

HOST RESIDENTS' PERCEPTIONS OF THE IMPACT OF THE 2009 WORLD GAMES ON KAOHSIUNG: A LONGITUDINAL PERSPECTIVE

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ABSTRACT

This study assesses host residents' perceived impacts of the 2009 Kaohsiung World Games (the Games) on their communities. The main purpose was to investigate host residents' perceptions concerning the impact of staging the Games, looking at the issues affecting communities both before and after the event. Importantly the study introduces a new theoretical basis for assessing event tourism impacts. From a statistical perspective, significant differences were found concerning perceived general benefits, as well as negative impacts. The Nicosia model was used to help explain the findings. Overall, residents held relatively high expectations of general benefits, benefits of community involvement and development, in addition to economic and image benefits. Subsequent to the Games, residents realised that tangible or more direct benefits (such as additional recreational opportunities, short and long term boosts to the local economy and increased employment) were lower than expected. The study concludes by emphasising the importance of adopting a strategic approach, which focuses on engaging beneficiaries (host residents) in the early stages of event development. Planners should also seek to match the destination's development policies to the desired outcomes of the event.

Key words: World Games; Sports mega-events; Residents' perceptions; Nicosia model.

INTRODUCTION

The 2009 World Games (the Games) hosted by Kaohsiung City took place over an 11-day period, from 16 to 26 July 2009. The host city welcomed approximately 5000 delegates and athletes from 103 countries, competing for 1485 medals in 31 sporting events. During the closing ceremony, the President of the International World Games Association described the Games as the best event ever, a great honour for the organising committee and the event's 6000 plus volunteers.

In preparation for the Games, the Kaohsiung City Government increased the development of public infrastructure and made improvements to the transportation network. It was anticipated that the Games would attract 400 000 visitors to the city (Ma *et al.*, 2011). Such preparations included spending several million US dollars on the construction of two new sport facilities

(Main Stadium and Kaohsiung Dome), the refurbishment of 22 competition venues (Lotus Lake), and the renovation of infrastructure (Wi-Fi environment, Zhongshan Road, Formosa Boulevard and Bo-ai World Games Boulevard).

The Games featured 31 sporting events, including artistic and dance sport (acrobatic gymnastics, dance sport, aerobic gymnastics, artistic roller skating, rhythmic gymnastics, and trampoline and tumbling gymnastics); ball sports (beach handball, fist ball, canoe polo, tchoukball, korfball, racquetball, rugby sevens, softball and squash); martial arts (ju-jitsu, sumo, karate, and wushu); precision sport (billiards, boules sport, archery and bowling); strength sport (bodybuilding, tug-of-war and power lifting); and trend sport (air sport, climbing, fin swimming, dragon boat racing, flying disc, lifesaving, orienteering, roller sport and water skiing). In all, 274 769 tickets were sold (72.87 % of all tickets), contributing a total of NT\$63.34 million (USD\$1.38 million) to the event.

Kaohsiung, the second largest city in southern Taiwan, was once symbolic of the Taiwanese economic boom of the 1980s and 1990s. It now faces a post-industrial era similar to that experienced in many western European economies during the 1970s and 1980s. The high unemployment rate is strongly associated with significant changes to the industrial structure (Ma *et al.*, 2006). While the economy was previously reliant on production-based activities, it has now shifted towards high technology and services. Kaohsiung citizens have long criticised the employment situation confronting their city. Official statistics show that unemployment rates in Kaohsiung have remained higher than the national average from 2003 to 2007 and the national unemployment figures during this period were: 4.9%, 4.4%, 4.1%, 3.9% and 3.9% respectively, as compared with Kaohsiung unemployment figures during this period: 5.2%, 4.6%, 4.2%, 4.2%, and 4.2% respectively (Department of Budget, Accounting and Statistics, Kaohsiung City Government, 2008; Directorate General of Budget, Accounting and Statistics, Executive Yuan, R.O.C., 2008).

In response to key aspects of the economic recession, the Kaohsiung City Government (KCG) dealt with criticism by initiating a wide range of strategies, including hosting large events such as the Games (Ma *et al.*, 2006). While Kaohsiung citizens felt very proud to host an event of such magnitude as the Games, some were concerned about the large amounts of tax money being spent by the KCG. The total expenditure was estimated at NTD\$23.15 billion (USD\$723.4 million) (Ma, 2009), including the cost for the organising committee (USD\$77.5 million), construction and refurbishment of sport facilities (USD\$407.2 million), road construction (USD\$21.1 million) and telecommunications (USD\$217.3 million). Whilst the Games were being widely publicised by the local Government, many residents were becoming sceptical of the benefits of hosting such a large-scale event.

