic Games, as well as the antecedents of these perceived impacts and the consequent general attitude toward the Games. Regarding the nonhost community, this study focused on the residents of Garfield County, Utah, which was located within close proximity (250 miles) to Salt Lake City, prior to the 2002 Winter Olympics. The results showed that the majority of the residents in a rural geographical region that were peripheral to the core location of the Olympic Games did not anticipate any significant impacts from the event, so their attitudes were generally neutral. However, they did encourage the promotion of the area as a spillover effect from hosting the Games. Yet, differences were still found in the residents' attitudes. For instance, environmentally conscious residents did not support the Olympics; people economically dependent on tourism and those participating in outdoor activities generally showed supportive

attitudes. In contrast, the factor of community attachment of residents did not differentiate residents' attitudes.

A general understanding of the residents' attitudes and perceptions toward the mega events was important, but, more importantly, it was essential to understand the way in which the mega-events impacted the quality of life of local residents for the sake of the success and ultimate sustainability of the events (Fredline & Faulkner, 2001b). In particular, since the host communities were not homogenous, the benefits and liabilities perceived by the local residents were both variable and dependent upon complex characteristics and circumstances of the individual residents involved. In doing this, more effective targeting strategies could be employed when addressing practical issues with the host community. Therefore, academic scholars started to explore the theoretical background that could explain the variance in residents' perceptions, and the various factors that could predict the community support for hosting the mega-events

2.4.3 Longitudinal Study on Resident Attitude

Attitudes towards a mega-event were argued as "modifiable across time because the formation of an exchange relationship between the individual and the event is not static but rather constantly negotiated and renegotiated" (Waitt, 2003, p. 211). Thus, an additional question was included concerning how residents' attitudes changed from the bidding phase until some point after the mega-events were over (Ritchie & Lyons, 1987). This evolving process was evidenced by a series of comparative studies between the pre-an after-event periods (Jeong & Faulkner, 1996; Mihalik & Simonetta, 1999; Kim et al., 2006; Hiller & Wanner, 2011; Gibson et al., 2014).

For the purpose of tracking the resident attitude change toward the 2010 Vancouver Winter Olympic Games, Hiller and Wanner (2011) collected survey data at six different points in time during the Games. Attitude change was tracked from much debate and controversy before the Games, to a much more favorable attitude during the Games. In contrast, Kim, Gursoy, and Lee (2006) compared the Korean residents' perception of the impacts of hosting the 2002 World Cup before and after the event. It was found that the perceptions changed dramatically after the games with regard to the specific dimensions of benefits of cultural exchange, social problems, economic benefits, natural resources and cultural development, traffic congestions and pollution, price increase, and construction costs. In particular, the economic benefit was the most disappointing dimension among the respondents.

As the first research studying the residents' perceptions toward the impacts of a mega event in Barbados, Lorde, Greenidge, and Devonish (2011) compared the pre- and post-perceptions of hosting the 2007 ICC Cricket World Cup. Statistically significant differences were found between these two time periods for all seven factors: benefits of cultural exchange, social problems, economic benefits, natural resource and cultural development, traffic congestion and pollution, price increases, and construction costs. More interestingly, prior to the games, Barbadians expected more negative impacts than the positive ones whereas, after the games, reversely, residents' overall perceptions of positive impacts from the games were higher than their perceived negative impacts. In other words, while the local residents expected the costs would outweigh the benefits of hosting the event, they perceived that the benefits had outweighed the costs in actuality after the games.

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2.4.4 Social Representation Theory

Pearce, Moscardo, and Ross (1996) identified three fundamental problems associated with social exchange theory in explaining residents' attitudes. First, in social exchange theory, residents were assumed as systematic information processors, which was inadequate and not supported by empirical evidence. Second, much of the knowledge about events and issues came through paths other than direct experience. The third problem was the social exchange theory assumed individuals as separate, isolated units, which failed to recognize the power of the mass media, cultural norms, and group influences. Thus, the authors adopted an alternative theory – social representation theory – to explain the knowledge/perceptions created and shared by people in various groups.

Social representations were defined as the "concepts, statements and explanations originating in daily life in the course of inter-individual communications" (Moscovici, 1981, p. 181). The connection between attitudes and social representations was put forward by previous scholars (Moscovici, 1981; Billig, 1993; Pearce et al., 1996) as attitude was seen as the product of social value (Farr, 1987). In the field of tourism research, Pearce et al. (1996) systematically applied this social approach to understanding the community's reactions to tourism development for the purpose of providing some insight for the management of tourism-community relationships. Given the affinities between mega-events and tourism in terms of their potential impacts on host communities, the general tourism literature provided an adequate theoretical framework for the research of mega-events (Fredline & Faulkner, 2000). "Social representations assume that in any society there will be many and diverse social realities" (Pearce et al.,

1996, p. 56). Thus, social representation theory was based on a conception of society as organized into groups and subgroups (Rosa, 1992).

In the field of mega-events study, there has been a growing awareness that host communities were not homogeneous, and different subgroups held different attitudes toward hosting the events. In an effort to capture the variations of how local residents react to the impacts of hosting the mega-events, and the underlying reasons for their different reactions, social representation theory has been advanced as a theoretical framework for in-depth analysis (Fredline & Faulkner, 2000, 2001a, 2001b; Kim et al., 2006; Zhou & Ap, 2009; Cheng & Jarvis, 2010).

With regard to the methodology, cluster analysis approach was often employed as a tool for investigating the underlying patterns of the residents' attitudes toward events. For instance, Fredline and Faulkner (2000) drew on social representation theory and identified the clusters within the residential population based on their reactions to a major event in Australia. Further, the profiles of these clusters or subgroups were explored. As the authors claimed, the practical meaning of identifying the clusters was to uncover the misconceptions regarding the residents' perceptions of the events' impacts and thus provided a basis for a more targeted approach to marketing the event to different groups of the local community.

Within the framework of social representation theory, Fredline and Faulkner (2001a) conducted another empirical study in two cities of Australia, namely Melbourne and the Gold Coast City. In both of the two cases, five heterogeneous subgroups of the community were identified, respectively, that were quite different in the resident attitude toward similar major motorsport events, a spectrum of views ranging from most negative

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to most positive. In addition, the substantive relationships between the subgroup membership and a number of independent variables were described. Specifically, these variables were associated with either the individual direct experience, such as proximity, level of contact, use of recreation facilities, and involvement in tourism, or the societal values, such as sociopolitical values, community attachment, age, education, identification with theme, and perceptions of participation and justice. In another article (Fredline & Faulkner, 2001b), the variance in the subgroup membership explained by these factors was further investigated using logistic regression analysis. The results reinforced the proposition that both the direct experience and social network can influence residents' perceptions of the impacts of hosting the mega-events.

A similar observation was made by Cheng and Jarvis (2010) about how the Formula 1 Grand Prix impacted its host residents in Singapore. The authors studied the residents' perceptions of the social-cultural aspects that were closely associated with the well-being and quality of the life of the local residents, and found that residents were largely homogenous with regard to attitudes toward the positive impacts, although the perceptions of the negative issues were mixed.

With reference to the Commonwealth Games in 2014, Martin and Barth (2013) highlighted the Glasgow residents' perceptions toward potential impacts. Although the results indicated generally supportive attitudes toward hosting the event among the residents, specific issues like traffic congestion, parking issues, and potential increases in tax considerably concerned the local community. To explain the attitude variation among the locals, further analysis demonstrated the significant influence from both the socio-

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demographics and external factors, including age, length of residency, and involvement in sport and tourism.

Shin and Li (2013) examined both the physical and subjective experiences of marginalized groups affected by the production of the 2008 Beijing Olympics. By marginalized groups, the authors meant Beijing's villages-in-the-city residents, specifically including migrant tenants and the village landlords, both of whose lives were disrupted by the demolition during the citywide preparation for the Games. With the help of in-depth interviews, both differences and similarities were found between these two subgroups regarding their perceptions. The city migrants were disproportionately expected to bear the costs, resulting in experiencing life disruption and involuntary relocation (usually further from the city center for affordable rent). The local village landlords were more concerned about the loss of rental income resulting from the Games whereas, contrary to what was usually assumed, they considerably welcomed the demolition and displacement in line of the opportunity of living condition improvement and the cash compensation. Notably, both of these two marginalized groups were somehow tolerant of the unequal treatment and of the disruption to their existing lives. The authors explained this phenomenon with the patriotic sentiment imbued by the Olympic Games when hosted in a developing country.

From the previous studies, one point to be made was that the mega-events affected the local life in different ways from the perspective of the community. Generally, at least two subgroups could be identified based on their different attitudes toward hosting the mega-events, supporters and tolerators within the local community. After identifying the groups of individuals who perceive the impacts of events in a

similar way, a thorough investigation of the factors underlying these patterns needed to be conducted. According to the social representation theory, all of these factors could either directly or indirectly influence residents' perceptions (Fredline & Faulkner, 2000).

According to Fredline and Faulkner (2000), representations were regarded as the mechanisms people used to understand the objects and events in the world, while the "social" elements referred to the fact that these representations were shared and reinforced by subgroups within a society. Accordingly, the social representations were divided into three categories—direct experience, social interaction, and the media. First, the direct experience of an event provided the residents with the basic information to form their perceptions and attitudes. However, when direct experience with the event was limited, people were inclined to adopt alternative sources of social representations— social interactions, and most importantly, the reference group (Breakwell, 1993). The media, both the contents and the format, had the potential to influence people's perceptions of the events (Fredline & Faulkner, 2000). As such, these social representations can be clarified as the antecedents of residents' perceptions and attitudes (Table 2.2).

Waitt (2003) conducted a longitudinal study from 1998 to 2000 on the residents' enthusiasm toward hosting the 2000 Sydney Olympics in a socially diverse area of Sydney. The results indicated that positive attitudes were more closely associated with the residents living in Sydney's western suburbs, with dependent children, from non-English backgrounds, perceiving more economic benefits than personal costs from the Games. Meanwhile, the results failed to support the differentiating effects of those

socioeconomic variables (like, education, income, and employment) among respondents'

attitudes.

Table 2.2 Factors identified and tested as the antecedents of resident attitude toward hosting the mega-events

Factors	Studies
Community Attachment	Fredline and Faulkner (2001a, 2001b); Deccio and Baloglu (2002); Gursoy and Kendall (2006)
Proximity	Fredline and Faulkner (2001a, 2001b); Ritchie, Shipway, and Cleeve (2009)
Ecocentric Attitude	Deccio and Baloglu (2002); Gursoy and Kendall (2006);
Involvement in Tourism	Fredline and Faulkner (2001a, 2001b); Deccio and Baloglu (2002); Gursoy and Kendall (2006); Zhou and Ap (2009); Ritchie, Shipway, and Cleeve (2009); Yang, Zeng, and Gu (2010); Martin and Barth (2013)
Involvement/Interest in Sport/Event	Twynam & Johnston (2004); Ritchie, Shipway, and Cleeve (2009); Cheng and Jarvis (2010); Hiller and Wanner (2011); Chien, Ritchie, Shipway, and Henderson (2012); Martin and Barth (2013)
Demographic Characteristics	Mihalik and Simonetta (1998, 1999; 2000; Mihalik & Madanoglu, 2007); Fredline and Faulkner (2001a, 2001b); Wait (2003); Ritchie, Shipway, and Cleeve (2009); Cheng and Jarvis (2010); Martin and Barth (2013); (Gibson et al., 2014)
Use of recreational facilities	Fredline and Faulkner (2001a, 2001b); Deccio and Baloglu (2002); Cheng and Jarvis (2010)
Social justice	Fredline and Faulkner (2001a, 2001b); Wait (2003)
Perception of government performance	Zhou and Ap (2009); Ritchie, Shipway, and Cleeve (2009)
Political attitude	Hiller and Wanner (2011)
Perception of media portrayal	Ritchie, Shipway, and Cleeve (2009); Chien, Ritchie, Shipway, and Henderson (2012); Martin and Barth (2013)
Event publicity	Chien, Ritchie, Shipway, and Henderson (2012); Reis and Sperandei (2014)

Zhou and Ap (2009) examined the local residents' perceptions toward the impacts

of hosting the 2008 Beijing Olympic Games, specifically from four aspects: the social-

psychological impacts, urban development impacts, economic development impacts, and social life impacts. The results showed very positive attitudes from the majority of the respondents, in particular toward the former three dimensions, but there were more discrepancies associated with the negative issues including the possible price increase, overcrowding in public facilities, and traffic congestion. Based on the social representation theory, residents were classified into two groups—embracers/supporters and tolerators. Further analysis found such classification was significantly influenced by three factors: residents' perceptions/attitudes about government performance, their preference of more tourism development, and tourism-industry work experience. Similarly, in Hiller and Wanner's (2011) regression models, the attendance of free events and support of the Liberal party in the last provincial election served as the most significant predictors of positive attitudes held by the local residents towards the 2010 Vancouver Winter Olympic Games.

Faulkner and Tideswell (1997) summarized the factors that could, to some extent, exert an influence on the host community perceptions from two perspectives—extrinsic and intrinsic. The former referred to the macro variables that have a common impact on community perceptions as a whole. In the tourism context, the extrinsic factors that affected resident attitude included the stage of development, seasonality in patterns of activity, and cultural differences between tourists and residents (Fredline & Faulkner, 2000). The latter dimension recognized the individual characteristics and circumstances that resulted in the heterogeneity of residents' perceptions within the community, including the geographical proximity to activity concentrations, the involvement in tourism, and the demographic characteristics (Fredline & Faulkner, 2000).

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2.4.5 Implications

Based on the above review, it can be concluded that there was a considerable body of research on community reactions to hosting mega-events and they are dominated by a case study approach (e.g., the Olympic Games, the World Cup). In this process, social exchange and social representation theories were used to help contextualize the data. Meanwhile, the methodological approach has generally shifted from an emphasis on measuring residents' perceptions and attitudes at the individual level, to the in-depth exploration of the predominant patterns in their reactions, as well as the underlying explanation with various independent variables (Fredline & Faulkner, 2000).

Drawing on social representation theory, the attitude studies should be grounded in understanding the cultural contexts of the residents, as well as the host city and nation. As Pearce et al. (1996) claimed, the limitation of current attitude research was somehow attributed to the loss of the social and cultural element in attitude research and measurement. This was because residents' perceptions of the various impacts of hosting the mega-events were not only influenced by their direct experience and demographic factors (intrinsic factors) but also affected by the macro-environmental facts (extrinsic factors). The previous critical studies suggested that when we examine the local community's experience in an Olympic project, we need to examine their subjective perceptions, and how they are shaped within the political economic constraints of the host nation.

Specifically, according to Kim et al. (2006), the external information provided by the national media and government agencies interacted with the individual factors including residents' own knowledge, values, and past experiences with previous similar

events to shape the residents' initial perception of the Games prior to the event. The point of departure of the research described here was that local residents' attitudes toward the Olympic Games were inevitably influenced by the news media. The effect of media reports on residents' reaction was first discussed by Chien, Ritchie, Shipway, and Henderson (2012). Their field study assessing the impacts of the 2012 Olympic and Paralympic sailing events on the local residents in United Kingdom, explored the underlying factors influencing residents' support: event publicity, perceived fairness, and residents' commitment to the event. The research showed that favorable Olympic publicity could foster greater residents' support of the event, and, conversely, negative media coverage of the Games may result in negative perceptions among the local residents. This finding indicated the link between the event publicity and the residents' supporting behavior. Further, the perceived fairness of event portrayal from the media serves as a moderator of the event publicity effect.

The association between the event publicity and the resident support for hosting the Olympic Games was rooted in the media effect on public opinions of public affairs. For instance, the Olympic legacy could be framed in the newspaper media during the Olympic bid, somehow in a way to deliberately lead the local politicians and residents to focus on the pro-bid arguments about all those positive legacies (Sant & Mason, 2015). In this process, the public opinion toward the Olympic bidding was likewise influenced by what the news journalists reported and how they edited about the possible outcomes of hosting the Olympic Games. This was aligned with the social representation theory. That is, as the third type of social representations, news media undoubtedly played an essential role in formulating the resident attitude toward hosting the Olympic Games.

Despite its fundamental importance, media-related research remained underrepresented in the field of tourism and sport. This research examined the effect of media content on the local community's perceptions and attitudes toward the Olympic Games through experimental design. Consequently, the experimental design was conducted in two nations—China, a developing country, and the United States, a developed country—to provide in-depth interpretation based on their own social, cultural, and political backgrounds. The next section provided the theoretical explanation – agenda setting theory – about how the news media affects public opinion toward hosting the Olympic Games.

2.5 News Media and the Public Opinion

The connection between the Olympic Games and mass media has been tightened in many dimensions in history. The media technology and television rights fees have changed the modern Olympic Games into a media event of postmodern culture (Dayan & Katz, 1992; Real, 1996). Hiller (2000b) further stated that the international influence of the Olympic Games was related not only to millions of in-person attendance and billions of global television viewers, but specifically to the fact that in some significant sense, "the mass media carries the event to the world" (p. 183). According to the IOC (2009), 3.6 billion people, that is, 53 percent of the world's population, watched at least one minute of the 2008 Beijing Olympic Games, while the 2012 London Olympic Games were the most-watched TV event ever in US history (Post, 2012). Apparently, global media attention gained was one of the key defining characteristics of the Olympic Games (Gold & Gold, 2010). Regarding the relationship between the mass media and the Olympic Games, it was widely recognized that the image of the host country could be

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shaped by the mass media among the international tourism markets; meanwhile, what has been underrepresented was that news media reports, as well as the mobilization efforts by the IOC and local Olympic officials, could also play important roles in formulating the community consensus within the host cities (Hiller & Wanner, 2011).

The press was traditionally viewed as having four principal functions: "to inform (the news function), to persuade (the advertising function), to entertain (the features function), and to pass the cultural heritage (the educational function)" (Slater, 1998, p. 51). Through these functions, and because of their global reach, the media was active in defining and shaping contemporary cultures. Just like other political issues, the news media functioned as a conduit for the information of bidding and hosting the Olympic Games, through which the citizens obtain the relevant information (Mastin, 2000). Specifically, by their selection of what was worth reading, hearing and seeing, owners, editors and journalists involved in the media perform a gate-keeping function (Toohey & Veal, 2007). In this process, the media editors and journalists were neither unbiased nor without other agendas. They chose which material to publish or broadcast and then added their interpretation to it. Meanwhile, the media also may omit many important stories through a system designed to sift out material that falls outside what was considered to be acceptable socio/political boundaries (Toohey & Veal, 2007).

Examples from the actual events confirmed the strong connection between the news coverage about the Games and the public attitudes and reactions. For instance, Shaw (2008) argued about the 2010 Vancouver Olympics that, had Vancouver-based journalists done a solid exposé of the Salt Lake Winter Olympics and provided this information during their pre-plebiscite period, Vancouverites could have made a far more

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informed choice. Similarly, due to the large amounts of reports and criticism on the fact of the USD$51 billion cost of hosting the Sochi Winter Olympics, which was reported as the most expensive in history, both governments and citizens in the Western world have become wary of hosting the Games. It was considered as the major reason that led to the withdrawal of Norway from the bidding of the 2022 Winter Olympics (Guardian, 2014). These actual cases indicated that to some extent the media helped individuals think about and understand the Olympic bid, enabling them to clarify or construct their own opinions (Stamm et al., 1997) as a consequence.

2.5.1 Agenda Setting Theory

Accordingly, examining the media effects on the public opinion toward hosting the Olympic Games needed to be grounded in understanding relevant theoretical and contextual literature, which could involve other disciplines and theories. A rich body of knowledge in mass communication has established that news media played an important role in defining a social problem and affecting the audiences' evaluation toward this problem.

Generally, the media framed an issue in a certain way, telling the audience about what was important and how to think about it (Gitlin, 1980). To understand the relationship between mass media and the public opinion, two basic theories were involved: the agenda setting theory and the attribute agenda setting theory. The idea of agenda setting was, for the first time, put forward by Walter Lippmann in 1992 (cited from McCombs, 2004), and argued that it was the news media, which served as the window to the world beyond direct experience, that determined our cognitive image of

the world. Public opinion "responds not to the environment, but to the pseudo-environment constructed by the news media" (McCombs, 2004, p. 3).

According to McCombs and Shaw (1972), the agenda setting theory was a statement about a strong causal effect of mass communication on the public, and it dealt with the transmission of issue salience from the media to the public. In other words, by emphasizing or frequently mentioning particular issues, the media increased the salience of the issues among the public. The agenda setting model has guided inquiry in public opinion and mass communication about social and political issues for more than three decades. The evidence for this theoretical statement was examined in different contexts, and most have concentrated on the presidential election issue (Kiousis, 2004).

Iyengar and Kinder (1987) conducted an experimental test on how the television news influenced American audiences' conceptions of political reality. It was hypothesized that those problems that received prominent attention on the national news were the problems that the audiences considered as the most important. A variety of problems were included for experiments, from national defense to social security. The results indicated that the American public's priorities were altered as the television news' focus moved to different problems. Succinctly, television news shaped the audiences' political conception, which evidently sustained the agenda setting hypothesis.

The intercultural validity of agenda setting was enhanced through testing the theory in different social-cultural backgrounds. For instance, Willnat and Zhu (1996) examined the hypothesized strong correlation between news content and public opinion about Governor Patten's democratization plan for Hong Kong by using time-series data from 52 public opinion polls, coupled with content analysis of the leading newspapers in

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Hong Kong from 1992 to 1993. Findings supported that when the amount of media coverage of Patten's political reform plan increased, the public assigned more weight to the issue in their evaluation on the governor's overall performance.

2.5.2 Attribute Agenda Setting Theory

As the public agenda consisted of a set of public issues, an issue consisted of a set of attributes, like the properties, characteristics, or aspects of an object, which could be employed to evaluate or think about the same object (McCombs & Evatt, 1995). The attribute agenda setting theory extended the understanding of how the news media shaped public opinion on the issues of the day. Specifically, it referred to significant correspondence between prominent issue attributes in the media and the agenda of attributes among audiences (McCombs, 2004). That is, attribute agenda setting hypothesized that certain issue attributes emphasized in the media became salient in the public mind (McCombs & Shaw, 1972; McCombs, 2004). Issue attributes emphasized in the media were functioning as important standards by which the audience evaluated the issue (Popkin, 1991; Kim et al., 2012).

An important outcome of attribute agenda setting was its priming effect. Priming referred to "changes in the standards that people use to make political evaluations'' (Iyengar & Kinder, 1987, p. 63). Priming occurred when news content suggested to news audiences that they ought to use specific issues as benchmarks for evaluating the performance of leaders and governments. It also can be understood as an extension of agenda setting. By making some issues more salient in people's mind (agenda setting), mass media can shape the considerations that people take into account when making judgments about political issues (priming) (Scheufele & Tewksbury, 2007).

Media		Public
Agenda		Agenda
	Transfer of salience	
Objects	=====>	Salience of objects
	Agenda Setting	
Attributes	=====>	Salience of attributes
	Attribute agenda setting	
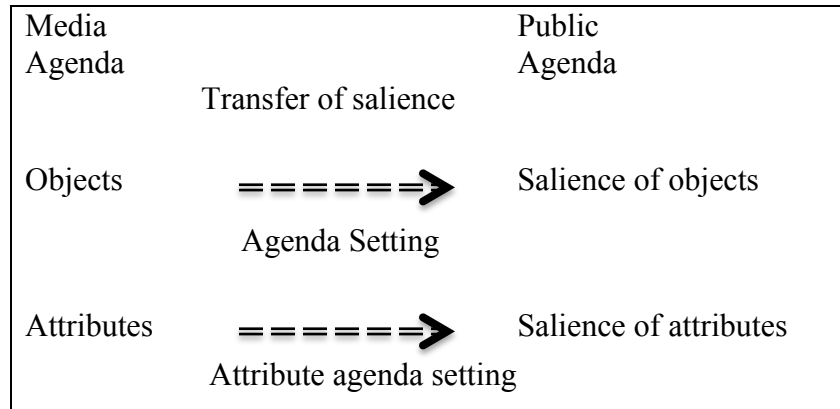
Figure 2.1 Agenda setting and attribute agenda setting

Kim, Scheufel, and Shanahan (2002) examined the different public opinions toward the Southwest Park Development Plan in the city of Ithaca, New York. Six major attributes were identified about this controversial issue among the locals from both the negative and positive perspectives: damage to small/local business, increased traffic, increased potential for flooding, more convenient shopping, more jobs, and increased sales-tax revenues. The supportive and opposite attitudes toward the development were based on these major attributes. First, the authors identified the attributes salient in the local newspaper by using content analysis where the frequency of the media coverage served as the indicator of salience. Following that, a telephone survey of the local residents was conducted about the local newspaper use, awareness of the issue, and opinions on each attribute of the issue, as well as the general support for the development. The media effects were demonstrated by the different attitudes, as the authors argued, caused by the variation in the levels of media exposure.

A similar case was observed in South Korea. Kim et al. (2012) examined attribute agenda setting regarding a controversial issue of relocating the administrative capital through linking survey data to an analysis of news coverage. Strong evidence showed that

the public salience of the potential benefits and problems of the relocation was positively associated with the prominence that the media coverage placed on these attributes. Both of these studies confirmed the attribute agenda setting effect which suggested that the mass media play a significant informational role in affecting the local community attitudes by making certain aspects of a controversial issue more salient.

Agenda setting theory explains the media effect by holding that the mass media determines what is important through printing the particular story or fact on the page. Notably, there is another theory of media effect – framing. While agenda setting theory deals with the perceived newsworthiness of an issue and the attributes of the issue, framing focuses on the presentation of the story (Scheufele, 1999; Scheufele & Tewksbury, 2007). According to Entman (1993, p. 52), "to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation". Framing provides "a rhetorical context for the text, involving the use of metaphor, story-telling, myths, legends, jargon, word choice, and other narrative elements, including 'spin' " (Whitaker, Ramsey, & Smith, 2012, p. 8). Succinctly, framing incorporates a wider range of factors in mass media (Gorp, 2007), while attribute agenda setting is simply about the characteristics or qualities of the issue (Weaver, 2007). Attribute agenda setting is a more appropriate theoretical foundation to rely on for the purpose of investigating the direct relationship between media content about the attributes (i.e., benefits and liabilities) of the issues (i.e., hosting the Olympic Games) and the relevant public opinion. The media effects caused

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by the presentation of the media, i.e., the framing effect, is beyond the scope of this study.

In conclusion, the media, based on agenda setting, told the audiences "what to think about" and meanwhile, by emphasizing certain attributes of an issue, told the audiences "how to think about" the issue (McCombs, 2004). Therefore, the mass media played a significant role in indirectly shaping the public opinion toward a variety of issues. It also significantly affected the public opinion, public decision making and consensus building in local communities (Kim et al., 2002).

2.5.3 Bidding for the Olympic Games

The reason why we focused on the media effect on the public opinion about hosting the Olympic Games was the Olympics were not just about sport, but rather a controversial, political public issue. Historically, "sport was a political tool; there was no division between sports and politics" (Strenk, 1979, p. 137). Moreover, the political element was very much a part of the ancient Olympics. Consistently, the modern Olympic Games have always been seen as a political tool controlled by the social elites (Espy, 1979; Kanin, 1981). Such kinds of mega-events undeniably supported elite interests and thus took a top-down political economy approach to persuade and convince the majority of urban residents as passive recipients (Hiller, 1990). In this process, the local media served as consciousness-raising vehicles by keeping the residents informed and fostering the consensus (Hiller, 1990).

Social consensus was created through the power of mass communication (Debord, 1995; Reis & Sperandei, 2014). Drawing on the social exchange theory, most of the "pro" and "anti" public opinions were based on the major attributes of the issue that might

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happen as consequences. In the issue of hosting the mega-events, the various benefits and liabilities involved can be counted as the major attributes of the issue. The media coverage about the impacts of hosting the Olympic Games could direct the residents' attention in different ways.

In most cases, the mainstream media projected the Olympic Games as a prestigious event worthy of the long-term preparation and huge investments so that the residents were very proud when their city won the bidding. For instance, very few residents in Calgary were aware of the cost of hosting the 1988 Winter Olympic Games (Ritchie & Lyons, 1987). The negative social impacts of the Olympic Games were often overshadowed by the politics of the events (Shin & Li, 2013). However, when the news journalists gradually focused on the fact that hosting the Olympic Games may be too expensive to generate economic benefits and may further lead to worse situations (Tien et al., 2011), the residents started to think about the political meanings the Olympics take on and question the justification of the governmental investment in such mega-events. Taking the 1996 Atlanta Olympic Games for an example, Mihalik and Simonetta (1999) suggested that negative media coverage might have been responsible for residents' significant concern about all the kinds of liabilities surrounding the Games.

Taken all together, the Olympic Games actually represented a form of public policy (Hiller & Wanner, 2011) which reflected the dominant ideology of the social elites and meanwhile aroused the debate among the local residents, with the assistance of the mass media. Unfortunately, what has been explored less in the academic literature was the media effect on the public opinions in the context of hosting the Olympic Games or other mega-events. It was necessary to explore the degree to which the news media truly

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affected the public opinion toward the Olympic Games. According to agenda setting theory and attribute agenda setting theory, there were the causal effects between the media agenda and the public agenda, as well as between the agenda attribute in the media and the agenda attribute in the public. In this study, we defined the bidding for the Olympic Games as the agenda (or issues) of interest, and thus the benefits and liabilities of hosting the Olympic Games were regarded as the attributes of the issue. The following primary research question was proposed for the purpose of exploring the media effect on the public opinion about bidding the Olympic Games: Do different news media contents about the impacts of hosting the Olympic Games lead to different attitudes among the local residents?

2.5.4 Cross-National Study between China and the USA

The psychological explanation for the transfer of salience from the media agenda to the public agenda referred to the need for orientation, which described individual differences in the desire for orienting cues and background information (Lane, 1959). The greater an individual's need for orientation in the realm of public affairs, the more likely they were to attend to the agenda of the mass media (McCombs, 2004). Conceptually, an individual's need for orientation is defined in terms of relevance and uncertainty. Only under the conditions of high relevance and low uncertainty was the need for orientation high (McCombs, 2004). Otherwise, it was moderate or low. Specifically, when the public issue had high personal relevance or relevance to the larger society, while people did not have accurate information and stable opinions, then people would have a higher need of orientation and pay more attention to the news media agenda. In this case, the attributes of the public agenda were more inclined to be identical with the attributes of the media

agenda. Consequently, the relevance and uncertainty level of the public issue served as the moderator in the attribute agenda-setting model. In the case of hosting the Olympic Games, not only the economic effects varied from nation to nation, but the local community's reactions substantially differed considering the different political and cultural characteristics of the host cities and the way the local media was portraying those characteristics (Foley, 1991; Burgan & Mules, 1992; Kim et al., 2006; Mills & Rosentraub, 2013).

Since the commercial success of the 1984 Los Angeles Olympic Games, the competition to bid for hosting the Olympic Games has become more intense across the world (Tien et al., 2011). However, the visions and objectives associated with the bidding differ between developing countries and developed countries. For the more developed countries and cities experiencing a decline in tourist arrivals, mega-events were viewed as a way to rebrand the destination and regain the worldwide reputation (Perter Keller, cited from Fayos-Solá, 1998; Hiller, 2000b), such as the 2012 London Summer Olympics and the 2006 Turin Winter Olympics (Bottero et al., 2012). While for developing countries, hosting the mega-events acted as a stimulus for infrastructural and human development, such as the 2008 Beijing Summer Olympics and Cape Town's bid for the 2004 Summer Olympics (Bhardwaj, cited from Fayos-Solá, 1998; Hiller, 1997).

Since most mega-events have been hosted in developed countries, naturally, most mega-event impact studies have been conducted in the context of developed countries (Lorde et al., 2011). Fredline and Faulkner (2000) argued that the stage of an event's development needed to be taken into account when analyzing the residents' support. Specifically, resident reactions to recurring events became less negative over time largely

because of the accumulated organization experience at minimizing the negative effects of the event and marketing it to the local public. For developed countries that have hosted the Olympic Games several times, like the USA, the locals may become more adapted to the negative social and environmental consequences; rather, the threat of increased taxes to pay for the event was viewed as the biggest criticism of the local community (Hiller, 1990).

In contrast, for developing countries and those without mega-events experience, the lack of the residents' involvement in the planning and decision-making process was more obvious because many governments competed to host the mega-events just for their own political purposes rather than for the benefits of the local community (Kim et al., 2006). For example, the success of hosting the 2008 Beijing Olympic Games was considered as a symbolic achievement representing China's overall national strength. It provided a unique opportunity for the modern China to enhance their national identity and regain the worldwide recognition in the global community (Meng & Li, 2011). Further research showed that the majority of the local residents viewed the China's capacity, culture and social values as the most important aspect to show to the world, rather than the economic benefits of the mega-events. Meng and Li (2011) attributed it to China's collectivist culture where the strong sense of community spirit overruled the reasonable cost-benefit analysis. This unique cultural background was considered as one of the hidden factors explaining the tolerant attitudes among the Beijing residents toward the demolition and displacement issue (Shin & Li, 2013).

2.5.5 Implications

From the previous discussion, we can conclude that first, one of the ways in which news media affected the public opinion about public affairs was through the transfer of agenda and the attributes from the media to the public. Considering its controversial facts and significant impacts, hosting the Olympic Games was among the agendas discussed by both the media and the public. The media coverage about the benefits and liabilities associated with the event could influence the audiences' perception about the attributes of the event. Further, public perceptions about these attributes – both benefits and liabilities – would lead to the formulation of general attitudes toward hosting the Games, based on the social exchange theory. This whole process as well confirmed media as the third type of social representations in the way of interpreting local community's knowledge and attitude toward hosting the Olympic Games. Thus, the main purpose of this study was to explore to what degree the resident attitude of hosting the Olympic Games was influenced by the news media content. Do different news media contents about the impacts of hosting the Olympic Games lead to different attitudes among the local residents?

Another point concluded here was that the public attitudes toward hosting the Olympics were quite different between developed countries and developing ones. Although the Olympic Games were the product of Western civilization (Guttmann, 1992), the Olympic movement has moved away from its European origins and embraces the multicultural world (Real, 1996). Thus, the study of the Olympic Games can not be dealt with apart from the cultural political backgrounds under debate. To understand the local community's reaction toward the Olympic Games, it was necessary to interpret the

various impacts within the broader framework of the political economy (Shin & Li, 2013). In other words, a systematic comparative study about the residents' attitudes was needed while considering the differing characteristics of the bidding city's politics and leaderships. The aim of the comparative study here was to develop a theoretical and exploratory understanding of the media effect on the public opinion toward hosting the Olympic Games between China and the US, the biggest developing country and the developed country, from the Eastern world and the Western world respectively. In this case, it was argued that nation, representing a set of political and contextual factors, differentiated the causal relationship between the media coverage and the local community's attitudes. Therefore, the secondary research question was proposed: Does the media effect on residents' attitude toward hosting the Olympic Games differ between China and the US?

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter discusses the research design and methodology applied in this study. In the first section of the chapter, the research questions and the research framework proposed previously are presented. Then, the major research method – experimental design – is discussed, followed by the process of treatment development in the second section. The third section provides a discussion of the variable measurement and survey design. The fourth section introduces the study population and data collection process. The last section describes the statistical methods that are employed in the study.

3.2 Research Framework

This study intends to examine the causal relationship between the media content and the public opinion about the hosting of the Olympic Games, and the moderation effect of nation on this relationship. Accordingly, the objectives of this research are twofold: the primary objective is to investigate to what extent the public opinion about hosting the Olympic Games is affected by media content; the secondary objective is to examine the moderation effect of nation on the relationship between the public opinion and the media content about hosting the Olympics through comparing these effects between China and the United States.

To achieve the objectives of this study, an extensive view of the existing literature has been conducted, and a theoretical framework has been developed accordingly.

Drawing on the social exchange theory, social representation theory, agenda setting theory, and attribute agenda setting theory, it was proposed that the residents' attitudes toward hosting the Olympic Games are affected by the media content about the impact caused by the Olympic Games. There were potential causal relationships existing between the media content and local the residents' attitudes toward hosting the Olympic Games. Furthermore, nation, as a moderating factor, influences the relationships between the media contents and the public opinion. In this study, the direct causal relationship between media content and public opinion, and the moderation role of nation are tested (Figure 3.1). The terms of resident attitude and public opinion were used interchangeably in this study, which refers to the overall attitude toward hosting the Olympic Games held by the local community in the host area, i.e., supportive and/or opposing.
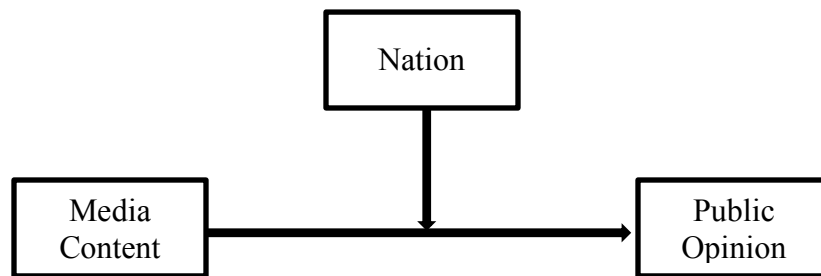
Figure 3.1 Theoretical model tested in this study

3.3 Experimental Design

3.3.1 Study Case

The study selected the current Olympic bid in China and the United States respectively to examine the media effect on resident attitude. In November 2013, Beijing and Zhangjiakou in China officially announced the bidding for the 2022 Winter Olympic Games, and then was chosen by the IOC as the host city on July 31st, 2015. The United

States Olympic Committee in January 2015 chose Boston over San Francisco, Washington, and Los Angeles to bid for the 2024 Summer Olympics, but the Mayor of Boston announced the withdraw of their Olympic bid on July 27th, 2015. The experimental study was conducted from May 2015 to June 2015. During this time period, both Beijing and Boston were the candidate cities for the Olympic Games waiting for further selection process. Under this circumstance, the attitudes of the local residents in the host areas of these two countries were to be examined to explore the media effect and the national difference relevant.

3.3.2 Pretest-Posttest Experimental Design

Pretest-Posttest design was employed in this study (Figure 3.2). A pretest-posttest study is one requiring an initial baseline measurement be taken before an experimental treatment is administered (Zikmund, Babin, Carr, & Griffin, 2009). So, the pretest-posttest experiment is a special case of a repeated-measures design. That is, after randomly assigning the Chinese residents and American residents into the treatment groups, respectively, the outcome variable – attitudes toward bidding for the Olympic Games – was measured twice, before and after reading the news scenario about the impacts of hosting the Olympic Games. Generally repeated-measures designs are favored in many settings because they are often more efficient and more powerful than randomized-groups designs. Specifically, repeated-measures design uses fewer cases than a corresponding randomized-groups design and furthermore, differences associated with the cases themselves are assessed and subtracted from the error term, which is consequently and frequently smaller (Tabachnick & Fidell, 2007a). Thus, a mixed-design

model was tested in this experimental study, specifically with a between-subjects variable and a within-subjects variable.

Experimental Group 1 (R):	O_1	X_1	O_2
Experimental Group 2 (R):	O_3	X_2	O_4

Note. X = exposure of a group to an experimental treatment, X_1 = experimental treatment 1, and X_2 = experimental treatment 2;
O = observation or measurement of the dependent variable, O_1 = pretest measurement in experimental group 1, O_2 = posttest measurement in experimental group 1, O_3 = pretest measurement in experimental group 2, and O_4 = posttest measurement in experimental group 2;
R = random assignment of test units; R symbolizes that individuals selected as subjects for the experiment are randomly assigned to the experimental groups

Figure 3.2 Two-group pretest-posttest experimental design

3.3.3 Manipulation

According to Webster and Sell (2007), the greatest benefits of experiments reside in the fact that they are artificial. That is, experiments allow the investigators to design and create a simulated situation where the observation occurs. Artificiality means that an experiment offers an opportunity to include the independent variables of theoretical interest while excluding irrelevant or confounding variables. Thus the manipulation of the independent variable – media contents about the impacts of hosting the Olympic Games – is the key element of this experimental design. In an experimental study the investigator can attribute differences in the dependent variable scores to difference in the level of an independent variable. Otherwise, the investigator is only able to say that differences in the dependent variable are related to or associated with differences in the levels of the independent variable (Tabachnick & Fidell, 2007a).

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A critical feature of this experimental design is the creation of realistic news articles, which involves manipulating the attribute agenda in the media by creating news scenarios that focus on different attributes of hosting the Olympic Games. Based on the previous studies, there are two basic attributes of the impacts generated by hosting the Olympic Games: benefits and liabilities (Ritchie & Aitken, 1984; Mihalik & Simonetta, 1999; Gursoy & Kendall, 2006). Moreover, the social exchange theory indicates that the local community's attitudes toward the Olympic Games are determined by the perceived benefits and liabilities together. Therefore, the media contents could be manipulated in terms of the degree of reporting the benefits and liabilities – high and low. Generally, four levels can be identified: "high benefits & high liabilities" "high benefits & low liabilities" "low benefits & high liabilities" and "low benefits & low liabilities".

These four news scenarios represented different levels of representativeness in the real world. First of all, "high benefits & low liabilities" and "low benefits & high liabilities" were two common kinds of news scenarios in reporting the impacts of hosting the Olympic Games. The majority of news reports focused on either side of hosting the Olympic Games, positive or negative. Thus, these two news scenarios were included in the experimental study. The news scenario of "low benefits & low liabilities" was not considered as a realistic scenario about the Olympic Games. Considering the mega size and long-term consequences of the Olympic Games (Essex & Chalkley, 1998), either the substantial financial costs or the unparalleled international influence had made the Games a controversial issue surrounding the cities as well as gaining wide media coverage on whether, or not, the benefits outweighed the costs associated. The news scenario of "low benefits & low liabilities" did not match the attributes of the Olympic Games, in

particular, the magnitude of the event, in a meaningful way. Thus, the researchers decided to exclude this news scenario from the experiment.

The decision also was made not to consider the news scenario of "high benefits & high liabilities". As previously stated, in this study, the media contents were manipulated in terms of the prominence of benefits and liabilities – high and low. Specifically, in the "high benefits & low liabilities" news scenario, the prominence of the attributes of hosting the Olympic Games was given to the benefits, which was realized by three paragraphs of information about benefits and only one paragraph about liabilities. In the "low benefits & high liabilities" news scenario, the prominence was given to the liabilities associated with hosting the Olympic Games, which was realized by three paragraphs of information about liabilities and only one paragraph about benefits. In this case, it was impossible to emphasize both benefits and liabilities in one news scenario without compromising the equivalent factors under control, including the writing style, structure, and paragraph length, etc. (The purpose of keeping these factors equivalent was to avoid media framing effects, as discussed in Chapter Two). Additionally, it was contradictory to give the prominence to two opposite attributes of the issue in one news article. Consequently, the "high benefits & high liabilities" news scenario was neither realistic nor meaningful for the experimental operation.

In order to guarantee the validity of manipulation, two levels of news scenarios were included in this experimental study: "High Benefits & Low Liabilities" and "Low Benefits & High Liabilities". Two opposite experimental conditions provide more power to observe any possible differences in the dependent variable (Zikmund et al., 2009). As an exploratory study on the media effect on resident attitude toward hosting the Olympic

Games, this study made no attempt to be exhaustive or even representative. Using the experimental levels with bigger variance was most likely to produce different effects on the dependent variable.

The potential difference of the residents' attitudes toward hosting the Olympic Games between China and the US was another interest of this study, and thus the moderating role of the nation on the media effects was to be investigated. Thus, both of the "High Benefits & Low Liabilities" newspaper article and the "Low Benefits & High Liabilities" newspaper article were created for Boston's bid for the 2024 Summer Olympic Games and Beijing's bid for the 2022 Winter Olympic Games, in the United States and China, respectively. Taken together, there were two experimental groups differentiated by media content within each nation, as listed in Table 3.1.

Table 3.1 Experimental groups by media content with each nation

| Nation | Media Content | |
	High Benefits & Low Liabilities	Low Benefits & High Liabilities
China	*N*=250	*N*=250
U.S.A.	*N*=250	*N*=250

The news content of public affairs from various media sources can affect the way in which the public perceives the issues and relevant attributes that are covered (Golan & Wanta, 2001). As traditional media sources, print newspapers and television remain as the most influential and socially significant news outlet for the vast majority of consumers (vs. social media or blogs, for example) (Mastro, Tukachinsky, Behm-Morawitz, & Blecha, 2014). Compared with television which brings news highlights to the less attentive audiences, newspapers cover public affairs in greater depth and are

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preferred by those who are more involved in politics (Chaffee & Frank, 1996). As a result, printed media – newspapers are consulted more often than television by people who are actively seeking information (Chaffee & Frank, 1996). Empirical studies consistently support that newspapers are highly informative to their readers and that reading them is a strong predictor of political knowledge (Chaffee & Frank, 1996; Willnat & Zhu, 1996; Kiousis, 2004; Kim & Han, 2005). Despite the increasing number of online users, print newspaper still displays a greater variety of news, more opinion and commentary (Doudaki & Spyridou, 2013), while online story-telling is characterized by short texts, fewer genres, minimum originality of content, scare source attribution and authorship (Doudaki, Leandros, & Michailidou, 2009). Thus, this study chooses to manipulate the news contents from a leading print newspaper in China and the US respectively.

To create meaningfully different news articles for each experimental treatment, we first built a pool of relevant news articles and then edited the actual news content. The major media sources included but not limited to Boston Globe, USA TODAY, The Washington Post, and The New York Times, etc. We inserted attributes (impact analysis, i.e., benefits and/or liabilities) into the news articles, meanwhile deleting innocuous material of roughly equivalent length. A typical news story consists of four parts: headline, lead paragraph, main body, and the summary paragraph. All of this project's news stories about the impacts of hosting the Olympic Games strictly followed the basic principles and skills of mass media writing.

First, the headline provided a unifying theme for each news article (Stovall, 2012). It expressed the central idea of the news. For the "High Benefits & Low

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Liabilities" news article, the theme of "2024 Olympics would mean billions for Boston, study says" is used, while, in the other article, the theme is edited as "2024 Olympics would mean problems galore for Boston, opponents say" for the purpose of corresponding to the attribute of "Low Benefits & High Liabilities" (Figure 3.3).

The first paragraph of a print newspaper story serves as its lead, which typically emphasizes who, what, when and where (Whitaker et al., 2012). A one-sentence lead was developed focusing on the benefits and liabilities respectively for each newspaper articles (See Table 3.2). Following the rules of mass media writing (Whitaker et al., 2012), the lead was written in a straightforward way to present a brief statement of the most important benefits/liabilities of hosting the Olympic Games. The statement was plainspoken and direct, and succinctly summarized newsworthy information.

The main body of both news articles presented the major facts related to the impacts of Boston's hosting the 2024 Summer Olympics. The objective writing style of mass media requires facts rather than journalist's opinions. According to Stovall (2012), facts are verifiable pieces of information from reliable sources. They can be verified and can be agreed upon by most people. Facts are the foundation on which news is built. Thus, as indicated in the lead, the contents of both news articles are based on the solid information sources as well as direct or indirect quotations from prestigious academic institutions. In mass media writing, both interviews and documents are common information sources (Whitaker et al., 2012). For instance, in the "High Benefits & Low Liabilities" news article, the estimation by Dr. Mark Melnik of the University of Massachusetts Donahue Institute was cited to further discuss the economic benefits of hosting the Olympic Games. In the "Low Benefits & High Liabilities" news article, the

argument of Dr. Bent Flyvbjerg, from Oxford University in London, that "the Games overrun with 100 percent consistency" was used to explain the budget numbers.

HIGH BENEFITS VS. LOW COSTS	LOW BENEFITS VS. HIGH COSTS

Headline

2024 Olympics would mean billions for Boston, study says	2024 Olympics would mean problems galore for Boston, opponents say

Lead

BOSTON – Boston would finish in the gold if it is chosen to host the 2024 Summer Olympics, with an influx of several billion dollars into the economy that will generate much needed urban infrastructure improvements and showcase Boston to the world, according to an economic study by Mark Melnik of the University of Massachusetts' Donahue Institute.	BOSTON – If Boston is chosen to host the 2024 Summer Olympic Games, the cost could be far higher than the $13.3 billion estimated by the Boston 2024, say No Boston Olympics who also warn of security issues and massive traffic jams, relying partly on the work of Bent Flyvbjerg, an economic geographer at Oxford University in London, which hosted the 2012 Games.

The report, which the institute said is the first independent study to look into the economic impact, says the 2024 Games would add around $300 million in tourist spending and 4,300 new jobs. Melnik estimates that there would be 712,000 net new "visitor-days" in the region, comparable to the experience of London, which was ranked as the No. 1 vacation destination for 2013 after hosting the 2012 Summer Olympics.

An Olympic bid also will allow the city to do important regional planning with major investments and upgrades to the MBTA and highways, renovations at the area's world-class universities and increased funding for youth sports and community programs, the report says.

If Boston is chosen by the International Olympic Committee, it would be the first summer Games in the United States since the 1996 Atlanta Olympics and would allow Boston to showcase its history and heritage to billions of viewers across the globe for 17 days.

"The Games overrun with 100 percent consistency," and a $27 billion price tag is possible, Flyvbjerg said. That does not include any possible cost overruns and the ongoing cost of maintaining facilities built for the Games – what Flyvbjerg calls "white elephants" – long after the Olympics are over.

Even if the $13.3 billion estimate by Boston 2024, the group formed to promote the city's bid, is correct, that's more than the Commonwealth of Massachusetts collects annually in income taxes.

Opponents also have raised concerns about security issues, especially given the bombings at the 2013 Boston Marathon, as well at the terrorist attacks at the 1972 Munich Olympics and the bombing at the 1996 Atlanta Games. Security for the London Games cost $1.6 billion, equal to almost the entire budget for the Atlanta Olympics.

No Boston Olympics also is warning that Boston traffic, already snarled, will be a nightmare. An MBTA official has estimated there will need to be a 60 percent reduction in normal traffic to avoid severe congestion during the Games.

Opponents have countered, however that traffic, already snarled most days, will be a nightmare, and about the cost, which has reached into the billions of dollars for recent games.

If Boston is chosen by the International Olympic Committee, it would be the first summer Games in the United States since Atlanta. The influx of several billion dollars into the economy also would allow much needed urban infrastructure improvements.

Summary

The U.S. Olympic Committee chose Boston over San Francisco, Washington and Los Angeles, which has twice hosted the Games. The IOC will choose the 2024 host at a 2017 meeting in Peru. Most of the competition is expected to come from European cities such as Rome, Hamburg and Paris. Public support is expected to be an important factor in the IOC's decision.

Note. The texts with green border are statements about benefits; the texts with red border are statements about liabilities; the texts with purple border are neutral statement.

Figure 3.3 Manipulation of media content about the impacts of the 2024 Boston Olympic Games

The main body of the "High Benefits & Low Liabilities" news article covered three kinds of benefits – economic benefit, community development, and local pride – and a concise statement of the costs. In the second article, since "high liability" is the theme, three kinds of negative impacts were introduced, including large budget, security, and traffic congestion, followed with a paragraph slightly mentioning the positive impacts representing the scenario of "low benefits". Following the rules of mass media writing, each paragraph was kept to three sentences or less and to fewer than 100 words (Whitaker et al., 2012). In the "High Benefits & Low Liabilities" news article, the benefit attributes were talked about in individual paragraphs, while the costs were combined to one. In contrast, in the "Low Benefits & High Liabilities" news article, the cost attributes were talked about in individual paragraphs, while the benefits were combined to one. The length of each paragraph was controlled to be in parallel across the news articles. In this way, the news articles of "High Benefits & Low Liabilities" and "Low Benefits & High Liabilities" were developed, respectively.

The last paragraph in both news articles was the summary. It simply introduced some facts behind Boston's bid: "The USOC chose Boston over San Francisco, Washington, and two-time Olympic host Los Angeles to bid for the 2024 Summer

Olympics. The International Olympic Committee will gather in Peru in 2017 to choose the host of the 2024 Games. Most of the competition for the bid is expected to come from European cities such as Rome, Hamburg, and Paris".

Taken together, the manipulation of the two news articles about the impacts of Boston's hosting the 2024 Summer Olympic Games, on one hand, followed the basic principles of mass media writing, and on the other hand, differentiated from one another by covering different attributes of the issue, i.e., the benefits and liabilities of hosting the Olympic Games. The identical structure and similar length can help to eliminate the framing effect, which might interfere with the testing of agenda setting theory. When manipulating the two news articles about Beijing's bid for the 2022 Winter Olympic Games, the same structure and mass media writing principles were followed, except that the contents were replaced with the facts associated with the 2022 Winter Olympic Games, the host areas of Beijing and Hebei, China, and the text was in Mandarin.

For the purpose of checking the validity of manipulation, the participants needed to identify the major attribute of the news article they just read in the end of the experiment. Two options were offered: "High benefits and low costs" and "Low benefits and high costs". The participants were supposed to identify the major attribute of the news article assigned. If the answer did not correspond to the experimental condition, the survey would be accounted as invalid.