Given the increasing reliance of many cities on hosting major events to catalyse redevelopment and promotion, the need to establish effective strategies to assess community impacts has become an important factor (Ma *et al.*, 2006). More significantly, local residents are often influential groups and the success of the event is largely dependent on a supportive and involved local community (Fredline, 2006). It is also noted that event planners and stakeholders use the views of the community as a measure of the success and sustainability of their investment (Williams & Lawson, 2001). An understanding of the level of support the host community has for the hosting of events could well inform policy makers in the planning

and promotion of future events (Bull & Lovell, 2007).

While much is known about the perceived economic and social impact of certain types of major sporting events, such as the Olympic Games, there has been comparatively little evaluation of other types of events, such as the World Games. The issues studied in relation to the Games so far, include bidding strategies (Jeng, 2007), event planning (Hsueh, 2007), sport facilities and urban re-development (Li, 2006), sport mega-events and urban development (Chang & Huang, 2009; Liu, 2009), destination and national image (Lai, 2006; Tsai, 2006; Hsu & Haung, 2007), mass rapid transit (Weng, 2007), the impacts of social development (Research, Development and Evaluation Commission, Kaohsiung City Government, 2010), the application of the photovoltaic system in sport facilities (Lien, 2006), the development of World Games (Tsai, 2007) and the management of volunteers involved in large scale sport events (Hsieh, 2006). Despite a number of research studies being conducted with regards to the Games, no empirical research has focused, on the host residents' perceptions. In addition, no research to date has developed a longitudinal approach to attempt to better understand how or why host residents' perceptions may vary over time.

However, a growing number of studies (Soutar & McLeod, 1993; Mihalik & Simonetta, 1999; Deccio & Baloglu, 2002; Waite, 2003; Kim & Petrick, 2005; Kim *et al.*, 2006; Lorde *et al.*, 2010) have suggested the importance of examining host residents' perceptions about the impact of hosting such an event. Furthermore, it was advocated that such studies should consider relevant time-periods and would assist policy-making and planning. Against this background, the purpose of this study is to investigate host residents' perceptions regarding the impact of staging the Games (both before and after the event). The research compares residents' perceptions between the two time-periods and develops a new theoretical base for the analysis of event tourism.

LITERATURE REVIEW

Theoretical foundation

Modern social exchange theory is a general sociological theory regarding the exchange of resources between individuals and groups in the context of an interactive situation (Ap, 1992). This interaction suggests that when some kind of benefit is derived from the exchange, an individual or group would be willing to exchange something with another party. The theory has previously been applied to the study of residents' perceptions of tourism (Bryant & Napier, 1981; Ap, 1992; Perdue *et al.*, 1999; Deccio & Bloglu, 2002).

Lankford and Howard (1994) argue that those who receive direct benefits from tourism are less likely to attribute negative social and environmental consequences to it, and hold more positive attitudes toward its expanded development. The extent to which local residents accept or reject changes attributable to tourism, depend to a large extent, on residents' perceptions of how it affects their own personal welfare and lifestyle. In addition, social representation theory has used an alternative (Moscovici, 1982; Pearce *et al.*, 1996), which refers to 'systems of preconceptions, images and values' about a phenomenon (Kim *et al.*, 2006). In tourism literature, it is noted that when local residents are likely to understand a new event around them (a sport event), their past experiences, knowledge and values of the

event are regarded as a 'reference point' (Fredline & Faulkner, 2002). The theory implies that residents may interact with various information sources that shape their primary perceptions and simultaneously informs their representations of tourism, which show their feelings of its impacts (Fredline, 2006).

Recognising that organising a large-scale event is particularly complicated, the researcher borrowed a model (Nicosia model) from the field of consumer behaviour, to help understand the interrelationships between 'attitudes' and 'attributes' within the context of this study. The Nicosia model comprises of a flow diagram, which illustrates a consumer's decision-making process. The model assumes that "no prior consumer knowledge or experience with the product exists" (Vignali *et al.*, 2001:463). Consumers in this case study (the host residents) had never before experienced a sports mega-event like the World Games. According to the model, the salient features begin with the flow of a message from a company to the 'internalisation' of the message by a consumer. Perception of the message is determined by the attributes of both the company and consumer (Gilligan & Wilson, 2003). At this stage of the process, internalisation is used to signify operations, such as the physical perception of the stimulus attributes, environmental attributes prevailing at the moment of perception, and cognitive structures that give meaning to the stimulus and its components (Nicosia, 1968). A consequence is that it may lead to the development of an attitude towards the product.