3.3.4 Randomization

Another technique that experiments use to ensure cause-effect test is random assignment. The power of randomization is the power assured by probability theory: if extraneous influences are distributed randomly, they sum to zero (Webster & Sell, 2007).

In other words, by randomly assigning subjects to the control and experimental group, all the extraneous factors should balance out, making the experimental conditions equal (on average) on these variables. Specifically, when individual subjects are randomly assigned to different experimental conditions, different effects observed in the different conditions are not due to uncontrolled factors, such as personal traits of the subjects studied, because those factors have been evenly distributed across conditions. Thus, with random assignment, we can eliminate the explanation that differences in conditions result from characteristics of the subjects or groups treated (Oppewal, 2011). Through the online survey design, the news articles were set up as two blocks. The surveys with different blocks were delivered to the subjects alternately. In this way, the subjects can be randomly assigned to the two treatment groups.

3.3.5 Control of Extraneous Variables

Extraneous variables refer to those that naturally exist in the environment that may have some systematic effect on the dependent variable (Zikmund et al., 2009). Because a researcher does not want extraneous variables to affect the results, the researcher must eliminate or control such variables. Otherwise, when the extraneous variables have not been controlled or eliminated, the experimental results will be confounded. A confound means that "there is an alternative explanation beyond the experimental variables for any observed differences in the dependent variable"(p. 265). Once a potential confound is identified, the validity of the experiment is severely questioned (Zikmund et al., 2009).

There were different ways employed in this study to control the extraneous variables. First of all, random assignment of subjects to the various experimental groups

is the most common technique used to prevent test units from differing from each other on key variables; it assumes that all characteristics of the subjects have been likewise randomized (Tabachnick & Fidell, 2007a; Webster & Sell, 2007). However, sometimes it is impossible to allocate participants into conditions randomly. The alternative option is to hold the extraneous variable constant or include it as a covariate variable. Holding a variable constant can increae the power, but reduce the generalizability. Thus, possible extraneous variables were controlled as covaraites in the statistical model. To adjust the dependent variable for the covariates can counteract the effects resulted from any "unhappy randomization" (Tabachnick & Fidell, 2007a).

The literature studying tourism has confirmed that intrinsic variables, such as involvement in tourism, community attachment, and demographic characteristics helped explain residents' perceptions at the individual level (Davis, Allen, & Cosenza, 1988; McCool & Martin, 1994; Andriotis & Vaughan, 2003). Similarly, residents' attitudes toward the Olympic Games might vary based on the degree of interest in the Olympic Games, the community attachment, and demographic characteristics. Previous empirical studies have identified the significant effect of these variables (Fredline & Faulkner, 2001a, 2001b; Deccio & Baloglu, 2002; Twynam & Johnston, 2004; Gursoy & Kendall, 2006; Ritchie et al., 2009; Cheng & Jarvis, 2010; Hiller & Wanner, 2011; Chien et al., 2012; Martin & Barth, 2013). Thus, these potential extraneous variables were controlled as covariates in the statistical model.

3.4 Survey Design

3.4.1 Survey Development

The survey was developed based on the literature review (Table 3.2). It consists of six sections. The first section is the measurement of the covariate variable – interest in the Olympic Games. The items used to measure the interest in the Olympic Games were adapted from the Sport Interest Inventory developed and tested by Funk, Mahony, and Ridinger (2002). In each survey, residents were asked to indicate to what degree they would agree or disagree with the three items on a 5-point Likert scale: "I consider myself as a fan of the Olympics"; "I love to follow the Olympic Games"; "I am always excited about the Olympic Games".

The second section is the measurement of another covariate variable – community attachment. Community attachment was measured by three affective items that measured community sentiment, which was developed by Goudy (1982) and used in McCool and Martin's (1994) study as well as Deccio and Baloglu's (2002) study. The items were measured on a 5-point Likert scale, from 1= strongly disagree to 5= strong agree. The American resident survey included the statements "I am concerned about what goes on in Massachusetts"; "If I had to move away from Massachusetts, I would be very sorry to leave"; "I would rather live in Massachusetts than anywhere else". A composite score was computed from these three items. In the Chinese resident survey, "Massachusetts" was replaced with "Beijing" or "Hebei" in all three items.

In the next section, subjects were asked to rate three general attitude questions toward Boston's hosting of the 2024 Summer Olympic Games and Beijing's hosting of the 2022 Winter Olympic Games, respectively. Since there is a lack of an existing scale

measuring the residents' overall attitudes toward forthcoming mega-events, the questions used in this study were adapted from previous research (Ritchie & Lyons, 1990; Mihalik & Simonetta, 1999; Kaplanidou et al., 2013; Prayag et al., 2013), namely "All things considered, it is a good idea for Boston to host the 2024 Summer Olympic Games"; "Overall, I support the hosting of the 2024 Summer Olympic Games in Boston"; "Overall, my attitude towards Boston's hosting of the 2024 Summer Olympic Games is positive" ("Boston" and "2024 Summer Olympic Games" was replaced with "Beijing" and "2022 Winter Olympic Games" in another survey, respectively).

Table 3.2 Measurement items used in this study

Constructs	*Items*
Interest in the Olympic Games	I consider myself as a fan of the Olympics. I love to follow the Olympic Games. I am always excited about the Olympic Games.
Community attachment	I am concerned about what goes on in the community. If I had to move away from the community, I would be very sorry to leave. I would rather live in the community than anywhere else.
Overall attitude toward hosting the Olympic Games	All things considered, it is a good idea for Boston to host the Olympic Games. Overall, I support the hosting of the Olympic Games in the city. Overall, my attitude towards hosting the Olympic Games is positive.

In the fourth section, the subjects were asked to read a news article about the impacts of hosting the Olympic Games. This part served as the treatment in the experimental study. In pretest-posttest experimental design, testing effects are the potential issue that most likely affects the internal validity because the effect of testing may increase awareness of socially appropriate answers, increase attention to

experimental conditions (that is, the subject may watch more closely), or make the subject more conscious than usual of the dimensions of a problem (Zikmund et al., 2009). Thus, to minimize the testing effect, demographic information was collected from the subjects following the news article. At the end of the survey, the subjects were asked to indicate their attitudes toward the Olympic Games again. The same scale was used, but the order of items was changed for the purpose of avoiding the testing effect.

3.4.2 Back Translation

Since the survey was to be delivered among Chinese residents, the survey needed to be translated into Mandarin. One of the major problems in cross-national studies is to determine whether the translation of words, phrases, and concepts is equivalent to the original language. To increase the validity of the translation, back translation was applied in this study. It refers to the use of two bilingual people who will alternatively translate a questionnaire (Dimanche, 2011). A bilingual person is able to use two languages with equal or nearly equal fluency. In this study, two bilingual Ph.D. students in the field of tourism and hospitality management who used English and Mandarin with equal fluency were hired. Individual 1 translated the survey from English to Mandarin. Then Individual 2 translated back from Mandarin to English, without having knowledge of the original English survey. We then compared the two surveys in English: the original one and the back-translated one. The sentences and questions that could yield different responses were identified. Then, we went back to refine these questions. In this way, a pilot study will help to make sure subjects have a good understanding of the questions and terms that are provided and thus increase the reliability and validity of the survey.

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3.4.3 Pilot Study

A pilot study was conducted among graduate students and faculty members in the College of Hospitality, Retail and Sport Management, the College of Information and Communications of the University of South Carolina, and college students studying in Beijing and Boston. There were multiple purposes associated with the pilot study.

First of all, two professors from School of Journalism and Mass Communications were consulted about the quality of the news articles created for this study. Both of them have decades of professional experience in broadcast and newspaper as news editor and they provided insightful comments and revision in attempt to make the created articles look like real news from a leading print newspaper. In the case in China, the two news articles also were checked and slightly modified by two current news editors for the purpose of making sure that they follow the format and routine of mass media writing in the Chinese style.

The second purpose of the pilot study was to assess the content validity and reliability of the survey. The participants were asked to provide comments on its layout, content, wording, and understandability, and identify the redundant scale item and other scale problems in an attempt to improve the proposed survey. Based on their suggestions, the survey was revised and reorganized in terms of wording and layout, and redundant scale items were deleted, leaving at least three items for each construct.

Another purpose of the pilot study was to check the validity of manipulation. In social science, the manipulation check is often conducted by asking a survey question or two. Importantly, manipulation checks should always be administered after dependent

variables in self-response format experiments. This kept the manipulation check item from becoming a troublesome demand characteristic (Zikmund et al., 2009). In this study, the manipulation of the independent variable – media contents about the impacts of hosting the Olympic Games – had two treatments: "High Benefits & Low Liabilities" and "Low Benefits & High Liabilities". In the pilot study, two questions were added at the end of the survey. The first question is "Which of the following best describes the impacts analyzed in the article you just read". Two options are offered: 1) High benefits and low costs; and 2) Low benefits and high costs. The second question is "To what degree do you think the news article is a fair portrayal about the Olympic Games". The answer ranges from very fair to very unfair in 4-point Likert scale. A valid manipulation would produce substantially different average responses across two treatment groups.

The survey questionnaire used for the pilot study was distributed through the online survey method. A snowball sampling method was used to distribute the survey among college students studying in Beijing, China and Boston, USA. A total of 87 completed surveys were generated, 65 from Beijing and 22 from Boston. The responses were analyzed to test the reliability of the measurement items. For multiple scale items, it is important to test the internal consistency, which assumes that several items are measuring the same dimension. The internal consistency was analyzed via Cronbach's Alpha reliability test on SPSS 21.0. The results showed that the reliability coefficients are 0.868 for interest in the Olympic Games, 0.670 for community attachment, and 0.954 for overall attitudes toward hosting the Olympic Games. As stated by Ekinci (2011), an alpha coefficient of 0.70 indicated a good degree of reliability in leisure, recreation, and

tourism research. Thus, the alpha of community attachment was slightly below this cutoff value, and the other two constructs had very high alpha coefficients.

Regarding the assessment of manipulation, there were 21 out of 65 Chinese participants and 5 out of 22 American participants who failed to identify the attribute of the news article assigned. In other words, 66% of Chinese participants and 78% of American participants accurately interpreted the main content embedded in the news articles provided, which indicated an effective manipulation of the news content about the impacts of hosting the Olympic Games. In addition, the data from the pilot study showed that the odds of failing to identify the attribute of the news article is 2 among the participants spending less than two minutes on the survey. It was much higher than 0.42 for the sample as a whole. Thus, both the manipulation check question and the time spent on the survey were used as the qualification criteria when monitoring the online survey participants.

3.5 Data Collection

3.5.1 Study Population

This study aims to investigate the relationship between media content and local community's attitudes toward hosting the Olympic Games. Therefore, the population of the study is the local residents of the Olympic hosting area. Specifically, in this study, it is defined as an adult who currently lives in the Olympic hosting city/state/province of China and the US. The sampling frame of this study is the people who currently live in the city of Beijing and the province of Hebei, China, where the co-host city – Zhangjiakou – is located, and the Commonwealth of Massachusetts, where the city of Boston is located, and are 18 years old or above.

3.5.2 Sample Size

Requested sample size for adequate power can be estimated based on acceptable levels of effect size, α, and power (1−β) (Dattalo, 2008). The 4:1 ratio of β to α is used in this study (Hinkle, Wiersma, & Jurs, 2003). That is, if the level of α is established a priori at .05, then the corresponding power is 1− 4(.05) = .80. In most settings, a power level of about .80 or so is needed to justify the time and expense of conducting the research (Tabachnick & Fidell, 2007a). Since there is no literature as reference to anticipate the effect size, all of the small, medium, and large values of Cohen's effect sizes for *f* test are used separately to calculate the sample size. They are .10, .25, and .40, respectively.

This study was to explore the differences of the attitudes between two treatment groups on media content while nation, namely China and the US, served as another independent variable (i.e., 2*2 = 4 groups), controlling for pre-test attitude, interest in the Olympic Games, community attachment, and a series of demographic variables, including gender, age, income level, education, and residence length. As a general rule, one wants a very small number of covariates, all correlated with the dependent variable and none correlated with each other. The goal is maximum adjustment of the dependent variable with minimum loss of degrees of freedom for error (Tabachnick & Fidell, 2007a). Conservatively, about eight covariates were considered when estimating the sample size.

This study estimated sample size with GPower, which is a free power analysis program available at http://www.gpower.hhu.de/en.html. The input data and output results were displayed in Table 3.3. Based on the analysis, the estimation of the sample size, from 73 to 1095 heavily depends on the effect size anticipated in this study. Considering that this is the first study on the media effects on resident attitudes toward

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hosting the Olympic Games, small effect size is cautiously anticipated. Thus, the biggest sample size will be pursued. Meanwhile, sample sizes based on power analysis also should be considered within the context of ethical and cost-related issues (Dattalo, 2008). Taken together, a total of 1,000 participants were targeted for the experimental study. That is, 500 respondents would be recruited separately from Chinese resident sample and American resident sample.

Table 3.3 Sample size calculations by GPower

Input	*Output*		
Effect size *f*: 0.10, 0.25, 0.40	*Small effect size (0.10)*	*Medium effect size (0.25)*	*Large effect size (0.40)*
α: 0.05	λ: 10.9500	λ: 11.1875	λ: 11.6800
Power: 0.80	Critical F: 2.6131	Critical F: 2.6587	Critical F: 2.7555
Numerator df: 3	Denominator df: 1083	Denominator df: 167	Denominator df: 61
No. of groups: 4	Total sample size: 1095	Total sample size: 179	Total sample size: 73
No. of covariates: 8	Actual power: 0.8003	Actual power: 0.8010	Actual power: 0.8020

3.5.3 Data Collection

A self-administered online survey was utilized to collect the data. Web-based surveys reduce the expense associated with traditional mail surveys and also reduces error since the data can be automatically recorded rather than transcribed from a paper form into an electronic format (Zikmund et al., 2009). Another benefit is that web-based surveys are much faster than traditional printed surveys, and collecting data usually starts even within minutes after the survey is activated (Sirakaya-Turk & Uysal, 2011). Online marketing companies – Sojump in China, Amazon Mechanical Turk and Toluna in the US – were hired to collect data in China and the US, respectively. The two web-based surveys were displayed in Appendix A.

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Several qualification criteria were set up for the purpose of improving the quality of the self-administered online survey. First, valid surveys need to accurately recognize the major content of the news article provided. Second, all surveys completed in less than two minutes are considered invalid. Third, all of the marketing companies, SoJump, Amazon Mechnical Turk, and Toluna, used the IP address as the indicator of the location and, in this study, participants were required to input the zip code to make sure that their current residency location was identical with the study area. After the filtering, there were 962 valid surveys collected in total, including 510 completes from China residents and 452 completes from American residents.

3.6 Data Analysis

Three types of data analyses were conducted: measurement equivalence test, descriptive analysis, and inferential analysis. All statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS) version 21.0 and Mplus 7.0.

3.6.1 Measurement Invariance Test

In cross-cultural comparative studies it is essential to establish equivalent measurements of relevant constructs across cultures (Kankaraš & Moors, 2010). Besides the employment of back translation, the measurement invariance needs to be tested (Dimanche, 2011). Measurement invariance, or measurement equivalence, addresses whether scores from the operationalization of a construct have the same meaning under different conditions (Meade & Lautenschlager, 2004). These different conditions could involve the consistency of measurement between populations, time of measurement, or methods of test administration (Kline, 2011). If this invariance is not confirmed it is difficult if not impossible to make a meaningful comparison of results across countries. In

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that case, the research results may be caused not by actual differences in those cultures investigated, but by differences in the methods used.

There were three hierarchically linked types of invariance that assumed an increasingly stronger level of measurement comparability across cultures: configural invariance, metric invariance, and scalar invariance. Configural invariance implied similarity of data configurations or structures across cultures (Horn & Mcardle, 1992; Steenkamp & Baumgartner, 1998). That is, this level of measurement invariance did not necessarily require that the relationships between the indicators and the constructs had exactly the same strength, but that the same set of indicators was related to the same constructs in each culture (Kankaraš & Moors, 2010).

Metric invariance was a more stringent form of invariance as it subsumed configural invariance and additionally assumed that the relationship between observed indicators and latent concepts was equal across groups (Singh, 1995; Cheung & Rensvold, 2000). In other words, metric invariance implied the equality of the measurement units on which the latent concept was measured across cultural groups (Steenkamp & Baumgartner, 1998). Thus, metric invariance represented a necessary and sufficient condition for the comparison of difference scores (e.g. mean-corrected scores) across countries. It also enabled the valid comparison of relationships of the latent variable with other variables of interest (Steenkamp & Baumgartner, 1998; Kankaraš & Moors, 2010).

In order to establish complete measurement invariance and to enable full comparison of country scores, including country means, it was necessary that the scales of the latent construct had the same origin, which was defined as scalar invariance

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(Meredith, 1993; Steenkamp & Baumgartner, 1998). However, invariance of the parameters for all items was not necessary for substantive analyses to be meaningful, as metric and/or scalar equivalence are unlikely in many situations. Cross-national comparisons could be made in a valid way if at least two items per construct were equivalent, which was defined as partial invariance (Meredith, 1993; Kankaraš & Moors, 2010). Under partial invariance, non-invariant items were retained, and their forms/loadings/intercepts were allowed to vary between two groups; it was assumed that if the non-invariant items constituted only a small portion of the model, then they would not affect the cross-group comparisons to any significant extent (Cheung & Rensvold, 1999).

In the ideal case, theory or prior research should be relied on for model modification (Hoyle, 2012). When lack of theoretical reference, there were two typical approaches to empirical model modification when exploring partial factorial invariance models. The traditional approach was to consult modification indices to determine which cross-group equality constraint most significantly contributed to lack of fit, and then free that constraint (Gregorich, 2006; Millsap, 2011; Hoyle, 2012). The other method was proposed by Cheung and Rensvold (1999), which tested the cross-group invariance of parameters associated with each pair of items. Specifically, within a one-factor model with three items, as in this study, three separate CFA models tested the cross-group invariance of the factor forms/loadings/intercepts associated with each pair of items; in each model, the factor parameters for the remaining item would be freely estimated within each group. Then, test results were examined to determine whether item set emerged with evidence of invariant factor parameters across groups. The Cheung and

Rensvold approach was employed in this study because it more easily allowed identification of potential non-invariant item within the factor model (Gregorich, 2006). Beforehand it should be realized, however, that data-based modifications may improve the fit to the data at hand, but also may fail to cross-validate in subsequent studies (Millsap, 2011). In other words, the postulated modifications should be defensible primarily from a theoretical point of view, while data-based modification could fit the data just by chance (Mueller, 1997).

In this study, multi-group confirmative factor analysis (MCFA) is conducted for testing measurement equivalence of cross-cultural data for the three latent variables: interest in the Olympic Games, community attachment, and overall attitude toward hosting the Olympic Games. MCFA is a parametric, linear approach, which assumes that both the latent construct and observed variable (e.g., item scale) are of continuous nature. It basically investigates whether the factor loadings, intercepts and error variances of a given model are equal across groups (Kankaraš & Moors, 2010; Kline, 2011). The software Mplus 7.0 was used to conduct MCFA. Thus, three MCFA tests were conducted in this study.

According to Kankaraš and Moors (2010), MCFA can start from the unrestricted (heterogeneous) model in which all parameters are group specific and then compare it with the more restricted, nested models in a number of consecutive steps (Steenkamp & Baumgartner, 1998; Vandenberg & Lance, 2000). Specifically, models are first compared on a scale level, starting with the model with equal slope parameters in all items (metric equivalence), and followed by the model with equal slope and intercept parameters in all items (scalar invariance). Model fit statistics play an important role in the procedure. The

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most commonly used model comparison test in MCFA is the chi-square difference test, which is in fact a likelihood-ratio (LR) test of nested models. Other popular fit indices are measurement categories such as Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Standardized Root Mean Square Residual (SRMR).

3.6.2 Descriptive Analysis

Composite factor scores were computed by averaging items' scores on each latent variable: interest in the Olympic Games, community attachment, pretest overall attitudes toward hosting the Olympic Games, and posttest overall attitudes toward hosting the Olympic Games. This simple procedure is adequate especially when the items have roughly equal standard deviations (Tabachnick & Fidell, 2007b). The data of the pilot study has confirmed this condition.

Descriptive analyses were conducted to summarize the overall performance on each of the four latent variables. These descriptive analyses included gender, age, education, and other demographic variables. The purpose of the descriptive analyses was to meaningfully describe the raw data.

3.6.3 Inferential Analysis

There are two common inferential analyses for group comparison when groups are measured both before and after the treatments: one is analysis of covariance (ANCOVA) and the other is difference score model (Wright, 2006). To investigate the research questions, ANCOVA can be conducted to assess the differences between independent variables on a single dependent variable after controlling for the effects of the covariates. In this study, the dependent variable – the posttest overall attitude of hosting the Olympic Games is compared by type of treatment on media content and type

of nation where the Olympic Games will be held. Independent variable 1, type of treatment, has two groups ("High Benefits & Low Liabilities" and "Low Benefits & High Liabilities"). Independent variable 2, type of nation, has two groups (China and the US). The pretest overall attitude of hosting the Olympic Games is considered as the covariate for the purpose of ruling out its effect on the dependent variable. According to Tabachnick & Fidell (2007b), in an experimental setting, ANCOVA increased the power of an F test for the main effects or interactions by removing predictable variance associated with the covariates from the error term. Thus, a 2×2 between-subjects ANCOVA after controlling the pretest score would be appropriate in this study.

The other main approach is the difference score model. It refers to using the difference score (i.e., posttest minus pretest) as the dependent variable. In this study, the attitude change caused by the treatment is analyzed as the dependent variable; media content and nation still serve as the independent variables; a 2×2 between-subjects analysis of variance (ANOVA) can be conducted to investigate the media effect and the moderation role of nation. Although either ANCOVA or difference score model can help to investigate the media effects caused by the experimental treatments, these two approaches could lead to very different conclusions (Lord, 1967, 1969). This phenomenon is known as Lord's paradox in the field of social science.

Generally, Lord's paradox refers to the relationship between a continuous outcome and a categorical exposure being reversed when an additional continuous covariate is introduced to the analysis (Tu, Gunnell, & Gilthorpe, 2008). Actually, when using a pre-post test design with two groups, two analytic techniques address different research questions and are based on different assumptions, and therefore they sometimes

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produce different results (Wright, 2006). According to Hand (1994), the difference score model and ANCOVA are asking different research questions: the first asks whether the average gain in score is different for the two groups; the second asks whether the average gain, partialling out pre-scores, is different between the two groups. Moreover, the two approaches hold different assumptions. For ANCOVA, the expected posttest scores are assumed to be a linear function of the pretest scores and the slope is the same for both groups (Lord, 1967; Wright, 2006). If this assumption is violated, in other words, the initial baseline scores are different between two groups, the difference score model will be an appropriate approach for group comparison (Wright, 2006).

This is an apparent paradox because basically there is no general preference between two approaches. In particular, Lord's paradox arises because of non-random assignment (Maxwell & Delaney, 2004). In experimental study, ideally, participants should be randomly allocated to experimental conditions. In this case, the ANCOVA is the more powerful approach (Oakes & Feldman, 2001). However, sometimes it is impossible to allocate participants into conditions randomly, which might result in the non-equivalent groups (Wright, 2006). The difference score approach has the advantages of relative simplicity, fewer assumptions and calculations (Knapp & Schafer, 2009). Moreover, Maxwell and Delaney (2004) stated that applied researchers were often interested in whether each group has increased or decreased in scores, and therefore analysis of the differences can sometimes be more informative than the ANCOVA.

Although randomization was used in this study, there still was a possibility that the pretest attitudes toward the Olympic bid may differ between Chinese and American participants. Therefore, *t* tests were conducted along with the descriptive analysis on the

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pretest attitude toward hosting the Olympic Games between two experimental groups and between two national groups, respectively. If there was no statistical difference on the pretest attitude between groups, the ANCOVA would be conducted to investigate the media effects. Otherwise, the difference score model was more appropriate.

3.7 Summary

This chapter discussed the research design as well as methodology used in this study. First, the research questions and the research framework proposed previously were presented. Then, the experimental design was discussed and the emphasis was given to the manipulation of the newspaper articles about hosting the Olympic Games. The last section introduced the statistical methods that were employed in the study. The following chapter demonstrates the main results of the measurement invariance tests, descriptive analysis, and inferential analysis.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

The results of the data analysis are presented in this chapter. The first section provides the process and results of data screening, followed by a description of the demographic characteristics of the experiment participants. The third section presents the descriptive analysis of measurement items for each construct. The fourth section examines the measurement invariance for the constructs across China and the US. Multiple group confirmative factor analysis is performed to confirm the prerequisite condition for further analysis in a cross-national study. The last section of this chapter demonstrates the statistical analysis for the primary and secondary research questions. ANCOVA with gain score as the dependent variable is used as the main statistical method in this section.

4.2 Data Screening

The data collection process started from May 27, 2015 and lasted till June 14, 2015. A total of 1,353 participants were recruited through marketing companies in China and the US to read the news article and complete the online survey. Based on the qualification criteria created in Chapter Three, 391 surveys were unusable completes and then eliminated. 962 completes were coded and used for preliminary data analysis. The number of the completed surveys was smaller than the sample size estimated from the

priori power analysis, namely 1095. Thus, there was a possibility that the data analysis result could be underpowered if small effect size was found.

As a result of randomization, we had a fairly equal number of participants in each experiment condition (Table 4.1). Within the whole sample, 484 participants were assigned with the "High Benefits & Low Liability" (HBLL, thereafter) news article, and 478 participants read the "Low Benefits & High Liabilities" (LBHL, thereafter) news article.

Table 4.1 Number of participants in each experiment group

| Nation | Experimental Group | | Total |
	High Benefits & Low Liabilities	Low Benefits & High Liabilities	
China	249	261	510
U.S.A.	235	217	452
Total	484	478	962

The fairness perception of the newspaper article manipulated was tested at the end of the experiment (Table 4.2). Within the experiment group of HBLL, 83.8% participants indicated that the news article fairly reported the effects of hosting the Olympic Games, whereas 16.3% participants believed that the content of the news article was not fair. In the other experiment group, 78.7% participants had a relatively fair perception about the LBHL news article, whereas the others did not agree with the story reported in the news article. The two national respondents perceived the fairness of the news articles in a similar way, except that nearly all the Chinese residents (96.0%) gave the HBLL a fair evaluation. Taken together, the majority of the participants regarded the news article assigned as reasonable and plausible. This perceived fairness of the news article implied

the effective manipulation of the treatment in this experimental design – the media content of the impact of hosting the Olympic Games.

Table 4.2 Perceived fairness of the event portrayal in each group

			China	*U.S.A.*	*Total*
HBLL	Fair	Frequency	241	166	407
		Percentage	96.8%	70.6%	83.8%
	Unfair	Frequency	8	69	77
		Percentage	3.2%	29.4%	15.9%
LBHL	Fair	Frequency	204	172	376
		Percentage	78.2%	79.2%	78.7%
	Unfair	Frequency	57	45	102
		Percentage	21.8%	20.8%	21.3%

Prior to data analysis, data screening was conducted first, mainly checking for missing values, outliers, and normality. Because of the high quality data guaranteed by the marketing companies, no missing values were found in the data sets. It also was important to screen data sets for outliers prior to analysis. An outlier was a score that was unusually far from the mean of its own group and apparently disconnected from the rest of the scores in the group (Tabachnick & Fidell, 2007a). The z score distribution was used to assess the distance of raw scores from the mean of the sample. The result showed that no z score was larger than 3.3, except where eight cases had a z score of -4.50 (raw score is 1) on the item of "I am concerned about what goes on in Massachusetts/Beijing & Hebei". It meant that probability of sampling a score of this size if it is truly from the population of interest is .001 or less (Tabachnick & Fidell, 2007a). Thus, these eight cases were identified as univariate outliers in this data set. In order to reduce the influence of the outliers, the cases were dropped from further analysis.

The multivariate outliers were detected by calculating the Mahalanobis distance. The criterion for multivariate outliers is Mahalanobis distance at $p<0.001$ (Tabachnick &

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Fidell, 2007b). The result did not indicate any existence of multivariate outliers for all constructs.

Because ANCOVA was utilized for media effect testing as well as Multiple Group Confirmative Factor Analysis, violation of the univariate or multivariate normality could invalidate statistical analysis (Tabachnick & Fidell, 2007a; Kline, 2011). The normal distribution can be examined by skewness and kurtosis; skewness assessed the symmetry of the distribution and kurtosis assessed its peakedness. In normal distribution, skewness and kurtosis were zero (Tabachnick & Fidell, 2007a). The results (Appendix B) showed generally that the measurement items were normally distributed. As a result of data screening, the original sample size of 962 was thus reduced to 954, with a loss of eight cases due to the univariate outliers on the item of "I am concerned about what goes on in Massachusetts/Beijing & Hebei".

4.3 Profile of Participants

The demographic characteristics of gender, age, ethnic group, marital status, education, household income, occupation, and residence length are discussed in this section to provide a descriptive profile of the experiment participants (Table 4.3, 4.4, 4.5, 4.6). Of the 505 Chinese participants, 225 (44.8%) were male, whereas 279 (55.2%) were female participants. The majority of the participants were middle aged or younger. The largest age group of the Chinese respondents was 25-34 years old (46.1%), followed by the group of 18-24 (24.4%) and 35-44 (21.6%). Most of the Chinese participants were married (60.0%), whereas 39.8% of the participants were single. In terms of the level of education, 54.9% of the Chinese participants had a bachelor's degree, and 12.7% of the participants had a graduate education. With regard to ethnic groups, the vast majority of

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the participants were Han (96.4%). 72.9% of the respondents were employed full-time and students accounted for 20.0% of the Chinese sample. Considering the individual monthly income level, 24.0% of the respondents had less than ¥2,000 (approximate $330), which corresponds to the 20.0% student sample. The majority of the Chinese participants earned ¥2,500-20,000 every month, indicating nearly 70% participants could classified as middle class in China (Wang, 2010).

Table 4.3 Demographic characteristics of the participants

Variables	Chinese (N=505)		American (N=449)		
	Frequency	Percentage	Frequency	Percentage	
Gender					χ^2=1.380
Male	225	44.8	184	41.0	
Female	279	55.2	265	59.0	p=.240
Age					
18-24	123	24.4	64	14.3	
25-34	233	46.1	150	33.4	χ^2=108.759
35-44	109	21.6	88	19.6	
45-54	29	5.7	53	11.8	p=.000
55-64	7	1.4	49	10.9	
65 or older	4	.8	45	10.0	
Marital status					
Single	201	39.8	214	47.7	χ^2=77.649
Married	303	60.0	182	40.5	
Widowed/Divorced/Separated	1	.2	53	11.8	p=.000
Education					
High school or lower	36	7.1	51	11.4	χ^2=36.279
College degree	128	25.3	150	33.4	
Bachelor's degree	277	54.9	160	35.6	p=.000
Master/Doctorate degree	64	12.7	88	19.6	
Occupation					
Employed full-time	368	72.9	228	50.8	
Housewife/Homemaker	7	1.4	21	4.7	
Temporarily unemployed/ Looking for work	8	1.6	37	8.2	χ^2=128.245 p=.000
Retired	7	1.4	45	10.0	
Student	101	20.0	55	12.2	
Others	14	2.8	64	14.0	

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Table 4.4 Income levels of the participants

	Chinese			American		
Income (¥)	Frequency	Percentage	Income ($)	Frequency	Percentage
Less than 2000	121	24.0	Less than 20,000	55	12.2
2000–4000	92	18.2	20,001–40,000	95	21.2
4001–6000	95	18.8	40,001–60,000	83	18.5
6001–8000	81	16.0	60,001–80,000	72	16.0
8001–10000	59	11.7	80,001–100,000	59	13.1
10001–15000	36	7.1	100,001–150,000	68	15.1
15001–20000	14	2.8	150,001–200,000	12	2.7
20001–50000	6	1.2	200,001–300,000	4	0.9
50000 or above	1	0.2	300,001 or above	1	0.2

Note. Individual monthly income for Chinese; household annual income for Americans.

Table 4.5 Ethnic groups of the participants

	Chinese			American	
Ethnic groups	Frequency	Percentage	Ethnic groups	Frequency	Percentage
Han	487	96.4	Caucasian	384	85.5
Minority	18	3.6	African-American	19	4.2
Others	0	0	Hispanic	14	3.1
			Asian	11	2.4
			Native American	0	0
			Multi-racial	16	3.6
			Others	5	1.1

Table 4.6 Residence lengths of the participants

	Chinese				American				
	Max.	Min.	Mean	SD	Max.	Min.	Mean	SD	
Residence	70	1	20.19	14.729	81	1	31.55	18.180	t(951)= 10.510, *p*=.000

Of the 449 American participants, 184 (41.0%) were male, whereas 265 (59.0%) were female. The largest age group of the American participants was 25-34 years old (33.4%), followed by the group of 35-44 (19.6%). Notably, elder participants (55 or

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older) took up a larger proportion in the American sample (20.9%) compared with the 2.2% in the Chinese sample. Such a difference was probably related to the one of the residence length: on average, Chinese participants had 20.19 years residence in Beijing/Hebei, whereas American participants lived in Massachusetts for 31.55 years (Table 4.6). As to the marital status, there were more single participants (47.7%) than married ones (40.5%). In terms of the educational background, 35.6% of the American residents had a bachelor's degree, and almost 20% of the residents had higher degrees. The largest ethnic group of the American sample was Caucasian (85.5%). With regard to the household income in 2014, the largest income group of the American participants was $ 20,001 – 40,000 (21.2%), followed by $40,001 – 60,000 (18.5%), $ 60,001 – 80,000 (16.0%), and 100,001 – 150,000 (15.1%), indicating approximately 54% American participants could be classified as middle class (Kane & Kiersz, 2015).

The demographic variables such as gender, age, marital status, education, occupation and residence length were compared between Chinese sample and American sample. Chi-square tests (Table 4.3) and t tests (Table 4.6) indicated there were significant differences on the demographic characteristics between the Chinese sample and the American sample, except for gender. The American sample had a larger proportion of elderly, retired people and residents with graduate studies, but a smaller group of students in terms of occupation, whereas the Chinese sample had a relatively larger group of married people and the one with Bachelor degree.

4.4 Measurement Scales

The results of descriptive statistic analysis for interest in the Olympic Games (IOG), community attachment (COA), pretest attitude toward hosting the Olympic

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Games (PRA), and posttest attitude toward hosting the Olympic Games (POA) are presented in Table 4.7. Each measurement scale consisted of three items and participants were asked to provide answers on each item that was measured by a five point Likert scale ranging from 1 being Strongly Disagree to 5 being Strongly Agree. In addition to descriptive analysis, the scores on each item were compared between the Chinese sample and the American sample through t tests (Table 4.7).

Regarding interest in the Olympic Games, Chinese participants on average considered themselves as a fan of the Olympic Games (Mean=3.88), loved to follow the Olympic Games (Mean=4.04), and were mostly excited about the Olympic Games (Mean=4.14). As to the community attachment, Chinese participants indicated that they were concerned about what goes on in Beijing/Hebei (Mean=4.33); if they had to move away from Beijing/Hebei, they would be very sorry to leave (Mean=3.85); and they would rather live in Beijing/Hebei than anywhere else (Mean=3.77). Before reading the experimental news article, Chinese residents on average considered it was a good idea to bid for the 2022 Winter Olympics (Mean=3.99), had positive attitudes (Mean=4.13), and supported the bid overall (Mean=4.20). However, the overall attitudes were changed after exposure to the news article. To different degrees, the scores were decreased on all three items for the overall attitudes toward hosting the 2022 Winter Olympic Games in Beijing. Both similarities and differences were found between two samples. American participants also considered themselves as an Olympic fan (Mean=3.84), but the questions about following the Games (Mean=3.69) and being excited about the Games (Mean=3.67) were statistically and significantly lower than Chinese participants.

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Table 4.7 Descriptive analysis of measurement scales between China and the US

Items	China		U.S.A.		
	Mean	SD	Mean	SD	
(IOG1) I consider myself as a fan of the Olympic Games.	3.88	.86	3.84	1.00	t=.724 p=.469
(IOG2) I love to follow the Olympic Games.	4.04	.81	3.69	1.06	t=5.651 p=.000
(IOG3) I am always excited about the Olympic Games.	4.14	.86	3.67	1.11	t=7.408 p=.000
(COA1) I am concerned about what goes on in Massachusetts/Beijing/Hebei.	4.33	.65	4.41	.71	t=1.752 p=.080
(COA2) If I had to move away from Massachusetts/Beijing/Hebei, I would be very sorry to leave.	3.85	.97	3.74	1.09	t=1.706 p=.088
(COA3) I would rather live in Massachusetts/Beijing/Hebei than anywhere else.	3.77	1.04	3.48	1.10	t=4.274 p=.000
(PRA1) All things considered, it is a good idea for Boston/Beijing to host the 2024 Summer/2022 Winter Olympic Games.	3.99	.87	2.92	1.38	t=14.148 p=.000
(PRA2) My attitude towards Boston's/Beijing's bid for the 2024 Summer/2022 Winter Olympic Games is positive.	4.13	.80	2.97	1.34	t=15.981 p=.000
(PRA3) Overall, I support the hosting of the 2024 Summer/2022 Winter Olympic Games in Boston/Beijing.	4.20	.83	2.96	1.39	t=16.518 p=.000
(POA1) All things considered, it is a good idea for Boston/Beijing to host the 2024 Summer/2022 Winter Olympic Games.	3.89	.97	2.87	1.33	t=13.330 p=.000
(POA2) My attitude towards Boston's/Beijing's bid for the 2024 Summer/2022 Winter Olympic Games is positive.	3.97	.91	2.92	1.34	t=14.334 p=.000
(POA3) Overall, I support the hosting of the 2024 Summer/2022 Winter Olympic Games in Boston/Beijing.	3.96	.90	2.94	1.35	t=13.595 p=.000

Note. IOG – Interest in the Olympic Games; COA – Community attachment; PRA – Pretest Attitude; POA – Posttest attitude. Measurement scale, 1= Strongly Disagree and 5 = Strongly Agree

Similarly, American participants were concerned about what went on in Massachusetts (Mean=4.41), and would feel sorry if they had to move away from Massachusetts (Mean=3.74). Their preferences of living in the current state rather than other places (Mean=3.48) were statistically and significantly lower than Chinese participants. Regarding the overall attitudes toward hosting the 2024 Summer Olympic Games, the scores given by American participants of all three items again were significantly lower than those of Chinese participants, both prior to and after reading the news article in the experiment. On average, residents living in Massachusetts had a rather neutral standpoint on these statements before reading the news article: "All things considered, it is a good idea for Boston to host the 2024 Summer Olympic Games" (Mean=2.92); "My attitude towards Boston's bid for the 2024 Summer Olympic Games is positive" (Mean=2.97); and "Overall, I support the hosting of the 2024 Summer Olympic Games in Boston" (Mean=2.96). Such neutral opinions did not change much after reading the news article among American participants.

There were statistically significant differences between the Chinese participants and American participants on nine items from the survey. Chinese participants were more likely to agree with all statements than American participants, except for the item IOG1, COA1, and COA2 (Figure 4.1). Furthermore, greater standard deviation among American participants indicated a lack of social consensus with regard to interest in the Olympic Games, community attachment, and overall attitude toward the Olympic Games. In sum, comparing with American residents, Chinese residents had higher level of interest in the Olympic Games, more personal ties with the local community, and stronger public support for the Olympic bid, both prior to and after the experiment.
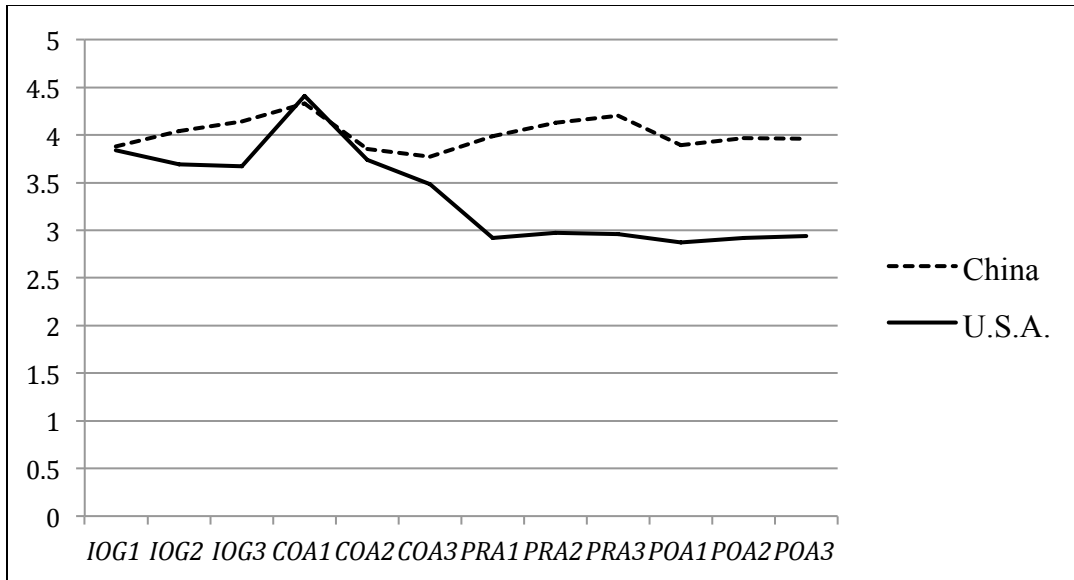
Figure 4.1 Means of measurement scales by nation

4.5 Measurement Invariance

Following the descriptive analyses for each item, the composite factor scores were calculated and then the group comparisons were conducted between Chinese participants and American participants. However, before comparing the group means across different nations, the measurement invariance needed to be tested on each construct, which was a fundamental concern in any cross-cultural research (Hui & Taiandis, 1985; Sin, Cheung, & Lee, 1999; Dimanche, 2011). It was particularly necessary when measuring the unobserved construct, like the attitude in this study, to check whether the participants of different cultures ascribed the same meanings to survey items (Cheung & Rensvold, 2000).

Measurement invariance implied that the same measurement instrument used in different cultures measured the same construct. The comparability of the average scores between two (or more) cultural groups had an influence on the validity of the conclusion about the constructs studied (Kankaraš & Moors, 2010). The purpose of testing

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measurement invariance was to ensure that the mean differences between groups were reflected as true differences between the groups and were not attributed to a measurement artifact (Embretson & Reise, 2000).

Four constructs were involved in this study: interest in the Olympic Games (IOG), community attachment (COA), pretest resident attitude (PRA) and posttest resident attitude (POA) toward hosting the Olympic Games. Since the latter two constructs used the same measurement instrument, we examined the measurement invariance for IOG, COA, and PRA between Chinese and American participants. The multi-group confirmative factor analyses for these three constructs were performed using Mplus 7.0 (Muthén & Muthén, 2012) with maximum likelihood estimation (see syntax in Appendix C). Each construct had three items and nation serves as the grouping variable in the analysis, i.e., Chinese and American groups. As outlined in Kline (2011) and Kankaraš & Moors (2010) and summarized earlier, three models were examined for measurement invariance and a stepwise procedure was employed, in which the analysis begins with the least restricted solution, and then subsequent models are evaluated that entail increasingly restrictive constraints. Firstly, simulated Chinese group and American group data sets were analyzed simultaneously, with all parameters freely estimated (configural invariance). It was the baseline model against which the metric invariance model was tested with the differences in factor loadings between groups. The equality of item intercepts was tested in the scalar invariance model by constraining both the factors loadings and intercepts of like items to be equal across groups.

The standard way to compare the fit of competing models, provided they are nested, was the chi-square difference test ($\Delta\chi^2$) (Steenkamp & Baumgartner, 1998). The

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difference in MLχ^2 statistics ($\Delta\chi^2$) and difference in model degrees of freedom were computed and compared with a central χ^2 distribution. In each case, the χ^2 difference tested whether the more constrained model resulted in a significant worsening of fit (Gregorich 2006). However, the χ^2 test is particularly sensitive to sample size. That is, the value of χ^2 tends to increase along with the sample size and then the test of fit becomes more stringent (Fairchild, Horst, Finney, & Barron, 2005; Kline, 2011). Thus, in addition to examining the $\Delta\chi^2$, various fit indices also were examined to assess model fit, including both absolute and incremental fit indices. Absolute indices simply considered how well the model accounted for observed covariance in the data (Hu & Bentler, 1995), whereas incremental fit indices considered the improvement in fit of the proposed model over an independence baseline model.

Specifically, three additional goodness-of-fit indices were used: the root mean square error of approximation (RMSEA); the Comparative Fit Index (CFI); the Tucker-Lewis Index or Non-normed Fit Index (TLI or NNFI); and standardized root mean square residual (SRMR). The absolute index of RMSEA assesses lack of fit due solely to model misspecification and provides a measure of discrepancy per degree of freedom (Browne & Cudeck, 1992). This index was very sensitive to misspecified factor loadings. Browne and Cudeck (1992) suggested that values of 0.05 or less would indicate a "close fit", and Hu and Bentler (1999) suggested that a value of approximately .06 or less indicates adequate fit (Fairchild et al., 2005). The SRMR, another absolute index, is a measure of the mean absolute correlation residual, the overall difference between the observed and predicted correlations (Kline, 2011). SRMR ranges from 0 to 1, with smaller values

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indicating better model fit. It is very sensitive to misspecified factor covariances and values less than .08 be used to indicate adequate fit (Hu & Bentler, 1999).

The CFI is an incremental fit index that measures the relative improvement in the fit of the hypothesized model over that of the independence model. It has been found that the CFI also is very sensitive to misspecified factor loadings and moderately sensitive to misspecified factor correlations (Hu & Bentler, 1998). The CFI ranges from 0 to 1, with larger values indicating better fit. Hu and Bentler (1999) recommended that a cutoff equaling or greater than .95 indicates adequate model fit. The other incremental fit index – TLI indicated the ratio of chi-square to its degree of freedom and was recommended by Sharma, Mukherjee, Kumar, and Dillon (2005) to evaluate model fit when the factor loadings were reasonably large (.5 or above). The TLI ranges from 0 to 1, with larger values indicating better fit. A cutoff value of .95 was recommended by Hu and Bentler (1999) to indicate adequate model fit. Reported in Table 4.8 are values of the various fit indices for each model for the interest in the Olympic Games (IOG).

Table 4.8 Fit statistics of measurement invariance for IOG across China and the US

Model	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	CFI	TLI	SRMR
Metric Invariance	6.921[a]	2	6.921[a]	2	0.072	0.998	0.993	0.035
Partial Metric Invariance (IOG3 free)	1.841[b]	1	1.841	1	0.042	1.00	0.977	0.016

[a]p=0.0314; [b]p=0.1748.

As shown in Table 4.8, the metric invariance model constrained corresponding factor loadings to be equal across groups, but failed to provide evidence of metric invariance because the difference in χ^2 values from the baseline configural model was statistically significant ($\Delta\chi^2(2)$=6.921, p=.0314). Thus, the metric invariance model was

rejected at the .05 level. The following exploration of partial invariance models suggested freely estimating the factor loading for item IOG3, resulting in a well-fitting partial metric invariance model, $\Delta\chi^2(1)=1.841$, $p=.1748$. The other model fit indices also showed significant improvement in model fit, RMSEA=.042, CFI=1.000, TLI=.997, and SRMR=.016. Thus, it can be concluded that the IOG exhibited partial metric invariance across the two countries with item IOG3 ("I am always excited about the Olympic Games.") identified as non-invariant. It meant that the Chinese participants and American participants might have different interpretation on this item due to linguistic or cultural reasons (Cheung & Rensvold, 1999). Additional analysis will be undertaken in the future to explore this linguistic or cultural interpretation.

The measurement invariance for COA was tested next. From Table 4.9, it can be seen that there was a significant increase in chi-square between the baseline configural invariance model and the metric invariance model ($\Delta\chi^2(2)=21.783$, $p=0.000$). The model fit was not satisfied in terms of alternative fit indices: RMSEA=0.144, TLI=0.929, and SRMR=0.083. Thus, full metric invariance was not supported. Then, to test the partial metric invariance, the constraint on the loading of item COA1, item COA2, and item COA3 was set free, respectively. The result showed that the modified model with item COA1's factor loading freely estimated had non-significant chi-square difference compared with the baseline model, $\Delta\chi^2(1)=0.042$, $p=0.8381$. It meant that the fit of this model was not significantly worse than the fit of the configural invariance model. Thus, partial metric invariance was supported, with item COA1 ("I am concerned about what goes on in MA/Beijing/Hebei.") identified as non-invariant across groups.

Table 4.9 Fit statistics of measurement invariance for COA across China and the US

Model	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	CFI	TLI	SRMR
Metric Invariance	21.783[a]	2	21.783[a]	2	0.144	0.976	0.929	0.083
Partial Metric Invariance (COA1 free)	0.042[b]	1	0.042[b]	1	0.000	1.000	1.007	0.002

[a]p=0.0000; [b]p=0.8381.

As shown in Table 4.10, the models of metric invariance, and scalar invariance for the pretest attitude toward hosting the Olympic Games (PRA) were all supported at the level of .05. Specifically, the statistics for the test of metric invariance were: $\Delta\chi^2(2)$=2.485, p=0.2887, RMSEA=0.023, CFI=1.000, TLI=1.000, SRMR=0.022; while the statistics for the test of scalar invariance were: $\Delta\chi^2(2)$=5.277, p=0.0715, RMSEA=0.052, CFI=0.999, TLI=0.997, SRMR=0.019. Thus, it can be concluded that PRA exhibited scalar invariance across China and the US.

Table 4.10 Fit statistics of measurement invariance for PRA across China and the US

Model	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	CFI	TLI	SRMR
Metric Invariance	2.485[a]	2	2.485[a]	2	0.023	1.000	1.000	0.022
Scalar Invariance	9.066[b]	4	5.277[c]	2	0.052	0.999	0.997	0.019

[a]p=0.2887; [b]p=0.0595; [c]p=0.0715.

Taken together, the full scalar invariance model for resident attitude toward hosting the Olympic Games was supported. This provided the sufficient condition for meaningful comparisons of means on resident attitude across countries for further analysis. In addition, the partial metric invariance model for interest in the Olympic Games and community attachment were supported, respectively.

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4.6 Descriptive Statistics

After examining to establish that the constructs showed adequate levels of measurement invariance across China and the US, composite scores for each construct were calculated by averaging the respective item scores for further analysis. Descriptive statistics summarizing the interest in the Olympics (IOG), community attachment (COA), pretest attitude (PRA), and posttest attitude (POA) are presented in Table 4.11. Higher scores on all variables indicated more positive attitudes. The average pretest attitude toward hosting the Olympic Games was 3.56. In the posttest, the average resident attitude for the entire sample was 3.46.

Table 4.11 Descriptive statistics of IOG, COA, PRA, and POA

Variables	IOG	COA	PRA	POA
Mean	3.89	3.93	3.56	3.46
SD	0.89	0.75	1.22	1.22

Table 4.12 summarized descriptive statistics of the sample by nation. The means of all variables of Chinese residents were higher than those of American residents. In particular, the results showed that, prior to the experiments, Chinese residents had strong positive attitudes toward hosting the 2022 Winter Olympic Games (Mean=4.11, SD=0.76), whereas the American residents had more complex feelings about Boston's bid for the 2024 Summer Olympic Games (Mean=2.95, SD=1.33). Similar differences also existed in the posttest attitudes after reading the news article. Chinese participants still showed general support for the bid (Mean=3.94, SD=0.88) after the experiment. In contrast, the public opinion among Massachusetts' residents about bidding for the Olympics was not decisively for or against.

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Table 4.12 Descriptive statistics of IOG, COA, PRA, and POA by nation

	China		U.S.A.		
	Mean	SD	Mean	SD	
IOG	4.02	0.74	3.73	1.01	t(952)= 5.000 p=.000
COA	3.99	0.74	3.87	0.77	t(952)= 2.287 p=.022
PRA	4.11	0.76	2.95	1.33	t(952)= 16.164 p=.000
POA	3.94	0.88	2.91	1.31	t(952)= 14.063 p=.000

T tests showed that there were significant differences on all constructs between two countries. In particular, the pretest attitudes toward hosting the Olympic Games were statistically different between China and the US, $t(952)= 16.164$, $p=.000$. That is, there was significant difference exiting on the initial baseline scores in terms of the resident overall attitude toward hosting the Olympic Games between two national groups.

Presented in Table 4.13 are descriptive statistics of the whole sample by experiment condition. Based on the results, we can see that the pretest attitude toward hosting the Olympic Games was almost identical between two experiment groups (for the HBLL, Mean=3.63, SD=1.21; for the LBHL, Mean=3.49, SD=1.22). As shown in Figure 4.2, the difference between two experiment groups was much bigger in the posttest attitude than that in the pretest (for the HBLL, Mean=3.76, SD=1.19; for the LBHL, Mean=3.15, SD=1.17). T tests showed that there were significant differences on interest in the Olympic Games and community attachment between two experimental groups. Regarding the overall attitudes toward hosting the Olympic Games, statistical differences did not exit prior to the experiment, which was a result of randomization. However, the difference did occur on the posttest attitude. Further more, dependent sample t tests

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indicated that in each experimental group, there was significant difference between pretest attitude and posttest attitude. All these significant differences gave guidelines for further analysis. To what extent were the differences caused by the experiment? How did the attitude change in each experimental group? It will be tested and discussed in the next section.

Table 4.13 Descriptive statistics of IOG, COA, PRA, and POA by experiment condition

	High Benefits & Low Liabilities		Low Benefits & High Liabilities		T tests
	Mean	SD	Mean	SD	
IOG	3.96	0.88	3.81	0.89	$t(952)= 2.706$ $p=.007$
COA	4.00	0.75	3.87	0.75	$t(952)= 2.608$ $p=.009$
PRA	3.63	1.21	3.49	1.22	$t(952)= 1.827$ $p=.068$
POA	3.76	1.19	3.15	1.17	$t(952)= 8.042$ $p=.000$
T-tests on PRA-POA	$t(480)=6.413, p=.000$		$t(472)=11.075, p=.000$		
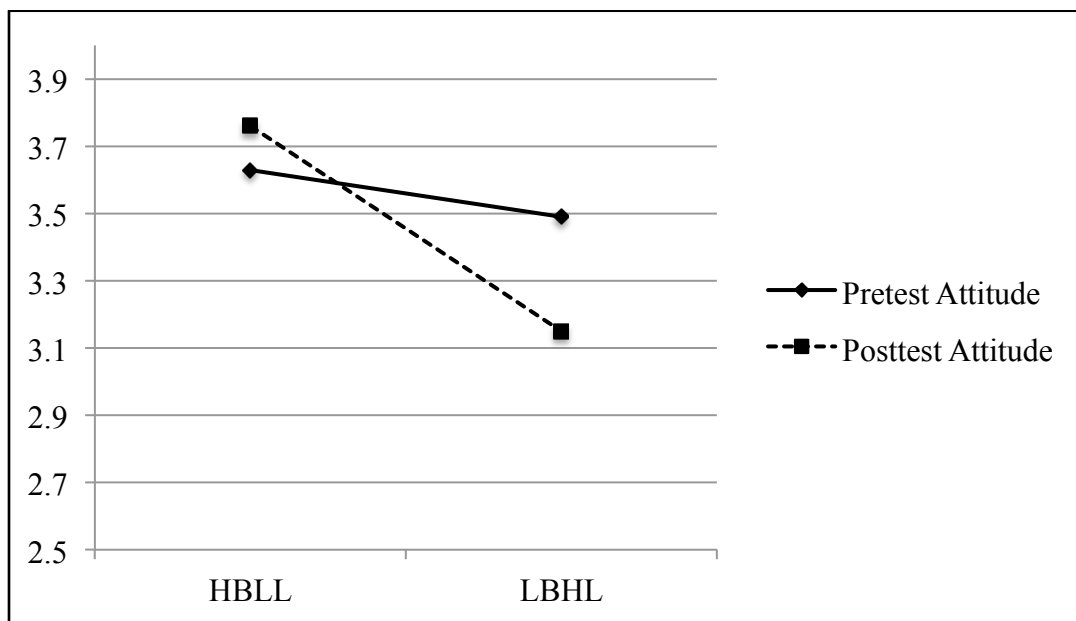
Figure 4.2 Means of resident attitude by media

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4.7 Outcome of the Experiment

When two groups were measured before and after some treatments, two main approaches were available to compare the scores across groups: the analysis of covariance (ANCOVA) and the difference score model. The t tests on the pretest attitude toward hosting the Olympic Games showed that, although there was no statistical difference between two experimental groups (Table 4.13), the initial baseline scores were significantly different between Chinese sample and American sample. Therefore, the difference score model was employed to answer two research questions of the study: (1) Does the different information presented by news media about the impact of hosting the Olympic Games lead to different attitudes among the local residents? (2) Does the media effect on resident attitude toward hosting the Olympic Games differ between China and the US?

The purpose of the difference score model in this study was to analyze the influence of media content and nation on the attitude change toward hosting the Olympic Games, i.e., posttest minus pretest. Media content, as the independent variable, indicated the type of treatment and had two levels – "High Benefits & Low Liabilities" and "Low Benefits & High Liabilities". The other independent variable nation also consisted of two levels – China and the US. Thus, a 2×2 between-subjects ANCOVA was conducted to explore the interaction effect and the main effects of media content and nation on the resident attitude toward hosting the Olympic Games. Meanwhile, the effects of the interest in the Olympic Games (IOG), community attachment (COA), and a series of demographic variables, including age, education, income, and residence length, were controlled as covariates in the model.

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4.7.1 Choosing Covariates

ANCOVA increased the statistical power by including the covariates to explain some of the variance within the dependent variable. However, the use of multiple covariates complicated the analysis in terms of calculation, testing of assumptions, and interpreting coefficients. More importantly, power was reduced because numerous correlated covariates subtracted the degree of freedom from the error term while not removing commensurate sums of squares for error (Tabachnick & Fidell, 2007a). Thus, preliminary analysis of the covariates improved chances of picking a good set of covariates.

Theoretically, interest in the Olympic Games (IOG), and community attachment (COA) might serve as the antecedents of local resident attitudes toward hosting the Olympic Games, based on previous studies, as noted in Chapter Two. In addition, the socio-demographic factors also could influence the community reaction, as displayed by the characteristics of the subgroups within the local community. In this study, age, education, income, and residence length were included as covariates in the preliminary analysis.

Statistically, the goal of the preliminary analysis of the covariates was to identify a small set of covariates that are uncorrelated with each other but highly correlated with the dependent variable. Table 4.14 shows the correlations among covariates and the correlations of each covariate with the dependent variable, i.e., attitude change. Only IOG was significantly correlated with attitude change (.091), while the other variables were not significantly correlated with attitude change at the .05 level. As a result, the covariate retained for subsequent study was the interest in the Olympic Games (IOG).

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Table 4.14 Correlation matrix of covariates and dependent variable

	Attitude Change	IOG	COA	Age	Education	Income	Residence
Attitude Change	1	.-091*	-.011	.015	-.028	-.062	.012
IOG	-.091*	1	.286*	-.116*	.036	.132*	-.069*
COA	-.011	.286*	1	.049	.108*	.180*	.148*
Age	.015	-.116*	.049	1	-.048	.163*	.741*
Education	-.028	.036	.108*	-.048	1	.296*	-.201*
Income	-.062	.132*	.180*	.163*	.296*	1	.092*
Residence	.012	-.069*	.148*	.741*	-.201*	.092*	1

Note. * correlation is significant at the 0.05 level (2-tailed).

4.7.2 Evaluation of Assumptions

The ANCOVA model assumed reliability of covariates; linearity between pairs of covariates; linearity between covariates and the dependent variable; lack of multicollinearity among covariates; and homogeneity of regression. Since there was simply one covariate in the model, we only needed to check the reliability of the interest in the Olympic Games, linearity between the interest in the Olympic Games and the attitude change, and homogeneity of regression. This was in addition to the usual ANOVA requirements, which were normality sampling distribution, homogeneity of variance, independence of errors, and absence of outliers.

1. Normality of sampling distribution

Table 4.15 and Table 4.16 show the descriptive statistics for attitude change toward hosting the Olympic Games and interest in the Olympic Games grouped by media content and nation, respectively. The skewness and kurtosis of the dependent variable and the covariate all ranged from -2.423 to 23.608. Given the big sample and relatively equal sample sizes among cells, there was no concern about the violation of this assumption.

Table 4.15 Descriptive statistics for attitude change grouped by media and nation

Nation	Media	N	Min	Max	Mean	SD	Skewness	Kurtosis
China	HBLL	247	-3.33	2.00	0.088	.413	-.912	23.608
	LBHL	258	-3.33	1.00	-.411	.713	-1.446	2.211
U.S.A.	HBLL	234	-1.00	3.00	.1652	.442	2.375	9.532
	LBHL	215	-4.00	1.00	-.2651	.623	-2.423	9.305
Total		954	-4.00	3.00	-.1076	.612	-1.483	7.674

Table 4.16 Descriptive statistics for IOG grouped by media and nation

Nation	Media	N	Min	Max	Mean	SD	Skewness	Kurtosis
China	HBLL	247	1.00	5.00	4.122	.688	-1.139	2.219
	LBHL	258	1.00	5.00	3.926	.780	-.806	1.109
U.S.A.	HBLL	234	1.00	5.00	3.795	1.012	-.869	.255
	LBHL	215	1.00	5.00	3.665	.996	-.855	.532
Total		954	1.00	5.00	3.886	.887	-1.021	1.134

2. Absence of outliers

Univariate outliers were sought separately on the dependent variable and the covariate within each cell. Z score distribution showed 10 cases with z scores larger than 3.3 on the attitude change and seven cases with z score smaller than -3.3 on the attitude change. It meant that statistically, the probability of sampling a score of these sizes if they were truly from the population of interest was .001 or less (Tabachnick & Fidell, 2007a). Thus, the decision was made to remove these 17 cases from the data set. Sample size in all groups were large enough, leaving a total $N = 937$.

3. Independence of errors

Independence of errors for the repeated measures portion of the design (pretest – posttest) was managed by asking nine demographic questions before the posttest and putting the posttest questions into different orders than the pretest. Independence of errors was not problematic for the randomized-group treatment since each online participant was randomly assigned to the news article and identified with a unique IP address.

4. Homogeneity of variance

Levene's tests of homogeneity of variance were conducted (Table 4.17). The significance (F(3, 933) = 52.728, p=.000) indicated violation of homogeneity of variance on attitude change. However, as shown in Table 4.18 about the descriptive statistics of the dependent variable – attitude change for the cases retained, the ratio between the largest variance (.452) and the smallest variance (0.075) was smaller than 10:1, F_{max}=6.0027. Variance ratios for the covariate was similarly acceptable (Table 4.19). The sample size ratio was smaller than 2:1. Therefore, there was no concern about the violation of homogeneity of variance within cells.

Table 4.17 Leven's test of homogeneity of variance for attitude change and IOG

	F	df_1	df_2	Sig.
Attitude change	52.728	3	933	.000
IOG	12.179	3	933	.000

Table 4.18 Descriptive statistics for attitude change grouped by media and nation

Nation	Media	N	Min	Max	Mean	SD	Variance	Skew-ness	Kurtosis
China	HBLL	242	-.67	1.00	.083	.274	.075	.999	2.952
	LBHL	256	-2.67	1.00	-.389	.672	.452	-1.285	1.496
U.S.A.	HBLL	230	-1.00	1.33	.130	.362	.124	1.213	2.395
	LBLL	209	-1.67	1.00	-.195	.452	.204	-1.000	1.420
Total		937	-2.67	1.33	-.096	.515	.265	-1.480	4.804

Table 4.19 Descriptive statistics for IOG grouped by media and nation

Nation	Media	N	Min	Max	Mean	SD	Variance	Skew-ness	Kurto-sis
China	HBLL	242	1.00	5.00	4.125	.681	.464	-1.147	2.346
	LBHL	256	1.00	5.00	3.926	.778	.606	-.820	1.159
U.S.A.	HBLL	230	1.00	5.00	3.799	1.017	1.035	-.877	.255
	LBLL	209	1.00	5.00	3.683	.970	.941	-.817	.516
Total		937	1.00	5.00	3.892	.879	.773	-1.011	1.119

5. Linearity

The ANCOVA model assumed the linear relationship between each covariate and the dependent variable and the linear relationship among all pairs of covariates. Scatterplots of the dependent variable with the covariate was produced (Appendix D). The scatter plots indicated that there was some curvilinearity existing in the relationship between attitude change and IOG. The result suggested that the covariates may not provide a strong enough adjustment to the dependent variable. In this case, the effect of the covariate on the dependent variable was likely underestimated. The power increase associated with the covariate was likely less than it should be.

6. Reliability of covariates

Regarding the measurements of the IOG, COA, PRA, and POA, the reliability analysis (Table 4.20) showed fairly good results since most of the Cronbach alpha values were larger than 0.700 except for community attachment (0.661 and .684 in the American sample). Because both the pretest attitude and the posttest attitude toward hosting the Olympic Games had higher reliabilities, the measurement on the attitude change, i.e., posttest minus pretest, was reliable enough. It is possible that the low reliability in the measurement on the community attachment led to the non-significant correlation with the dependent variable.

Table 4.20 Statistics of reliability test for IOG, COA, PRA, and POA

Nation	Media	IOG	COA	PRA	POA
China	High Benefits & Low Liabilities	.822	.764	.845	.896
	Low Benefits & High Liabilities	.874	.750	.924	.944
U.S.A.	High Benefits & Low Liabilities	.948	.684	.975	.978
	Low Benefits & High Liabilities	.938	.661	.976	.978

Note. Measured by Cronbach alpha.

8. Homogeneity of regression

The adjustment of scores in ANCOVA was made on the basis of an average within-cell regression coefficient. The assumption was that the slope of the regression between the dependent variable and the covariates within each cell was an estimate of the same population regression coefficient – that is, the slopes were equal for all cells. Another way of stating this assumption was that the covariate did not interact with any of the other effects in the model.

The assessment of the interaction between independent variables and the covariate (Table 4.21) showed that the interest in the Olympic Games (IOG) significantly interacted with media content at, $F(1,929)=15.963$, $p=.000$. In other words, the interest in the Olympic Games interacted with media content in predicting the attitude change. Thus, it can be concluded that the assumption of homogeneity of regression was violated when the interest in the Olympic Games was analyzed as a covariate. Consequently, the model was misspecified to include the interest in the Olympic Games as a covariate but excluding its interaction effect with media content.

Table 4.21 Statistics of assumption test for homogeneity of regression

Source	Type III SS	df	MS	F	Sig.
Corrected Model	51.228	7	7.318	34.578	.000
Intercept	1.507	1	1.507	7.121	.008
Media	.244	1	.244	1.153	.283
Nation	.030	1	.030	.141	.707
Media×Nation	.100	1	.100	.474	.491
IOG	3.602	1	3.602	17.019	.000
Media×IOG	3.379	1	3.379	15.963	.000
Nation×IOG	.277	1	.277	1.311	.253
Media×Nation×IOG	.272	1	.272	1.286	.257
Error	196.618	929	.212		
Total	256.556	937			
Corrected Total	247.847	936			

To correct this, the interaction between the interest in the Olympic Games and media content would be included in the analysis. Since the effect of the interest in the Olympic Games on the attitude change toward hosting the Olympic Games was not the study subject of interest in this research, we would focus on the investigation of media effect on the attitude change, how such media effect (if existed) was moderated by nation, and how such media effect was moderated by the interest in the Olympic Games, as the significance of the interaction effect would show.

As a result, a three-way between-subjects ANCOVA with interaction terms was performed on attitude change toward hosting the Olympic Games. Specifically, the interaction between media content and the interest in the Olympic Games was analyzed, and the effect of the interest in the Olympic Games was controlled as a covariate. To avoid the multicollinearity potentially caused by the interaction term, the interest in the Olympic Games was centered, i.e., mean was subtracted from the raw score. Centering the continuous variable also could lead to more interpretable results (Aiken & West, 1991). Unequal sample sizes led to a decision to use Type III sums of squares (unweighted means) for the analyses (Tabachnick & Fidell, 2007a). Presented in Table 4.22 are the major statistics of the new ANCOVA model using SPSS 22.0.

Table 4.22 Analysis of covariance for attitude change by media and nation

Source	SSIII	df	MS	F	P	Partial η^2
CIOG	3.641	1	3.641	17.189	.000	.018
Nation	2.434	1	2.434	11.491	.001	.012
Media	39.043	1	39.043	184.322	.000	.165
Nation×Media	.726	1	.726	3.426	.065	.004
Media×CIOG	3.414	1	3.414	16.119	.000	.017
Error	197.205	931	.212			
Total	256.556	937				
Corrected Total	247.847	936				

Note. CIOG means centered interest in the Olympic Games

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4.7.3 Media Effect and Interest in the Olympic Games

As summarized in Table 4.22, the main effect of media content on resident attitude change toward hosting the Olympic Games was statistically significant, $F(1,931)=39.043$, $p=.000$, partial $\eta^2=.165$, after controlling for the effects of nation, the interest in the Olympic Games, and the interaction effects. Furthermore, there was statistically significant interaction effect between the media content and the interest in the Olympic Games (CIOG), $F(1,931)=16.119$, $p=.000$, partial $\eta^2=.017$, after controlling for the effects of media, nation, the interaction of media and nation, and the interest in the Olympic Games. It means that the effects of media content on attitude change significantly changed along with the level of personal interest in the Olympic Games. To further investigate the change of the media effects, we tested for significant difference between the experimental groups at specific points of the CIOG. As a common strategy, we selected three points: the mean, the mean–1 standard deviation, and the mean+1 standard deviation of the IOG. Table 4.19 shows that the mean of IOG was 3.892, and the standard deviation was .879. Thus, the three points selected on IOG were 3.0126, 3.8919, and 4.7712, to explore the media effect on resident attitude. Figure 4.3 shows that the slopes between media content and attitude change were different when IOG equals to mean-std, mean, and mean+std.

Table 4.23 displays the estimated marginal means for two experimental groups at three specific points of the interest in the Olympic Games. When the level of the interest in the Olympic Games was low, i.e., IOG=3.0126 out of 5, the "High Benefits & Low Liabilities" news article led to an increase in the support for the Olympic bid by .109 among the participants, whereas the "Low Benefits & High Liabilities" news article led

to a decrease in the resident support by .179. The attitude change between two experimental groups was significantly different, $F(1, 931)=45.253$, $p=.000$. When the level of the interest in the Olympic Games was in the middle, i.e., IOG=3.8919 out of 5, after reading the "High Benefits & Low Liabilities" news article, the increases in the resident support were .107. After reading the "Low Benefits & High Liabilities" news article, the decreases in the resident support were .304, bigger than .179 on the low level. The attitude change toward hosting the Olympic Games also was significantly different between two experimental groups, $F(1, 931)=184.322$, $p=.000$. When the level of the interest in the Olympic Games was high, i.e., IOG=4.7712, the effects of both news articles became more evident in two countries. The "High Benefits & Low Liabilities" news article increased the resident support by .105 on average, and the "Low Benefits & High Liabilities" news article decreased the resident support by .429. The attitude change in the second experimental group was apparently larger than those in lower levels. The difference between two experimental groups in attitude change toward hosting the Olympic Games was statistically different, $F(1,931)= 152.291$, $p=.000$.
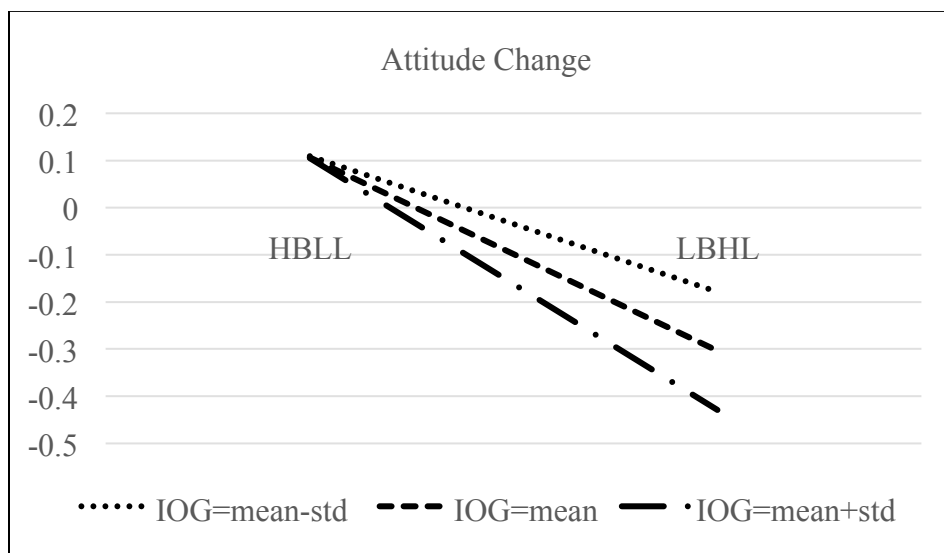
Figure 4.3 Estimated marginal means of media content at three points of IOG

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Notably, there was no big difference on attitude change in the "High Benefits &
Low Liabilities" experimental group across the three levels of interest in the Olympic
Games, which were .109, .107 and .105. However, the attitude change in the "Low
Benefits & High Liabilities" became larger as the level of interest in the Olympic Games
increased, from .179 to .429. As a result, the mean difference between two experimental
groups increased along with the level of interest in the Olympic Games: .288, .411, and
.534.

Table 4.23 Comparison of the marginal mean of media content at three points of IOG

		Mean	Mean Difference	Sum of Squares	df	F	Sig.
IOG=mean-std	HBLL	0.109	.288	9.585	1	45.253	.000
	LBHL	-0.179					
IOG=mean	HBLL	0.107	.411	39.043	1	184.322	.000
	LBHL	-0.304					
IOG=mean+std	HBLL	0.105	.534	32.258	1	152.291	.000
	LBHL	-0.429					

Note. HBLL means "High Benefits & Low Liabilities" newspaper article; LBHL means
"Low Benefits & High Liabilities" newspaper article.

Taken together, in both the United States and China, media content had a
statistically significant effect in affecting resident attitude toward hosting the Olympic
Games: the "High Benefits & Low Liabilities" news article increased the resident support
toward the Olympic bid, whereas the "Low Benefits & High Liabilities" news article
decreased the resident support toward the Olympic bid. Additionally, the difference
between these two experimental groups with the same interest in the Olympic Games
depended on the level of the interest. Generally, the difference between two experimental
groups became larger as the interest in the Olympic Games increased.

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4.7.4 Media Effect and Nation

As showed in Table 4.22, the interaction effect between media content and nation was not, but close to, significant, $F(1, 931)=3.426$, $p=.065$, partial $\eta^2=.004$, after controlling for the effects of media, nation, and interest in the Olympic Games. In Figure 4.4, the slopes of media content on attitude change roughly paralleled between two countries. It meant that there was no statistically significant difference of the media effect between the U.S. and China at the .05 level. Additionally, the trivial effect size suggested that the interaction between media content and nation was of no practical significance for further analysis.
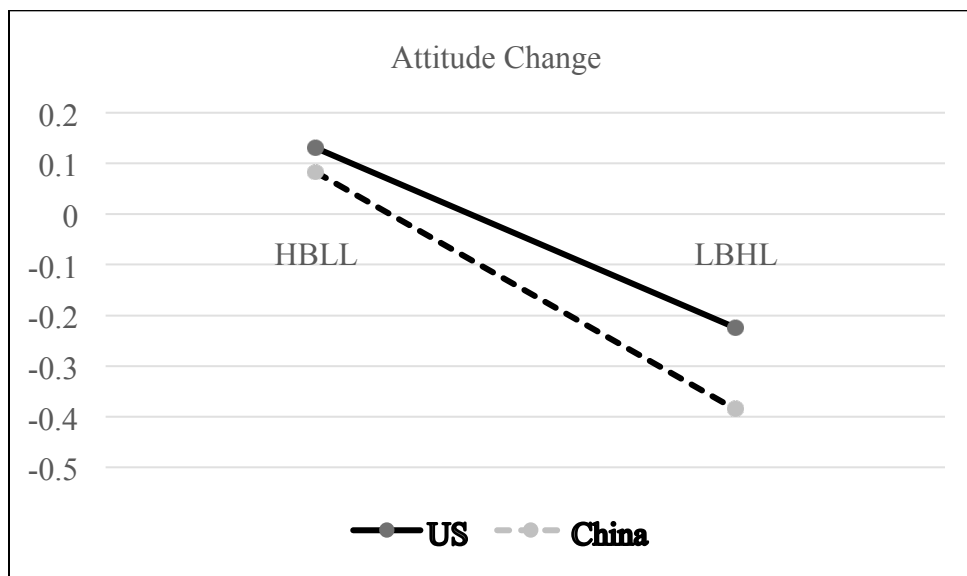
Figure 4.4 Estimated attitude change divided by media and nation at CIOG=0

The main effect of nation on attitude change toward hosting the Olympic Games was statistically significant at the .05 level, $F(1,931)= 11.491$, $p=.000$, partial $\eta^2=.012$, after controlling for the effects of media, interest in the Olympic Games, and their interaction. It means that the difference between China and the US in attitude change, as an outcome of the experiment, was greater than we would expect by chance. Specifically,

the resident support for the 2022 Winter Olympic Games decreased by .151 out of 5 among the whole Chinese sample, whereas American participants' attitude toward the 2024 Summer Olympic Games just changed by .047 out of 5 in a negative way across two experimental groups (Table 4.24). Apparently, after being exposed to the hypothetical newspaper articles in the experiment, the public support for hosting the Olympic Games among Chinese participants decreased more dramatically than that seen among American participants.

Table 4.24 Estimated marginal mean of nation on attitude change

Nation	High Benefits & Low Liabilities	Low Benefits & High Liabilities	Mean
U.S.A.	.130	-.224	-.047
China	.083	-.385	-.151

Note. Covariate appearing in the model is evaluated at the following value: CIOG=0.

4.7.5 Effect of Covariates

From Table 4.21, we already knew that interest in the Olympic Games interacted with media content in predicting the attitude change. Further regression analysis of interest in the Olympic Games on attitude change in each experimental group (Table 4.25) showed that, in the first experimental group, interest in the Olympic Games did not significantly predict the attitude change, $F(1, 470)=.194$, $p=.660$, and in the second experimental group, the attitude change was negatively influenced by the interest in the Olympic Games, $F(1, 463)=25.713$, $p=.000$, $R^2=.053$. It meant that, for those who were exposed to the "Low Benefits & High Liabilities" news article, the more interest in the Olympic Games, the less supportive the participants became. When the interest in the Olympic Games increased by 1.000, the support for the Olympic bid decreased by .155 among the participants who were assigned with the negative newspaper article.

Table 4.25 Regression of interest in the Olympic Games on attitude change

	F	Sig.	Unstandardized Coefficient	R square
High Benefits & Low Liabilities	.194	.660	-.007	.000
Low Benefits & High Liabilities	25.713	.000	-.155	.053

4.8 Summary

The data analyses conducted in this chapter were to answer the research questions proposed earlier in this study. The primary question was: Does different information presented by the news media about the impact of hosting the Olympic Games lead to different attitudes among the local residents? To investigate this research question, the difference score approach was employed to examine the effect of media content on attitude change toward hosting the Olympic Games from pretest to posttest. The statistically significant result implied that the observed differences in the resident attitude change could be caused by the experiment conditions to which the participants were exposed – "High Benefits & Low Liabilities" vs. "Low Benefits & High Liabilities". Meanwhile, such media effect was moderated by the interest in the Olympic Games.

The secondary question proposed in this study was: Does the media effect on resident attitude toward hosting the Olympic Games differ between China and the US? It was investigated by examining the significance of the interaction effect between media content and nation on the attitude change after controlling for the covariates. The data analysis showed that the interaction effect fell short of significance at the .05 level. However, across the two experimental levels, the manipulated newspaper articles led to a significantly larger negative change in the resident attitude toward hosting the Olympic Games among Chinese participants than that occurred among American participants.

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CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

In the preceding chapter, experimental data has been presented and analyzed. This chapter begins with a summary of the major findings related to the effects of news media on resident attitude toward hosting the Olympic Games. The summary is followed by the interpretation and discussion of the findings. Implications from the findings of this study are discussed in terms of theoretical and practical consequences. Finally, the limitations of this study and suggestions for future research are presented and discussed.

5.2 Summary of the Major Findings

This study examined whether the information presented by the news media affected resident attitude toward hosting the Olympic Games. Specifically, two different kinds of newspaper articles analyzing the impact of hosting the Olympic Games were created, one mainly presenting the benefits associated with the event, labeled as "High Benefits & Low Liabilities", the other presenting more information about the potential liabilities, labeled as "Low Benefits & High Liabilities". Then, 510 participants from Beijing and Hebei Province, China, and 452 participants from the Commonwealth of Massachusetts, U.S.A. participated in the pretest-posttest experimental design, where the participants were randomly assigned to read one newspaper article about the bid for the 2022 Winter Olympic Games and the 2024 Summer Olympic Games, respectively.

The major findings from the experiment are related to the primary and secondary research questions. The primary research question is: Does different information presented by the news media about the impact of hosting the Olympic Games lead to different attitudes among the local residents? The secondary research question is: Does the media effect on resident attitude toward hosting the Olympic Games differ between China and the U.S.A.?

A prerequisite of this cross-national study is to test measurement invariance. Measurement invariance was tested in three constructs: interest in the Olympic Games, community attachment, and resident attitude toward hosting the Olympic Games (pretest score). The results indicated fairly good but different degrees of measurement invariance: the partial metric invariance for interest in the Olympic Games, the partial metric invariance for community attachment, and the full scalar invariance for resident attitude toward hosting the Olympic Games. This provided the sufficient condition for meaningful comparisons of the means on resident attitude toward hosting the Olympic Games across China and the US for descriptive and inferential analysis.

To answer the research questions, the difference score model was conducted to test the effect of media content and nation on resident attitude change (posttest minus pretest), while controlling for the effect of interest in the Olympic Games. Results of the analyses showed that (a) there was a statistically significant interaction effect between media content and the interest in the Olympic Games on the changes in resident attitude toward hosting the Olympic Games ($F(1,931)=16.119$, $p=.000$, partial $\eta^2=.017$); (b) there was no statistically (but close to) significant interaction effect between media content and nation on the attitude change toward hosting the Olympic Games ($F(1, 931)=3.426$,

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p=.065, partial η^2=.004); (c) media content was a statistically significant main factor in affecting resident attitude change (F(1,931)=39.043, p=.000, partial η^2=.165); (d) nation was a statistically significant main factor in affecting resident attitude change (F(1,931)= 11.491, p=.000, partial η^2=.012); and (e) the interest in the Olympic Games significantly predicted resident attitude change during the experiment (F(1,931)=17.189, p=.000, partial η^2=.018).

5.3 Interpretation of the Findings

The goal of this study is to investigate the media effect on public opinion about hosting the Olympic Games among the local communities in China and the US. In this section, findings of the present study are interpreted relative to the primary and secondary research questions.

5.3.1 Effect of Media Content

The primary research question asked whether the different information presented in the news media led to differences in resident attitude toward hosting the Olympic Games. Examination of the mean scores indicated that the attitude change caused by the "High Benefits & Low Liabilities" newspaper article was slight and positive, whereas the attitude change associated with the "Low Benefits & High Liabilities" newspaper article was moderate and negative. Specifically, in the experiment condition of the "High Benefits & Low Liabilities" newspaper article, the group mean (Table 4.11) moved from an average of 3.56 (pretest) to 3.46 (posttest); in the experiment condition of the "Low Benefits & High Liabilities" newspaper article, the group mean moved from 3.49 (pretest) to 3.15 (posttest) (Table 4.13).

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The significant interaction effect between media content and interest in the Olympic Games implied that the significance of the difference between two experiment groups in attitude change toward hosting the Olympics was dependent upon the level of the interest in the Olympic Games: the more interest in the Olympic Games, the greater the expected difference between two experimental groups was. Such significant interaction effect between media content and the interest in the Olympic Games could primarily be attributed to the "Low Benefits & High Liabilities" newspaper article. This is because the effect of the "High Benefits & Low Liabilities" newspaper article in changing resident attitude was minor and stable across different levels of interest in the Olympic Games, whereas the "Low Benefits & High Liabilities" newspaper article became more influential in affecting the public opinion toward the Olympic bid. Apparently, in both two countries, the participants' reaction to the negative newspaper article was more evident than that to the positive one.

As to the effect size, partial eta-squared value showed that the factor of media content exclusively explained 16.5% variance of the attitude change (Table 4.23). Statistically, it is highly unlikely that the attitude change was caused by chance. The information presented in the news media was the major contributing factor for the attitude change that occurred in this experiment. Thus, we can conclude that the public opinion of hosting the Olympic Games was significantly affected by the media content to which the public was exposed, and the effect was moderated by the interest in the Olympic Games.

5.3.2 Comparison between China and the U.S.A.

The secondary research question addressed the similarities and/or differences existing between China and the US in the way that news media affects resident attitude toward hosting the Olympic Games. It was answered by examining the interaction effect between media and nation on resident attitude changes. As indicated in Table 4.22, the F value for the interaction effect was 3.426, which was not significant at the .05 level (p=.065). It means that the media effect on resident attitude toward hosting the Olympic Games, indicated by the different attitude changes in two experiment groups from pretest to posttest, was the same across nations, in this case between China and the US, after controlling the effect of media content, nation, and the interest in the Olympic Games.

Significant differences in resident attitude change existed between Chinese participants and American participants toward hosting the Olympic Games, regardless of the experimental groups. The partial eta-squared value showed that 1.2% variance of the attitude change was associated with the factor of nation. Decrease in the support for the Olympic bid was observed in both samples after being exposed to the manipulated newspaper articles. It confirmed the relatively bigger effect of the "Low Benefits & High Liabilities" newspaper article, which would change the resident attitude in a negative way, comparing with the "High Benefits & Low Liabilities" newspaper article. Moreover, a significantly bigger decrease in support for the Olympic bid occurred within the Chinese sample (-.151) than American sample (-.047). Whether such difference was due to the negative newspaper article is undetermined. Given the relatively minor and positive effect of the "High Benefits & Low Liabilities" newspaper article, it is possible that the Chinese participants reacted to the "Low Benefits & High Liabilities" newspaper

article more negatively than the American participants. However, the interaction effect between media content and nation was close to significant but not strong enough to allow a confident conclusion. More evidence needs to be provided to find out the similarities and/or differences across countries, which can be addressed in the future study.

5.4 Discussion of the Findings

The purpose of this study was to examine the media effect on resident attitude toward hosting the Olympic Games. Based on social exchange theory, social representation theory, and attribute agenda setting theory, it was hypothesized that there would be significant differences of resident attitude toward hosting the Olympic Games when the residents were exposed to different newspaper articles analyzing the impact of hosting the event. The results did confirm the media effect in an experimental design. Specifically, positive news reports about hosting the Olympic Games would increase the overall support among the local community, whereas negative newspaper articles could decrease the overall support among the local community. This finding empirically validated some arguments proposed in previous studies about media effect on resident attitude in the field of mega-event studies.

When explaining the attitude changes over time and the attitude difference among local residents toward the Atlanta 1996 Olympic Games, Mihalik and Simonetta (1999) suggested the "varying press coverage over time" could be one of the several possible reasons. Then, drawing from social representation theory, Fredline and Faulkner (2000) classified media as an important mechanism that people used to understand the positive and negative aspects of the event, in parallel with direct experience and social interaction. This was a revolution in the era of social exchange theory, which then dominated the

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field of resident attitude study. Social exchange theory only considers the influence of internal factors on resident support for the Olympic Games, including socio-demographic characteristics, community attachment, ecocentric attitude, political attitude, the personal involvement in tourism/sport, and so forth. Social representation theory considers external factors, including media, which also play an influential role in resident attitude.

Recent studies have tried to examine the influence of mass media from the perspective of the residents' perceptions (Ritchie et al., 2009; Chien et al., 2012; Martin & Barth, 2013), rather than unveiling the facts actually presented by the news media, and how the media effect was processed within the local residents. The significant contribution of media content in affecting resident attitude found in this study further confirmed Sant and Mason's (2015) statement that the framing of a legacy in the newspaper had significant implications for the way in which residents evaluate an Olympic bid and them formulate their supportive or opposite attitude. This study laid the foundation in explaining why it is important for the journalists, city officials, and bid managers to highlight the Olympic legacies and make them more prominent in the news media to gain public support for the bid.

It is attribute agenda setting theory that this study relies on in investigating the cause-effect relationship between media content and resident attitude toward hosting the Olympic Games. Attribute agenda setting is particularly useful in an experimental research design. This is because the attributes of the issue studied can be manipulated in an experimental setting, thereby making systematic comparisons among the outcomes. In the case of this study, the benefits and liabilities associated with hosting the Olympic Games were manipulated on the "high" and "low" levels. The media effect was observed

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between the two newspaper articles reporting different kinds of attributes. McCombs (2004) claimed that a controlled experiment provided the best, most unequivocal evidence for the causal relationship between news media and public opinions. In the field of mass communications, the majority of the evidences about agenda setting effects were grounded in the "real world" – public opinion surveys and content analysis of actual news media (Willnat & Zhu, 1996; Golan & Wanta, 2001; Kim et al., 2002; Kim & Han, 2005; Kim et al., 2012). The shortcoming of this kind of study was that the measures of the media and public agendas were linked with numerous uncontrolled factors (McCombs, 2004). This study tried to overcome this disadvantage through manipulating the media attribute agenda about an Olympic bid and building the direct connection with the public agenda in a relatively controlled experimental setting.

The findings showed there was significant media effect on resident attitude toward hosting the Olympic Games, both in the Chinese participants and American participants. This was quite consistent with McCombs' (2004, p. 36) statement: "agenda-setting is a robust and widespread effect of mass communication". Observations have found agenda-setting effects all across the United States, Japan, Spain, Argentina, Germany, etc. One of the most surprising aspects of these wide-ranging effects was "the tremendous variability of the geographical and cultural settings in which agenda-setting by the media occurs" (McCombs, 2004, p. 36). Even with such a cultural and political contrast as between the US and China, agenda-setting effects have been observed, in the case of bidding for the Olympic Games.

Although agenda-setting effects occurred in both China and the United States, notable differences did exist between these two countries in terms of public opinions

about the Olympic Games as well as the attitude change that occurred in the experiment. As the data of the pretest attitude showed, "the local residents in a developing country were more [in favor of] mega-events" (Yang et al., 2010, p. 172). Comparing with the United States, emerging powers such as China, Brazil, India, and South Africa are more enthusiastic to bid for the mega-events due to the complex, hidden geopolitical purposes (Caffrey, 2008; Cornelissen, 2010). Additionally, the significant difference of attitude change observed between China and the US reflected the significant different pre-knowledge held by the residents from two countries.

Public support is extremely important during the Olympic bid period and how the Olympic legacy is presented by the mass media is central to a successful bid (Sant & Mason, 2015). Regarding public opinion formation, the positive and negative sides of the attributes presented in the news media are directly related to residents' opinions. The minor drop of Americans' overall support indicated that the local community in the US has been predisposed to a relatively neutral opinion about hosting the Olympic Games, evidenced by the various anti-Olympic groups and their activities which voiced their discontent through the news media and other channels (Annear, 2014; Hoover, 2015; Waldron, 2015). In contrast, with strong central government support, Chinese state media simply conveys the key messages in favor of the bid for the Olympics, which consequently raises public support among people of all kinds with little concern for the issue of cost. When the residents encountered a negative voice and became aware of all the potential issues associated with the mega-event, the stability of the general supportive attitudes was thus clearly challenged in this experiment.

It is not surprising that the media coverage about the Olympic Games was different across nations, as Carey, Mason, and Misener (2011) have analyzed how media coverage in the bid for the 2016 Summer Olympic Games differs across Chicago, Tokyo, Madrid, and Rio. Specifically, media coverage of the Chicago bid described the legacy in motivating young people and showing a new face of America; for Tokyo, media coverage focused on the environmental benefits of their proposal, including the delivery of a "green Games"; for Madrid, media coverage centered on the city's reliability to deliver a successful Games. In contrast, as the only nontraditional city from an emerging economy, Rio de Janeiro's media put a strong emphasis on the potential transformation of the city, and even the nation, leaving "not only an infrastructure legacy but also a social legacy" (Carey et al., 2011). Because of the similar political and economic status, the Olympic bid represented for Brazil and China a chance to show the world that they were now competitive, influential, modern countries, to both investors and tourists (Caffrey, 2008; Dong & Mangan, 2008; Zhou & Ap, 2009; Carey et al., 2011; Meng & Li, 2011).

The different media coverage about hosting the Olympic Games as well as the different reactions to the experimental newspaper articles between Chinese participants and American participants could be regarded as the typical outcome of two different media systems existing in the U.S.A. and China respectively. According to the relationship between individual's need for orientation and the effect of media agenda (Lane, 1959; McCombs, 2004), the more significant media effect of the negative newspaper article among Chinese participants indicated the more unbalanced pre-knowledge about the impacts of hosting the Olympic Games, comparing with American participants. In other words, American residents in Massachusetts already had access to

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the liabilities associated with an Olympic bid and thus they did not respond so surprisingly as Chinese residents, to whom it might be the first time to read such a negative news media depiction about hosting the Olympic Games.

In the process of editing newspaper articles, the author searched a large amount of publicized newspaper articles, and barely found any critics on the 2022 Winter Olympic bid in Mandarin but only the governmental reports saturated with very positive discussion about hosting the Olympics again in Beijing. This provides the particular context for understanding the overwhelming support for the Olympic bid among the Chinese participants and the unbalanced pre-knowledge about the impact of hosting the Games, as the experimental findings projected. In contrast, most American news medias were not as friendly as the Chinese media toward the Olympic Games, and they provided more mixed analyses when discussing both the benefits and liabilities associated with the 2024 Summer Olympic bid in Boston. There was never a lack of critique on how the Boston Olympic bid was a waste of public resources and with what type of liabilities may result. To name a few, the headlines of some newspaper articles were "Behind Closed Doors, Boston Has Nearly Secured a US Olympic Bid Whether You Like It Or Not" "Why Oppose Boston 2024?" "Boston 2024 Olympic Organizers Underestimated Costs, Report Finds".

As suggested by Semetko and Mandelli (Semetko & Mandelli, 1997), the macro-level characteristics of media systems should be taken into account when considering cross-national visibility of public affairs in the news media and its potential influence on public opinion. One important characteristic of the media system was the degree of political autonomy of the news media from government and political parties. China and

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the United States have apparently different media systems: central and provincial party organs were the dominant newspaper type in China (Zhao, 2012), whereas the media system in the United States was highly commercialized (Strömbäck & Dimitrova, 2006). In China, the news medias were mainly used to set the agenda for political discourse, propagate official policies, monitor public opinion, and rally regime support (Brady, 2009; Hague & Harrop, 2010; Tang & Iyengar, 2011). In contrast, within the market-driven U.S. media system (McManus, 1994), diversity in viewpoints could be achieved within each individual news medium as the market need dominated (Hallin & Mancini, 2004). When the audiences gained more control over what news sources they used, the audiences were likely to seek sources that supported, obliterating the sense of a public consensus (Johnson, 2014). This also could serve as the reasonable explanation for the indecisive attitude held by the American sample toward bidding for the 2024 Summer Olympic Games, observed through the pretest score.

So far, we have discussed the findings in this research mainly by comparing them to previous studies. The implications for researchers, event managers, journalists, and city officials are presented in next section.

5.5 Implication of the Findings

The implications of the findings in this study are discussed from three perspectives: theoretical implications, methodological implications, and practical implications.

First of all, this study contributes to the research on mega-events by examining the role of news media in predicting residents' attitudes toward hosting the Olympic Games, drawing from the theoretical foundations of social exchange theory, social

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representation theory, and agenda setting theory. The experimental data and subsequent findings show that news media is a contributing factor in predicting public opinion about an Olympic bid. This media effect occurs in both Western and Eastern countries. In doing so, it expands the theoretical framework on a macro level for studying resident attitude about the mega-events to incorporate not only internal factors but also external factors, i.e., news media, for the purpose of predicting public support for hosting mega-events as well as interpreting the attitude variations within local communities.

In detail, this study reveals the rationale underlying the media effect on resident attitude toward an Olympic bid. Based on social exchange theory, local residents' attitudes toward an Olympic bid are dependent upon their understanding of the positive and negative aspects of the event; social representation theory indicates that direct experience, social interaction, and media are the main sources of people's knowledge about hosting the Olympic Games. Previous studies have studied the demographic characteristics, involvement in tourism/sport, and other relevant internal factors as the antecedents of attitude variations, whereas media remained as a seldom-addressed issue. The major question about the media effect is to what degree opinions among the public are predicted by the information presented in the newspaper articles. The study empirically tested the significant causal relationship between media content and resident attitude. It acknowledged the importance of news media as the antecedent of public support for hosting the Olympic Games.

The current study also contributes to the literature by comparing the media effect on public opinion about the Olympic bid between China and the US. The significant differences existing between China and the United States implies that the news media

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effect is probably not evenly distributed across countries. Relatively, Chinese participants, with a bigger interest in the Olympic Games compared with the American participants, are more sensitive to the negative newspaper article about the impact of the Olympic bid. Since media coverage about the Olympic bid is shaped, not only by journalists, but also by various social elites, which include city officials, corporations, and bid managers (Sant & Mason, 2015), such cross-national comparison reflects the importance of non-Western cultural, economic, political, and media systems on attitude development.

Another contribution of this study is its methodological innovations. First, it becomes evident in the current study that a controlled experiment is a powerful test of the causal relationship between two variables. After randomly assigning the participants into experiment groups and controlling the extraneous variables, the variation of the attitude changes in supporting the Olympic bid could be directly attributed to the manipulation of the information presented in the news articles. Although it is well acknowledged that experimental research has obvious advantages in testing causal relationships, few studies have taken a randomized experimental approach in tourism research (Rodger, Taplin, & Moore, 2015). This is probably due to the complexity of social situation and difficulty in controlling the extraneous effects, in particular in conducting field experiments (Bhattacherjee, 2012). This study shows the feasibility of conducting an experiment through the creation of an artificial laboratory setting, for the purpose of exploring causal relationships in the area of tourism and sport studies.

The second methodological innovation is the measurement invariance test. Although scholars have realized the theoretical and statistical significance of

measurement invariance in a cross-national study, very little research has tried to assess the degree of measurement invariance before further analysis. Usually, the measurement invariance test requires large sample sizes from two (or more) countries, which could be a barrier in many cases. In this study, the sample size of 962 is a fairly large sample size, appropriate to conduct multiple-group confirmative factor analysis using the software of Mplus 7. To the author's knowledge, this study represents the first complete effort of checking measurement invariance before cross-national comparisons in the field of mega-event study. The results showed full scalar measurement invariance existed in the resident attitude toward hosting the Olympic Games and between China and the US, which eliminated the barrier for further mean comparison on this construct. However, the interest in the Olympic Games and community attachment only demonstrated partial metric measurement invariance, and therefore, the measurement of these two constructs as well as the cross-cultural validation needs to be further developed and tested.

The significant implication for the local community in the host area is to realize that news media plays a key role in formulating the consensus through its propaganda model. The local community's support for the Olympic bid relies on their evaluations about the benefits and liabilities associated with the event. To gain public support, the city officials and event managers could cite various potential economic, social, and environmental benefits as justification in preparation for the Olympic bids (Hall, 2006; Girginov & Hills, 2008), which is usually conveyed through mass media.

The media echoes, maintains and propagates the viewpoints of those who have power, specifically governments and social elites (Herman & Chomsky, 1988). The local residents' attitude toward the Olympic bid can be easily manipulated by the social elites

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through mass media. In Western capitalist societies like the United States, the dominant media is firmly embedded in the market system and thus mass media discourse is shaped by ownership and profit orientation (Toohey & Taylor, 2006). In eastern socialist countries like China, strong central government and state-run media agencies exert overwhelming influence on the media coverage. In either case, the media editors and journalists are neither unbiased nor without other agendas. By selecting what is worth reading, hearing and seeing, owners, news editors and journalists perform a gate-keeping function (Toohey & Veal, 2007).

Through unveiling the rationale of media effect, this study alerts the local community to become more critical when reading the information presented in newspaper articles about the impact of hosting the Olympic Games. Alternatively, the local community also could turn to independent research findings for reference or, at least, choose the news media with a more neutral stance. In addition, since both China and the US have hosted the Olympic Games at least once before, the residents' direct perceptions and experiences would be very important sources of knowledge on which to reflect. Bid or not, the best decision is the option that can help fulfill the community's own vision. In this process, it is preferable that the local residents' true voices be heard.

The importance of the media effect was typically reflected by the most recent actions in Boston, regarding this city's refusal to accept financial responsibility for potential games deficits of their 2024 Olympic bid (Axon, 2015). By rejecting the selection of the U.S. Olympic Committee's choice of Boston to be the city representative to the 2024 bid process, the role of the media was paramount. Continued public discussion about the potential negative impacts of the 2024 Summer Olympic Games and

the use of limited tax collection for sports venues and infrastructure, generated pressure on local government officials to withdraw their bid. As the Olympic Games' expenses grow exponentially, the mass media will continue to play an important role in shaping public perceptions of the benefits versus the liabilities of hosting future Olympic Games. This, in turn, may fuel the International Olympic Committee to modify its revenue sharing model to help ensure cities and local governments will not be left with large government debt and empty venues, at the expense of other civic projects that could benefit more community citizens. Meanwhile, the Olympic Games organizing committee in the host city must embrace a more cost effective strategy that brings a better balance between future Games' benefits and liabilities, which could enhance the long-term community issues and quality of life.

Additionally, the Olympic Games Organizing Committees in the host city, especially in Western countries with free press, also must develop a local media strategy. This strategy must influence the media to produce more beneficial reports on the potential positive legacies of future Olympic Games while minimizing potential negative issues. In other words, the city officials and bid managers can use all possible economic and political resources to influence the media to report the event in a way that was consistent with their own frames (Gorp, 2007). A major task for the Olympic Organizing Committee is to influence the focus of news coverage as a means of shaping supportive public opinion. Previous studies showed that the news coverage in major daily newspapers was substantially based on information provided by related agencies' public information officers (Turk, 1985, 1986). Thus, it is suggested that the Committee subsidize the media agenda by actively convening themed conferences and releasing

written news about all the benefits associated with hosting the Olympic Games. These messages convey exactly the agenda and attributes desired by the Committee. This, in turn, will reduce the news contents and stories that are more negative about the Olympic bid. By all means, being at the center of media attention provide significant opportunities for the Committee to set the media's agenda.

As a matter of fact, a big portion of the mass communication agenda is beyond the immediate and direct control of the Committee. Major efforts also are supposed to be exerted on the relationship with the mass media. Public relations influence on the media agenda is more than a simple information subsidy. Virtually, everything that the Committee does, from offering the journalists full media access, to inviting chief editors to VIP boxes during the opening ceremony, is considered worthy for the purpose of developing as well as maintaining a friendly, cooperative relationship with the media. In this way, the journalists are implicitly influenced to produce less obviously manipulative and therefore more credible news contents to the public.

Additionally, the Committee needs to pay attention to the intermedia agenda setting, which means that the elite news media frequently exert a substantial influence on the agenda of other news media. In particular, nowadays the speedy and less-restricted use of social media becomes more and more powerful in setting the public agenda. To examine and monitor the agenda and attributes within all kinds of mass media is essentially necessary in attempt to build the public support within the local community toward the Olympic bid. Taken together, this study implies that the Olympic Games Organizing Committee must develop a mixed and comprehensive media strategy in shaping the media agenda about the impacts of hosting the Olympic Games.

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5.6 Study Limitations

5.6.1 Internal Validity

Any study that introduces an intervention and seeks to determine effectiveness is subject to threats to internal validity. Internal validity refers to the extent that an experimental variable is truly responsible for any variance in the dependent variable. The presence of extraneous variables can throw doubt on the determination of an effect attributable to the intervention (Gall, Gall, & Borg, 2006; Zikmund et al., 2009). Extraneous variables that jeopardize internal validity include validity of manipulation, history, maturation, testing, instrumentation, selection and mortality (Zikmund et al., 2009). Following are the primary threats to this study's internal validity and what was attempted to control for them.

First of all, the validity of manipulation was checked during the pilot study by asking two survey questions about the agenda of the news articles assigned. In the process of formal data collection, this was managed by deleting all the surveys that failed the survey question. Second, a history effect occurs when some change other than the experimental treatment occurs during the course of an experiment that affects the dependent variable. In fact, Beijing's bid for the 2022 Winter Olympic Games and Boston's bid for the 2024 Summer Olympic Games were at different stages when the experimental study was conducted, which could threaten the comparability of resident attitude between two countries. Third, maturation effects are effects that are a function of time and the naturally occurring events that coincide with growth and experience. This was controlled by the relatively short duration of the study.

Fourth, the nature of the pretest and posttest design means that there was a chance that the participants became "test-wise" as a result of taking the same test. This was controlled by inserting nine demographic questions between the pretest and posttest, as well as changing the order of quesitons in the posttest. Fifth, an instrumentation effect can be caused by a change in the wording of questions, or a change in other procedures used to measure the dependent variable. In this study, the potential threat that could be caused by the translation between English and Mandarin was assesed through checking the measurement invariance.

Sixth, the selection effect is a sample bias that results from differential selection of respondents for the comparison groups, or sample selection error. Although random assignment was employed, the experiment was conducted through online self-administered surveys with a convenience sample affliated to the database of the research companies. It was difficult to control the selection effect caused by self interest, timing limitation, socio-demographic status, and so forth. To assess and minimize the effects of these variables, covariates were included in the analysis model to identify their effects on the dependent variable. At last, mortality effects may occur if participants drop from one experimental treatment group disproportionately more than from other groups. The threat did not occur in this study, as we had fairly equal sample size for two experiment groups.

Apart from the experimental design, other limitations in this study were mainly around the measurement scale on the construct of community attachment. First, the measurement invariance test only confirmed partial metric invariance on community attachment between China and the US. In particular, the item of "I am concerned about what goes on in Massachusetts/Beijing/Hebei" was identified as a variant item across

groups. Second, the reliability test result was mediocre (i.e., the cronbach alpha was lower than .70). This is aligned with previous studies, in which the same measurement scale also demonstrated low reliability (Deccio & Baloglu, 2002; Chen & Raab, 2012). Nonetheless, it could be the hidden reason that led to the nonsignificant effect of community attachment in predicting the attitude change toward hosting the Olympic Games as a covariate.

5.6.2 External Validity

External validity is a big concern with experimental design. External validity is the accuracy with which experimental results can be generalized beyond the experimental subjects (Zikmund et al., 2009; Oppewal, 2011). External validity is increased when the subjects comprising the sample truly represent the population of interest. The higher the external validity, the more researchers and practitioners can count on the fact that any results observed in an experiment also will be seen in the "real world". The greatest threat to external validity in this study is the extent to which one can generalize from the sample to the greater population, i.e., the local residents in the Olympic host cities.

The data of this study was collected through research companies in China and the US. The target population were the people currently living in Massachusetts, U.S.A, Beijing and Hebei, China who were 18 years or older. Due to timing and financial limitation of the research, there was no quota requirement added in the process of recruiting participants. In other words, the authors had no control about the representativeness of the sample, rather relying on the character of the database to which the research companies had access. The comparisons of the demographic characteristics between samples and census data were conducted to check the representativeness of the

sample (Appendix E). The differences were anticipated because a web-based database was used. The samples of both countries were younger and higher educated when compared with the respective target population. This left a relatively unrepresentative sample that makes generalizations to the larger population difficult. Yet, the sample recruited in this study is fairly diverse in terms of gender, age, education, ethic groups, and other demographic characteristics. Thus, the threat to external validity was smaller than a majority of experimental studies that typically use college student samples.

The disadvantage of using Internet surveys was apparent as many other studies showed. Many individuals in the general population can not access the Internet. This added the limitation in external validity of this study. However, the advantage of using Internet surveys also was apparent in speed and cost-effectiveness (Zikmund et al., 2009). Additionally, Internet users could serve as a typical group of community citizens when investigating the public opinion about an Olympic bid, since online opposition has been a key part of the discussion over the 2024 Olympics among Boston residents (Annear, 2015).

Although the threat to external validity exists, this does not jeopardize the implications of the findings from this experimental study. This is because the main purpose of this study is more about testing the causal relationship between media content and resident attitude toward hosting the Olympic Games through experimental design, than generalizing the media effect to a larger population. In fact, generalization of the experiment results could be better realized in future studies. More suggestions are given in the following section for the future research.

5.7 Suggestion for Future Study

This research breaks new ground by examining how news media influences resident attitude toward an Olympic bid, revealing considerable fluidity in residents' attitudes caused by different information presented in newspaper articles about the impact of hosting the Olympic Games. Replication and expansion of the current study will strengthen the claims of the causal relationship between media content and public opinion about hosting mega-events. In the future replication study, two major limitations need to be addressed more carefully: developing and/or applying mature validated measurement scale on all constructs, and using more representative samples. The first suggestion is an attempt to improve the internal validity of the study, and the second suggestion is for the purpose of better generalization about the media effect on resident attitude toward the Olympic bid.

Future research also could expand the media effect study in the field of mega-events by focusing on residents' perceptions about different kinds of impacts brought about by hosting the Olympic Game. Specifically, to assess how media content affects resident perceptions about economic impacts, environmental impacts, and social impacts can help us to explore the indirect effect of news media on resident overall attitude. This represents the upper part of the theoretical model proposed in this study. By doing so, we can get a better understanding of the underlying rationale of media effect on residents' ultimate attitudes toward the Olympic bid. Further research questions of interest could include, for example, is the news media a more powerful agent to exercise influence on local community's concern about the economic cost? Or, is the residents' local pride

more easily aroused by the mass media? What is the effect of such possible differences on the formation of public support?

As the causal relationship between media content and resident attitude has been empirically tested in the field of mega-events, it becomes more meaningful and necessary to conduct content analysis of news media on the outcome of hosting the Olympic Games in each candidate country. In addition, local residents' media use could serve as the mediator between the media content and the public opinions toward the Olympic bid. The findings also suggest a need for further exploration of the unique cultural and political background in each country that may influence the media coverage and the media effect on the Olympic bid. At this stage, a more representative sample is preferred to improve the external validity of the research.

5.8 Summary

This study addresses the little explored issue of the link between the media content and resident attitude toward hosting the Olympic Games. Within the theoretical framework of social exchange theory, social representation and agenda setting theory, an experiment was conducted by manipulating the information presented by the news articles analyzing the impact of hosting the event and randomly assigning the news articles to the participants in China and the US. The results showed that a positive news article led to an increase in public support while a negative article led to a decrease in public support toward the Olympic bid. Findings also indicated that such media effect existed in both countries, but that Chinese participants reacted more significantly to the negative news article, which led to further reflections on the political and cultural context in each country.

It is expected that this study will add insight to the literature in that news media, as an external factor, exercises considerable influence in local residents' overall attitude toward an Olympic bid. Similar to other kinds of social issues, the media helps individuals think about and understand an Olympic bid, enabling individuals to clarify and construct their own opinions. This has both theoretical implications for future studies and practical implications for the local individuals and the organizing committees of the future cities bidding for the Olympic Games. Although the analyses and findings in this study are exploratory in nature, it is hoped that the implications of this study could help scholars in the future to develop more comprehensive theoretical foundations and methodologies to attain a better understanding of public opinions toward hosting the Olympic Games.

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APPENDIX A SURVEYS

北京申办 2022 年冬奥会居民态度研究

各位先生/女士：

您好！我是美国南卡罗来纳大学酒店、零售和体育管理学院的博士生吕秋琳，正在进行博士论文写作的调研工作，恳请您参与问卷调查。

通过这次调研，我希望能够了解您对于北京联合张家口（河北）申办 *2022 年冬奥会*的基本态度，以及其他相关信息。问卷中提供了一则最新的有关申办冬奥会影响的新闻报道，取自于一份具有权威性的报纸，供您参考。

该问卷将花费您 5-10 分钟的时间，您的回答对我的研究至关重要，非常感谢您的参与！

本问卷采用匿名发放的形式，您的回答完全保密，所搜集资料仅用于个人学术研究，请您放心作答。

在您阅读新闻文章之前，请先回答下列问题：

1. 请问您的现居住地 [单选题] [必答题]
   ○ 河北
   ○ 北京
   ○ 天津（请跳至第问卷末尾，提交答卷）
   ○ 河南（请跳至第问卷末尾，提交答卷）
   ○ 山东（请跳至第问卷末尾，提交答卷）
   ○ 其他省份(请跳至第问卷末尾，提交答卷)

2. 请表明您对居住地北京的感受。 [矩阵量表题] [必答题]

	非常不同意	不同意	中立	同意	非常同意
我关心北京发生的事件。	○	○	○	○	○
如果非让我离开北京，我会感到伤感。	○	○	○	○	○
跟其他地方相比，我更喜欢住在北京。	○	○	○	○	○

3. 请表明您对现居住地河北的感受。 [矩阵量表题] [必答题]

	非常不同意	不同意	中立	同意	非常同意
我关心河北发生的事件。	○	○	○	○	○
如果非让我离开河北，我会感到伤感。	○	○	○	○	○
跟其他地方相比，我更喜欢住在河北。	○	○	○	○	○

4. 请表明您对奥运会的兴趣。 [矩阵单选题] [必答题]

	非常不同意	不同意	中立	同意	非常同意
我认为自己是奥运会的粉丝。	○	○	○	○	○
我喜欢关注奥运会的相关信息。	○	○	○	○	○
我对奥运会的举办感到兴奋。	○	○	○	○	○

5. 请表明您对北京申办 2022 年冬季奥运会的看法。 [矩阵量表题] [必答题]

	非常不同意	不同意	中立	同意	非常同意
总体来看，奥运会的收益将大于成本。	○	○	○	○	○
综合考虑北京举办 2022 年冬奥会是明智之举。	○	○	○	○	○
总体来看，奥运会的成本将大于收益。	○	○	○	○	○
我对于北京申办 2022 年冬奥会的态度是积极的。	○	○	○	○	○
总体来说，我支持在北京举办 2022 年冬奥会。	○	○	○	○	○

请仔细阅读下面这篇有关北京举办 2022 年冬奥会影响的新闻报道，然后继续回答后面的问题。

6. 请在此输入问题标题 [单选题] [必答题]

○ 情景 1

<center>2022 年冬奥会将促进京津冀区域一体化发展</center>

北京、张家口申办 2022 年冬奥会在国人中引起了广泛的讨论，大部分人认为申办冬奥会，将促进京张及河北、内蒙等广大地区的产业升级优化以及对突出环境问题的解决，这同中国未来十年经济社会发展的大方向是一致和促进的关系。从城市发展来说，2022 冬奥会的举办将为北京和张家口的酒店业、旅游业提供重大发展机会，专家预计仅在体育文化旅游产业就可增加 60 万个工作岗位。北京市旅游发展委员会副主任王粤说，冬奥会将给京津冀地区留下大量高水准的冬季运动比赛场馆，同时也将带动更多的、大众化的冰雪运动场所广泛普及，丰富了冬春季节的旅游产品，这对北京的淡季旅游发展也是一个好的契机。

超越城市层面，北京、张家口联合申办冬季奥运会将助推京津冀区域一体化发展。以交通设施建设为例，京张城际铁路项目去年年底开工建设，建成后，乘火车从张家口到北京的时间将缩短至 1 小时之内，不仅能够服务于可能到来的冬奥会，更重要的是，能够密切河北与北京的经济联系。同时，冬奥会申办还将有效推进北京和周边地区大气污染治理。近年来张家口先后关停污染企业 800 多家，努力为冬奥会创造优良环境。国家环保部发布的城市空气质量状况报告显示，张家口为京津冀区域空气质量最优城市。

即使单从体育本身来讲，申办冬奥会和举办冬奥会都必将推动冬季奥林匹克运动在我国的普及和推广。国家主席习近平表示，如果北京和张家口举办冬奥会，将直接带动中国华北地区和周边 3 亿人尤其年轻人参与冬季运动。同时，将在中国 4 亿青少年中普及奥林匹克教育，激励和影响一代人参与冬季运动，了解冰雪文化。

此外，如果北京申办 2022 年冬奥会成功，北京将成为历史上第一个举办过夏季奥运会和冬季奥运会的城市，这将极大提高国人的民族自豪感，增强民族凝聚力。这无疑也是展示中国的国际形象和地位，增强软实力的绝佳契机。

但也有反对者指出，北京举办冬奥会会严重影响到当地居民的日常生活，特别是交通出行。另外，几百亿甚至上千亿的场馆建设投资的合理性也遭到质疑。

2015 年 1 月 6 日，北京奥组委提交了最终的申办报告。随着几个欧洲城市的陆续退出，仅剩哈萨克斯坦的阿拉木图成为竞争对手。 国际奥委会将于 2015 年 7 月在马来西亚吉隆坡最后投票决定 2022 年冬奥会举办城市的归属。

○ 情景 2

2022 冬奥会将给北京居民带来诸多问题

北京、张家口申办 2022 年冬奥会在国人中引起了广泛关注和激烈的讨论，反对者认为即使北京最终申办成功， 其成本花费很有可能超过现在申奥委员会提出的 39 亿美元的初步预算。另外，根据中国冬季运动的产业规模和历届冬奥会的经验判断，冬奥会场馆的赛后使用率极低，这将造成极大的浪费。

据英国牛津大学的经济地理学家 Brent Flyvbjerg 介绍，奥运会预算超支的情况非常普遍，平均超支 1 倍。照此推测，北京冬奥会的预算最终很有可能超过 80 亿美元。这个预算还不包括北京到张家口的高铁投资。京张高铁全长约 180 公里，预计 2017 年建成。尽管北京奥组委以京张高铁为全国高铁网的拓展计划内项目为由，拒绝公布其投资额，但国际奥组委坚持认为京张高铁是北京举办冬奥会的重要组成部分，这是不争的事实。在欧洲，正是由于公众对高额赛事场馆投资的合理性提出质疑，几个有意向的主办城市纷纷退出了 2022 年冬奥会的申办。

从冬奥会场馆来看，整个冬季奥运会和残奥会计划启用 12 个竞赛场馆，其中 5 个场馆需要新建，其余场馆改扩建后才能满足赛事需要;根据规划，北京城区主要承担冰上的项目，但就目前冰上项目来看，还需要新建一个速滑场馆。事实上，建设永久性的小众化的冬季运动设施是极大的浪费，在两周的冬奥会后，这些场馆很有可能沦为所谓的"白象累赘"工程。

反对者反对申办的另一理由是，举办冬奥会将给当地居民带来巨大的不便。一方面，申办冬奥会，北京面临严重的冬季降水不足的问题，人工造雪被列为举办雪上项目的必备措施。据报道，当地已经开始对农业用水进行限制，以保障人工造雪时的水量储备。另一方面，严格的交通管制也将会在冬奥会前以及赛事期间上演，单双号限行、奥运专线设置，都将会对北京居民的日常出行带来不便。

当然，民间也不乏支持者，他们认为如果申办 2022 年冬奥会成功，北京将成为世界上唯一一个举办过冬季和夏季奥运会的城市而被载入史册，中国的冬季运动及相关产业也将蓬勃发展。

2015 年 1 月 6 日，北京奥组委提交了最终的申办报告。随着几个欧洲城市的陆续退出，仅剩哈萨克斯坦的阿拉木图成为竞争对手。国际奥委会将于 2015 年 7 月在马来西亚吉隆坡最后投票决定 2022 年冬奥会举办城市的归属。

7. 我确认我已经仔细阅读了这篇新闻报道。 [单选题] [必答题]

　○ 是　　　　　○ 否

　现在您已阅读了这篇新闻报道，不知是否会改变您对奥运会的看法。在回答问题之前，请先回答下列有关个人基本信息的问题。

8. 您的性别 [单选题] [必答题]

　○ 男

　○ 女

9. 你的出生年份（只填数字） [填空题] [必答题]

　　_____

10. 您的民族 [单选题] [必答题]

　○ 汉族

　○ 少数民族

　○ 其他

11. 您的婚姻状况 [单选题] [必答题]

　○ 单身

　○ 已婚

　○ 寡居／离异／分居

12. 您的最高学历 [单选题] [必答题]

　　○ 初中或以下

　　○ 高中

　　○ 大专或肄业

　　○ 学士学位

　　○ 硕士 / 博士学位

13. 你目前的月收入 [单选题] [必答题]

　　○ 没有收入

　　○ 2000 以下

　　○ 2000-4000

　　○ 4001-6000

　　○ 6001-8000

　　○ 8001-10000

　　○ 10001-15000

　　○ 15001-20000

　　○ 20001-50000

　　○ 50000 以上

14. 您当前的工作状况 [单选题] [必答题]

　　○ 全职

　　○ 家庭主妇

　　○ 学生

　　○ 无业 / 找工作中

　　○ 退休

　　○ 其他

15. 您在北京 / 河北的居住年限（只填数字） [填空题] [必答题]

　　＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿

16. 您现居住地的邮政编码 [填空题] [必答题]

_____

17. 请再次表明您对北京申办 2022 年冬季奥运会的看法（可与之前作答不同）。 [矩阵量表题] [必答题]

	非常不同意	不同意	中立	同意	非常同意
总体来看，奥运会的成本将大于收益。	○	○	○	○	○
总体来说我支持在北京举办 2022 年冬奥会。	○	○	○	○	○
总体来看，奥运会的收益将大于成本。	○	○	○	○	○
我对于北京申办 2022 年冬奥会的态度是积极的。	○	○	○	○	○
综合考虑，北京举办 2022 年冬奥会是明智之举。	○	○	○	○	○

请表明您对问卷中所提供的新闻报道的看法。

18. 下列哪项最能描述新闻报道对于北京举办 2022 年冬奥会的影响分析？ [单选题] [必答题]

○ 高收益，低成本
○ 低收益，高成本

19. 您认为这篇新闻报道对北京申办 2022 年冬奥会的评价是否客观公正？ [单选题] [必答题]

○ 非常公正
○ 公正
○ 不公正
○ 非常不公正

感谢您的参与，请提交问卷！

Ladies/Gentlemen:

I am a Ph.D. student from the University of South Carolina in the U.S.A. I am conducting a research project for my doctoral dissertation. I am sincerely inviting you to participate and complete this survey.

The purpose of this research is to learn about your overall attitude toward Beijing's bid for the 2022 Winter Olympic Games. There is a updated newspaper article about the various impacts associated with the Olympic bid. It is from an authoritative newspaper.

It takes about 5-10 minutes to complete this survey. Your contribution is greatly appreciated. Thank you very much for your participation!

All the information and data are anonymous and confidential, only for the purpose of my doctoral research. Please feel free to answer each question.

Before you read the newspaper article about the Olympic bid, first of all, please completed the following questions.

Part One: Please indicate your interests in the Olympic Games.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. I believe I am a fan of the Olympic Games.	1	2	3	4	5
b. I will concern the relative information of the Olympic Games.	1	2	3	4	5
c. I feel excited about hosting the Olympic Games.	1	2	3	4	5

Part Two: Please indicate your impression about living in Beijing/Hebei.

	Strongly disagree	Disagree	Neutral	Agree	Strong agree
a. I care about the events of Beijing/Hebei.	1	2	3	4	5
b. If I have to leave Beijing/Hebei, I would feel very upset.	1	2	3	4	5
c. I prefer living in Beijing/Hebei compared with other places.	1	2	3	4	5

Part Three: Please indicate your attitude about Beijing's bid for the 2022 Winter Olympic Games.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. In general, the benefits of hosting the Olympic Games will be greater than the cost.	1	2	3	4	5
b. From the comprehensive consideration, It is wise for Beijing to host the 2022 Winter Olympic Games.	1	2	3	4	5
c. In general, the cost of hosting the Olympic Games will be greater than benefits.	1	2	3	4	5
d. I have a positive attitude towards Beijing's bid for the 2022 Winter Olympic Games.	1	2	3	4	5
e. Generally speaking, I support Beijing hosting the 2022 Winter Olympic Games.	1	2	3	4	5

Part Four: Please read the following newspaper article carefully. It analyzes the impacts of Beijing's bid for the 2022 Winter Olympic Games.

2022 Winter Olympics will promote regional integration development of the Beijing-Tianjin-Hebei Area

There are widespread discussions in China when Beijing and Zhangjiakou bid for the 2022 Winter Olympics. Experts say bidding for the Olympic Winter Games will promote industrial upgrading and optimization of Beijing, Zhangjiakou, Hebei, Inner Mongolia and other vast areas. It will also help solve outstanding environmental problems in these areas. So it is consistent with the general direction of China's economic and social development of the next decade.

From the perspective of urban development, holding the 2022 Winter Olympics will provide major development opportunities for the hotel industry and the tourism industry in Beijing and Zhangjiakou. Experts estimate it can increase 600,000 jobs in sports and cultural tourism industry. Wang Yue, deputy director of Beijing Tourism Development Committee, said that the Olympic Winter Games will leave a lot of high-level winter sports venues in Beijing and Tianjin area, but also will bring more popular and available

snow and ice sports venues. It will enrich the tourism products in winter and spring, which is a good opportunity for tourism development in the low season in Beijing.

Beyond the city level, Beijing and Zhangjiakou jointly bid for the Winter Olympics will boost the regional integration development of the Beijing-Tianjin-Hebei Area. In terms of transportation facilities, for example, the Beijing-Zhangjiakou intercity railway project has been under construction at the end of last year. After the completion, the train time from Zhangjiakou to Beijing will be shortened to within one hour. It will not only serve the possible arrival of the Olympic Winter Games, but also close economic ties between Hebei and Beijing. Meanwhile, bidding for the Winter Olympic Games will effectively promote the air pollution control in Beijing and surrounding areas. In recent years, Zhangjiakou has shut down more than 800 polluting enterprises, and strives to create a good environment for the Olympic Winter Games. Urban air quality report released by the Ministry of Environmental Protection shows that, Zhangjiakou has the best air quality in the Beijing-Tianjin-Hebei Area.

Even just from the perspective of sport itself, biding for the Olympic Winter Games and holding the Games are bound to promote the popularization and promotion of the Winter Olympic Games in China. President Jinping Xi said that if Beijing and Zhangjiakou hold the Games, it would directly bring 300 million people in northern China and the surrounding, especially young people, to participate in winter sports. Meanwhile, it will contribute to the popularity of the Olympic education among 400 million adolescents in China, motivate and influence a generation to join winter sports, and to understand snow culture.

In addition, if Beijing bids for the 2022 Winter Olympic Games successfully, Beijing will become the first city hosted the Summer Olympics and the Winter Olympics, which will greatly enhance the people's sense of national pride and national cohesion. This is undoubtedly a great opportunity to show China's international image and status, and to enhance China's soft power.

But opponents pointed out that Beijing Olympic Winter Games would seriously affect the daily life of local residents, particularly their transportation. In addition, the rationality of tens of billions or even hundreds of billions of the venues construction investment is also being questioned.

In January 6, 2015, the Beijing Olympic Organizing Committee submitted the final application report. As several European cities quitted their application one after another, Almaty and Kazakhstan became the only remaining competitors. The IOC will vote on the final 2022 Winter Olympics home city in July 2015 in Kuala Lumpur, Malaysia.

2022 Winter Olympics will bring many problems to Beijing residents

The fact that Beijing and Zhangjiakou bid for the 2022 Winter Olympics has attracted wide attention and intense discussion in China. Some experts believe that even if Beijing ultimately wins the biding, the cost is likely to exceed the initial budget of $ 3.9 billion, which is estimated by the bid committee. In addition, according to the industry scale of Chinese winter sports and the experience of the Olympic Winter Games, the utilization rate of the winter games venues after the Game is very low, which will cause great waste.

According to Brent Flyvbjerg, who is an economic geographer at Oxford University, the situation that Olympic budget overruns is very common. The average overrun rate is 1 times. As such speculation, the final budget of Beijing Olympic Winter Games is likely to be more than $ 8 billion, which does not include the investment of the high-speed railway from Beijing to Zhangjiakou. Jing Zhang high-speed railway is expected to be completed by 2017, which is about 180 km. The Beijing Olympic Organizing Committee in Beijing Zhang refused to publish their investment, because they believe that Zhang Jing high-speed railway is a planned project of the nationwide high-speed railway network expansion. However, the International Olympic Committee insisted that the Beijing-Zhangjiakou high-speed railway was an important part of the Winter Olympics held in Beijing, which is an indisputable fact. In Europe, because the public questioned the reasonableness of the high investment on venues, several host cities with the intention of holding the Game have exited the 2022 Winter Olympics bid.

With regard to the Winter Games venues, the entire Winter Olympic and Paralympic Games plan to enable 12 competition venues. Five of them need to be built and the rest of the stadiums need expansion in order to meet the need of the events. According to the plan, Beijing urban area is mainly responsible for the project on ice sports. Based on the current project on ice sports, there is a need to establish a new speed skating venue. In fact, the construction of the permanent winter sports facilities for small minority is a great waste. Two weeks after the Olympic Winter Games, the stadiums are likely to become so-called 'white elephant encumbrance' projects.

Another reason of the opponents against the bid is that the Olympic Winter Games will bring huge inconvenience to local residents. On the one hand,, Beijing is facing a serious shortage of winter precipitation, snowmaking is listed as necessary measures to hold the snow project in the Olympic Winter Games. According to reports, the local agricultural water has begun to be limited in order to protect the water reserves for snowmaking. On the other hand, strict traffic control will also be staged during the events before and during the Winter Olympics, such as the odd-and-even license plate rule and the Olympic lanes. These will be inconvenient for daily travel of Beijing residents.

Of course, there are some private supporters. They think that if Beijing successfully bids for and hosts the 2022 Winter Olympic Games, it will become the world's only city to host both the Winter and Summer Games in history. China's winter sports and related industries will also flourish.

In January 6, 2015, the Beijing Olympic Organizing Committee submitted the final application report. As several European cities quitted their application one after another, Almaty and Kazakhstan became the only remaining competitors. The IOC will vote on the final 2022 Winter Olympics home city in July 2015 in Kuala Lumpur, Malaysia.
Part Five: Please tell me some information about yourself.

a. What is your gender?   1) Male   2) Female

b. In which year were you born? (Only numbers) _____

c. What is your ethnic group?
   1) Han   2) Minority   3) Other

d. What is your marital status?
1) Single   2) Married   3) Widowed/Divorced/Separated

e. What is your highest level of education?
   1) High school or lower   2) College degree
   3) Bachelor's degree   4) Master/Doctorate degree

f. What is your current income in a month?
   1) no income   2) less than ¥2000   3) ¥2000-4000
   4) ¥4001-6000   5) ¥6001-8000   6) ¥8001-10000
   7) ¥10001-15000   8) ¥15001-20000   9) ¥20001-500000
   10) more than ¥500000

g. What is your current job?
   1) Employed full-time   2) Housewife/homemaker
   3) Temporarily unemployed/looking for work   4) Retired
   5) Student   6) Other

h. How many years have you lived in Beijing/Hebei? (only numbers) _____

i. What is your local zip code? _____.

Part Six: Please, again, indicate your attitude about Beijing's bid for the 2022 Winter Olympic Games.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. In general, the cost of hosting the Olympic Games will be greater than benefits.	1	2	3	4	5
b. Generally speaking, I support Beijing hosting the 2022 Winter Olympic Games.	1	2	3	4	5
c. In general, the benefits of hosting the Olympic Games will be greater than the cost.	1	2	3	4	5
d. I have a positive attitude towards Beijing's bid for the 2022 Winter Olympic Games.	1	2	3	4	5
e. From the comprehensive consideration, It is wise for Beijing to host the 2022 Winter Olympic Games.	1	2	3	4	5

Please indicate your attitude toward the newspaper article you just read.

1. Which option is the best description about the impacts of Beijing hosting the 2022 Winter Olympic Games reported in the newspaper article?
a. High benefits, low costs
b. Low benefits, high costs

2. Do you think the content of the newspaper article about Beijing's bid for the 2022 Winter Olympic Games is fair?
a. Very fair
b. Fair
c. Unfair
d. Very unfair

Thank you very much for your contribution! Please submit your survey.

Resident Attitude toward Boston's Bid for the 2024 Summer Olympics

Instruction

My name is Qiulin Lu and I am a Ph.D. student at the College of Hospitality, Retail and Sport Management at the University of South Carolina. I am conducting a research study as part of my Ph.D. degree requirements and I am inviting you to participate in the following survey.

I would like to know how you feel about Boston's hosting the Olympic Games. You will be asked to complete an anonymous online survey about your general attitude toward Boston's bid for the 2024 Summer Olympic Games as well as some other questions about yourself. A recent news article from a leading US newspaper about the impacts of hosting the Olympic is provided for your reference.

I would appreciate if you could take approximately 10 minutes of your time to provide your input, as your contribution is very important for my study. Please be aware that all the responses from this survey are anonymous. If you have any questions, please do not hesitate to contact me at lu36@email.sc.edu. Thank you very much! Before you read the newspaper article, could you please respond to the following questions?

Interest in the Olympic Games

Please indicate your interest in the Olympic Games.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. I consider myself as a fan of the Olympic Games.	1	2	3	4	5
b. I love to follow the Olympic Games.	1	2	3	4	5
c. I am always excited about the Olympic Games.	1	2	3	4	5

Feeling toward Massachusetts

Please indicate your feeling toward the Commonwealth of Massachusetts

	Strongly disagree	Disagree	Neutral	Agree	Strong agree
a. I am concerned about what goes on in Massachusetts.	1	2	3	4	5
b. If I had to move away from Massachusetts, I would be very sorry to leave.	1	2	3	4	5
c. I would rather live in Massachusetts than anywhere else.	1	2	3	4	5

Overall attitude toward Boston's bid for the 2024 Summer Olympics

Please indicate your overall attitude toward Boston's bid for the 2024 Summer Olympic Games.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. Overall the benefits from the Olympics will outweigh the costs.	1	2	3	4	5
b. All things considered, it is a good idea for Boston to host the 2024 Summer Olympic Games.	1	2	3	4	5
c. Overall the costs from the Olympics will outweigh the benefits.	1	2	3	4	5
d. My attitude towards Boston's bid for the 2024 Summer Olympic Games is positive.	1	2	3	4	5
e. Overall, I support the hosting of the 2024 Summer Olympic Games in Boston.	1	2	3	4	5

News article about hosting the Olympic Games

Please read the following recent news article about the impact analysis of hosting the 2024 Summer Olympic Games in Boston. Take your time, and read the information carefully!

2024 Olympics Would Mean Billions For Boston, Study Says
BY JOHNATHAN L. SMITH

BOSTON – Boston would finish in the gold if it is chosen to host the 2024 Summer Olympics, with an influx of several billion dollars into the economy that will generate much needed urban infrastructure improvements and showcase Boston to the world, according to an economic study by Mark Melnik of the University of Massachusetts' Donahue Institute.

The report, which the institute said is the first independent study to look into the economic impact, says the 2024 Games would add around $300 million in tourist spending and 4,300 new jobs. Melnik estimates that there would be 712,000 net new "visitor-days" in the region, comparable to the experience of London, which was ranked as the No. 1 vacation destination for 2013 after hosting the 2012 Summer Olympics.

An Olympic bid also will allow the city to do important regional planning with major

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investments and upgrades to the MBTA and highways, renovations at the area's world-class universities and increased funding for youth sports and community programs, the report says.

If Boston is chosen by the International Olympic Committee, it would be the first summer Games in the United States since the 1996 Atlanta Olympics and would allow Boston to showcase its history and heritage to billions of viewers across the globe for 17 days.

Opponents have countered, however that traffic, already snarled most days, will be a nightmare, and about the cost, which has reached into the billions of dollars for recent games.

The U.S. Olympic Committee chose Boston over San Francisco, Washington and Los Angeles, which has twice hosted the Games. The IOC will choose the 2024 host at a 2017 meeting in Peru. Most of the competition is expected to come from European cities such as Rome, Hamburg and Paris. Public support is expected to be an important factor in the IOC's decision.

2024 Olympics Would Mean Problems Galore for Boston, Opponents Say
BY JOHNATHAN L. SMITH

BOSTON – If Boston is chosen to host the 2024 Summer Olympic Games, the cost could be far higher than the $13.3 billion estimated by the *Boston 2024*, say *No Boston Olympics* who also warn of security issues and massive traffic jams. The opposition group is relying partly on the work of Bent Flyvbjerg, an economic geographer at Oxford University in London, which hosted the 2012 Games.

"The Games overrun with 100 percent consistency," and a $27 billion price tag is possible, Flyvbjerg said. That does not include any possible cost overruns and the ongoing cost of maintaining facilities built for the Games – what Flyvbjerg calls "white elephants" – long after the Olympics are over.

Even if the $13.3 billion estimate by *Boston 2024*, the group formed to promote the city's bid, is correct, that's more than the Commonwealth of Massachusetts collects annually in income taxes.

Opponents also have raised concerns about security issues, especially given the bombings at the 2013 Boston Marathon, as well at the terrorist attacks at the 1972 Munich Olympics and the bombing at the 1996 Atlanta Games. Security for the London Games cost $1.6 billion, equal to almost the entire budget for the Atlanta Olympics.

No Boston Olympics also is warning that Boston traffic, already snarled, will be a nightmare. An MBTA official has estimated there will need to be a 60 percent reduction

in normal traffic to avoid severe congestion during the Games.

If Boston is chosen by the International Olympic Committee, it would be the first summer Games in the United States since Atlanta. The influx of several billion dollars into the economy also would allow much needed urban infrastructure improvements.

The U.S. Olympic Committee chose Boston over San Francisco, Washington and Los Angeles, which has twice hosted the Games. The IOC will choose the 2024 host at a 2017 meeting in Peru. Most of the competition is expected to come from European cities such as Rome, Hamburg and Paris. Public support is expected to be an important factor in the IOC's decision.

I certify that I have read the news article provided about Boston's hosting of the 2024 Summer Olympic Games.

(1) Yes
(2) No

Demographic information

Now that you have read the article, we would like to know if this changed your view of the Olympics. Before we ask you similar questions as previously, could you please tell us some things about yourself?

1. What is your gender?
(1) Male
(2) Female

2. In which year were you born? (Numbers only)

3. What is your ethic group?
(1) Caucasian
(2) African-American
(3) Hispanic
(4) Asian
(5) Native American
(6) Multi-racial
(7) Other

4. What is your marital status?
(1) Single

(2) Married
(3) Widowed / divorced / separated

5. What is your highest level of education you have completed?
(1) High school or lower
(2) Some college or associate degree
(3) Bachelor's degree
(4) Master / doctorate degree

6. What is your annual household income in 2014?
(1) Less than $20,000
(2) $20,001 − $40,000
(3) $40,001 −$60,000
(4) $60,001 − $80,000
(5) $80,001 − $100,000
(6) $100,001 − $150,000
(7) $150,001 − $200,000
(8) $200,001 −$300,000
(9) $300,001 or above

7. What is your current employment status?
(1) Employed full-time
(2) Housewife / homemaker
(3) Temporarily unemployed / looking for work
(4) Retired
(5) Student
(6) Other

8. How many years have you lived in the Commonwealth of Massachusetts? (Numbers only)

9. What is your local zip code? (Numbers only)

Again, overall attitude toward Boston's bid for the 2024 Summer Olympics
Please, again, indicate your overall attitude toward Boston's bid for the 2024 Summer Olympic Games.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. Overall, the costs from the Olympics will outweigh the benefits.	1	2	3	4	5
b. Overall, I support the hosting of the 2024 Summer Olympic Games in Boston.	1	2	3	4	5
c. Overall, the benefits from the Olympics will outweigh the costs.	1	2	3	4	5
d. All things considered, it is a good idea for Boston to host the 2024 Summer Olympic Games.	1	2	3	4	5
e. My attitude towards Boston's bid for the 2024 Summer Olympic Games is positive.	1	2	3	4	5

Manipulation check

1. Which of the following best describes the impacts analyzed in the article you just read?
(1) High benefits and low costs
(2) Low benefits and high costs

2. To what degree do you think the news article is a fair portrayal about the Olympic Games?
(1) Very fair
(2) Fair
(3) Unfair
(4) Very unfair

APPENDIX B – DATA SCREENING

Items	Mean	SD	Skewness	Kurtosis
(IOG1) I consider myself as a fan of the Olympic Games.	3.86	.927	-.825	.703
(IOG2) I love to follow the Olympic Games.	3.88	.953	-.856	.577
(IOG3) I am always excited about the Olympic Games.	3.92	1.015	-.931	.442
(COA1) I am concerned about what goes on in Boston/Beijing/Hebei.	4.37	.680	-.895	.729
(COA2) If I had to move away from Boston/Beijing/Hebei, I would be very sorry to leave.	3.80	1.026	-.789	.182
(COA3) I would rather live in Boston/Beijing/Hebei than anywhere else.	3.63	1.080	-.562	-.340
(PRA1) All things considered, it is a good idea for Boston/Beijing to host the 2024 Summer/2022 Winter Olympic Games.	3.49	1.256	-.549	-.761
(PRA2) My attitude towards Boston's/Beijing's bid for the 2024 Summer/2022 Winter Olympic Games is positive.	3.58	1.230	-.664	-.602
(PRA3) Overall, I support the hosting of the 2024 Summer/2022 Winter Olympic Games in Boston/Beijing.	3.61	1.284	-.682	-.684
(POA1) Overall, I support the hosting of the 2024 Summer/2022 Winter Olympic Games in Boston/Beijing.	3.48	1.243	-.555	-.712
(POA2) All things considered, it is a good idea for Boston/Beijing to host the 2024 Summer/2022 Winter Olympic Games.	3.41	1.261	-.435	-.881
(POA3) My attitude towards Boston's/Beijing's bid for the 2024 Summer/2022 Winter Olympic Games is positive.	3.48	1.245	-.565	-.740

Note. *N*=954. IOG – interest in the Olympic Games; COA – community attachment; PRA – pretest attitude; POA – posttest attitude.

APPENDIX C – SYNTAX

Measurement Equivalence Tests
One-factor multiple group confirmative factor analysis using Mplus 7

Construct: Interest in the Olympic Games (IOG)
Indicator: item1 – I consider myself as a fan of the Olympics; item2 – I love to follow the Olympic Games; item3 – I am always excited about the Olympic Games.

Model 1: Configural invariance

```
title:          model 1 test for IOG
data:           file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:       names are item1 item2 item3 item4 item5 item6 item7 ite8 item9 nation;
                usevariables item1 item2 item3;
                grouping is nation (1=China 2=America);
analysis:       estimator=ml;
                model=nomeanstructure;
                information=expected;
model:          iog by item1 item2 item3;
model America: iog by item2 item3;
output:         sampstat modindices standardized residual;
```

Model 2: Metric invariance

```
title:          model 2 test for IOG
data:           file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:       names are item1 item2 item3 item4 item5 item6 item7 ite8 item9 nation;
                usevariables item1 item2 item3;
                grouping is nation (1=China 2=America);
analysis:       estimator=ml;
                model=nomeanstructure;
                information=expected;
model:          iog by item1 item2 item3;
output:         sampstat modindices standardized residual;
```

Model 2: Partial metric invariance (IOG3 free)

```
title:          model 2 test for IOG
data:           file is "/Users/Qiulin/Desktop/Multigroup CFA.csv"
```

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```
variable:        names are item1 item2 item3 item4 item5 item6 item7 ite8 item9 nation;
                 usevariables item1 item2 item3;
                 grouping is nation (1=China 2=America);
analysis:        estimator=ml;
                 model=nomeanstructure;
                 information=expected;
model:           iog by item1 item2 item3;
model America: iog by item3;
output:          sampstat modindices standardized residual;
```

Construct: COA – community attachment.
Indicator: item4 – I am concerned about what goes on in Massachusetts/Hebei/Beijing;
item5 – If I had to move away from Massachusetts/Hebei/Beijing, I would be very sorry
to leave; item6 – I would rather live in Massachusetts/Hebei/Beijing than anywhere else.

Model 1: Configural invariance

title:	model 1 test for COA
data:	file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:	names are item1 item2 item3 item4 item5 item6 item7 ite8 item9 nation;
	usevariables item4 item5 item6;
	grouping is nation (1=China 2=America);
analysis:	estimator=ml;
	model=nomeanstructure;
	information=expected;
model:	iog by item4 item5 item6;
model America:	iog by item5 item6;
output:	sampstat modindices standardized residual;

Model 2: Metric invariance

title:	model 2 test for COA
data:	file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:	names are item1 item2 item3 item4 item5 item6 item7 ite8 item9 nation;
	usevariables item4 item5 item6;
	grouping is nation (1=China 2=America);
analysis:	estimator=ml;
	model=nomeanstructure;
	information=expected;
model:	iog by item4 item5 item6;
output:	sampstat modindices standardized residual;

Model 2: Partial metric invariance (COA1 free)

title:	model 2 test for COA
data:	file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:	names are item1 item2 item3 item4 item5 item6 item7 ite8 item9 nation;
	usevariables item4 item5 item6;
	grouping is nation (1=China 2=America);
analysis:	estimator=ml;
	model=nomeanstructure;
	information=expected;
model:	iog by item4 item5 item6;
model America:	iog by item4;
output:	sampstat modindices standardized residual;

Construct: PRA – pretest resident attitude toward hosting the Olympic Games
Indicator: item7 – All things considered, it is a good idea for Boston to host the Olympic Games; item8 – Overall, I support the hosting of the Olympic Games in the city; item9 – Overall, my attitude towards hosting the Olympic Games is positive.

Model 1: Configural invariance

title:	model 1 test for PRA
data:	file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:	names are item1 item2 item3 item4 item5 item6 item7 item8 item9 nation;
	usevariables item7 item8 item9;
	grouping is nation (1=China 2=America);
analysis:	estimator=ml;
	model=nomeanstructure;
	information=expected;
model:	iog by item7 item8 item9;

model America: iog by item8 item9;

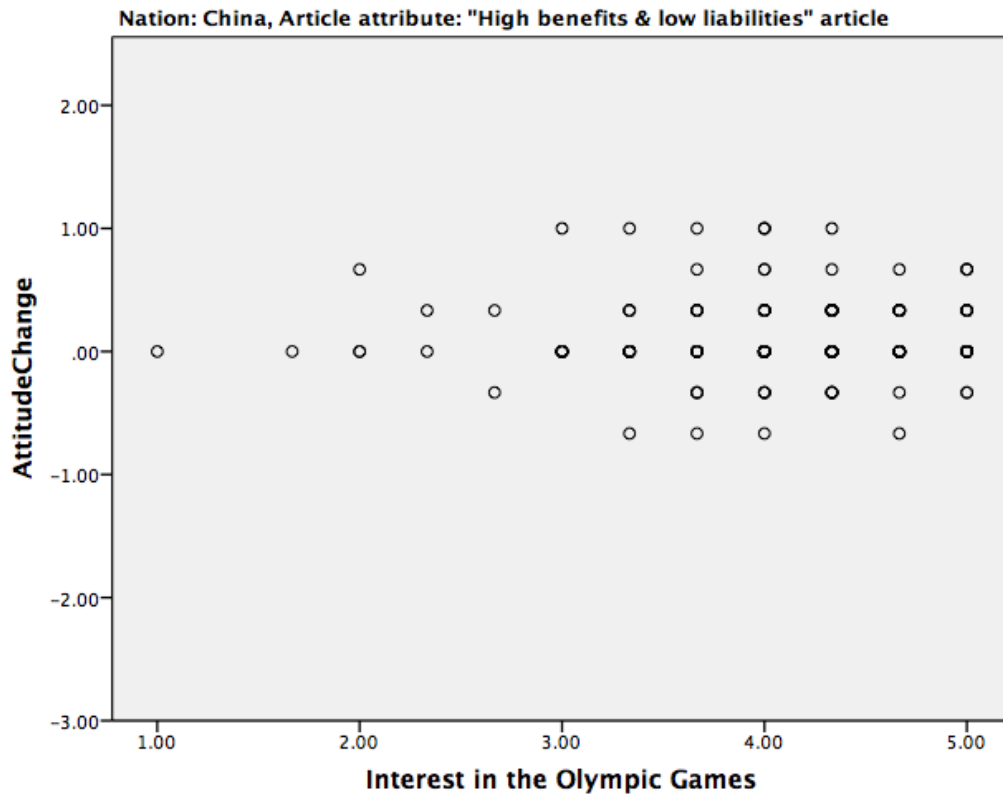|	
output:	sampstat modindices standardized residual;

Model 2: Metric invariance

title:	model 2 test for PRA
data:	file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:	names are item1 item2 item3 item4 item5 item6 item7 item8 item9 nation;
	usevariables are item7 item8 item9;
	grouping is nation (1 = china 2 = America);
model:	pra by item7 item8 item9;
output:	sampstat modindices standardized residual;

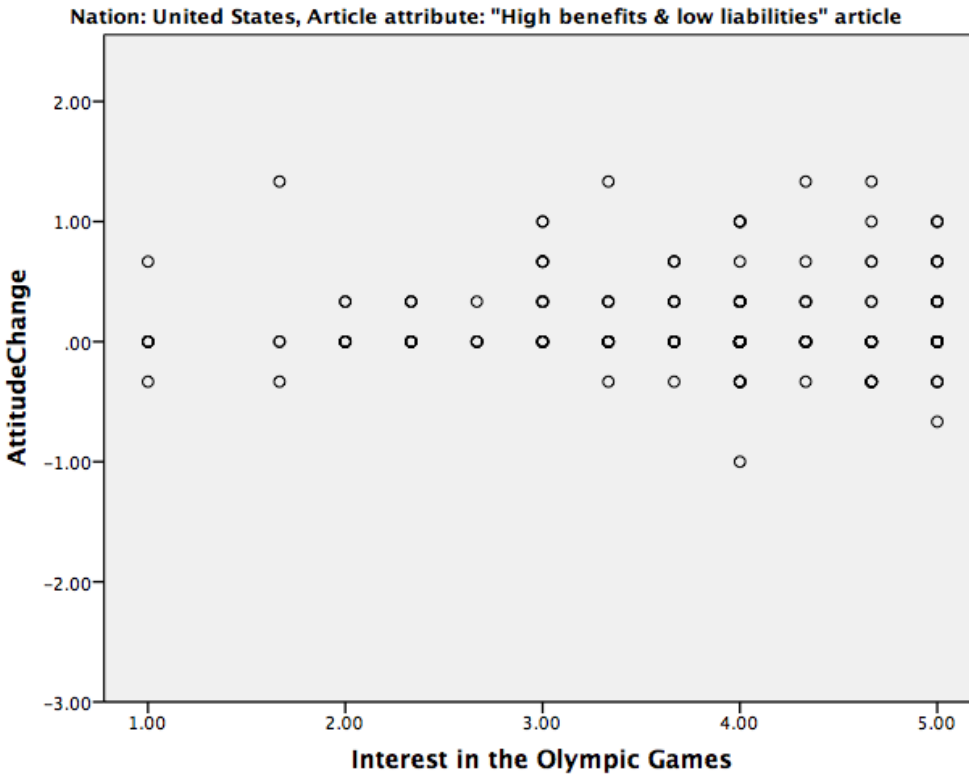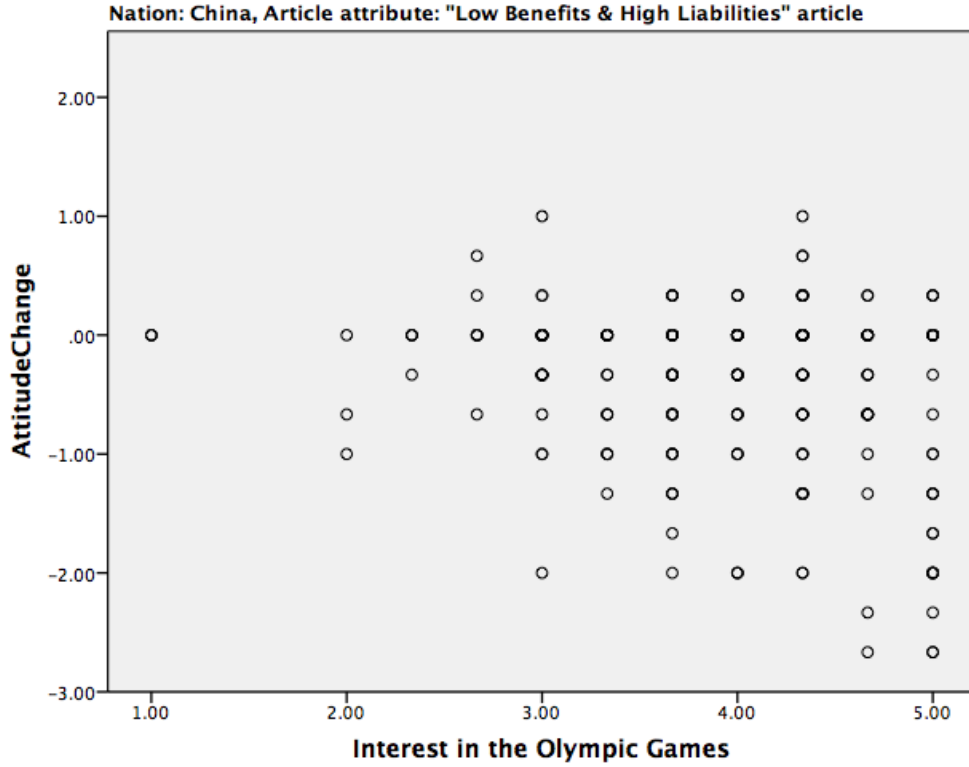## Model 3: Scalar invariance

|	
title:	model 3 test for PRA
data:	file is "/Users/Qiulin/Desktop/Multigroup CFA.csv";
variable:	names are item1 item2 item3 item4 item5 item6 item7 item8 item9 nation;
	usevariables are item7 item8 item9;
	grouping is nation (1 = china 2 = America);
model:	pra by item7 item8 item9;
output:	sampstat modindices standardized residual;

APPENDIX D – SCATTERPLOTS

Nation: China, Article attribute: "High benefits & low liabilities" article

Nation: China, Article attribute: "Low Benefits & High Liabilities" article

Nation: United States, Article attribute: "High benefits & low liabilities" article

Nation: United States, Article attribute: "Low Benefits & High Liabilities" article
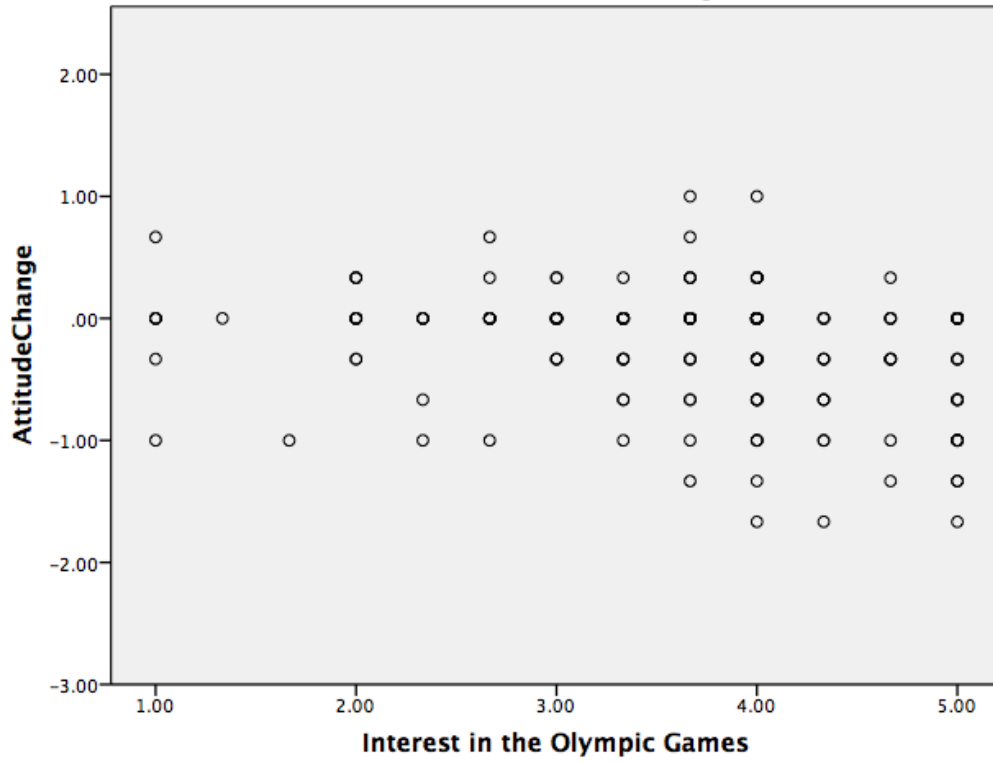
APPENDIX E – DEMOGRAPHIC CHARACTERISTICS

American Sample vs. Census (Massachusetts, U.S.A.)

	Sample	Census[1]		Sample	Census[1]
Gender			**Education**		
Male	44.7	48.4	High school or lower	7.2	36.4
Female	55.3	51.6	College degree	25.6	24.2
Age			Bachelor's degree	54.5	22.3
18-24	24.8	13.3	Master/Doctorate degree	12.7	17.1
25-34	45.7	16.5	**Ethic Group**		
35-44	21.7	17.4	Caucasian	85.6	80.4
45-54	5.7	19.8	African-American	4.2	6.6
55-64	1.4	15.7	Hispanic	3.1	N/A
65 or older	.8	17.6	Asian	2.4	5.3
Marital status			Native American	0	0.3
Single	40.0	35.6	Multi-racial	3.5	2.6
Married	59.8	47.0	Others	1.1	4.7
Widowed/Divorced/ Separated	.2	17.4			

Note. [1] The census was comprised of both 2010 and 2014 data, obtained from
http://quickfacts.census.gov/qfd/states/25000lk.html

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Chinese Sample vs. Census (Beijing & Hebei, China)

	Sample	Beijing's Census[1]	Hebei's Census[2]
Gender			
Male	44.7	51.6	50.7
Female	55.3	48.4	49.3
Age			
18-24	24.8		
25-34	45.7		
35-44	21.7	90.2	90.1
45-54	5.7		
55-64	1.4		
65 or older	.8	8.7	9.9
Education			
High school or lower	7.2	68.5	91.3
College degree	25.6		
Bachelor's degree	54.5	31.5	8.7
Master/Doctorate degree	12.7		
Ethnic Groups			
Han	96.5	95.9	
Minority	3.5	4.1	N/A
Others	0	0	

Note. [1] The census was 2011 data, obtained from
http://www.stats.gov.cn/tjsj/tjgb/rkpcgb/dfrkpcgb/201202/t20120228_30381.html
[2] The census was 2011 data, obtained from
http://www.stats.gov.cn/tjsj/tjgb/rkpcgb/dfrkpcgb/201202/t20120228_30388.html