The following stage consists of a search process, both internal and external. The consumer is to search for the product that is evaluated by means of information from social psychological fields (internal search) concerning advertising messages, the product, the brand's sellers and so on, or by means of information associated with the attitude from overt activities (external search), such as shopping and self-exposure to advertisements. The search process may or may not lead to the purchase of the product. The experience of consumption then becomes a factor that can influence the consumer's psychological state and plays a part in the consumer's disposition, leading to a decision on whether to purchase the product or not. Therefore, it forms a feedback loop. Despite being criticised as oversimplifying the decision-making process of consumer behaviour, the Nicosia model has been widely adopted in understanding consumer behaviour (Ma, 2009).

Actions taken by event planners represent organisational attributes (attributes of the Kaohsiung Organising Committee [KOC] and the KCG). The interaction between these attributes generates a message (the preparatory work) to the consumer (the host residents). The perception of the message is determined by organisational attributes at this stage. However, it should be noted that the consumer could possibly be further exposed to the message, which reshapes the 'consumer attributes'. This process is called internalisation of the message, which denotes operations, such as perception of economic, social and environmental impacts (event attributes) generated by preparatory work. Consequently, the results may lead to the formation of an attitude toward the product (Games). The Nicosia model underlies the mechanism between actions by event planners and the evaluation of attitudes towards and perceptions of impact. Previous studies (Kim *et al.*, 2006; Lorde *et al.*, 2010) investigating the changes of host residents' perceptions regarding the impact of major sport events usually draw on 'prospect theory' and 'social exchange theory' as theoretical bases. The current study, based on the Nicosia Model, has cast new light on the analysis of event tourism.

Perceived impacts of mega-events

Mega-events are increasingly seen as tourist attractions (Getz, 1989). Consequently, hosting major events has become an integral part of the tourism marketing strategies for many cities (Getz, 1989; Thorne & Munro-Clark, 1989; Ritchie & Smith, 1991; Mules & Faulkner, 1996; Fredline & Faulkner, 1998). The benefits are broader than just the immediate tourism effects (Hall, 1992). Local residents develop expectations regarding potential impacts from the moment the decision is made to stage an event. They perceive these, both positively and negatively, during and long after the event.

A wide variety of consequences have been seen regarding the staging of mega-events. Economic benefits range from urban regeneration (Gratton *et al.*, 2005; Solberg & Preuss, 2007), employment (Spilling, 1998; Masterman, 2004), business leveraging (Masterman, 2004; O'Brien, 2006), providing opportunities for recreational activities (Allen *et al.*, 1993), sources of income (Kang & Purdue, 1994; Madden, 2002), tourism (Solberg & Preuss, 2007), as well as a change in consumer habits (Frey *et al.*, 2007).

Positive social impacts involve an increase in: community engagement (Hillier, 1998; Fredline, 2006; Leonardsen, 2007; Shipway, 2007), community pride (Hall, 1989; Waitt, 2003), social equity (Bramwell, 1997; London Organising Committee of the Olympic and Paralympic Games & Olympic Delivery Authority [LOCOG & ODA], 2007a), cultural exchange (Garcia, 2003, 2004; Shipway & Brown, 2007), sport participation (Collins *et al.*, 1999) and health promotion (Frey *et al.*, 2007; LOCOG & ODA, 2007b; Wang & Theodoraki, 2007). It has also been suggested that environmental projects benefit from cities hosting major events (Preuss, 2004). High profile events are likely to generate an increased interest in natural landscapes and local heritage conservation, placing environmental projects in a position to attract greater funding instead of being potentially ignored (IOC, 1999; Deccio & Baloglu, 2002).

Along with producing a huge range of positive benefits to host destinations (to local communities in particular), it is acknowledged that financial costs may generate opposition from local communities. For instance, the staging of mega-events can result in price inflation of goods, services and property, placing a huge burden on local residents (Deccio & Baloglu, 2002). Furthermore, mismanagement of public funds can actually increase costs over time, a situation which is likely to intensify any negative perceptions of hosting events (Deccio & Baloglu, 2002; Ritchie *et al.*, 2009). The lessons are still vivid from the experiences of the 1976 Montreal Olympic Games and the 1991 Sheffield World Student Games, which both resulted in debts of around £692 million (Gratton & Taylor, 2000), and £10.4 million (Bramwell, 1997) respectively. Sheffield will be repaying their debt until 2025 (Wallace, 2001).

Major events may also result in negative social impact. For example, the interests of marginalised groups are frequently ignored (Cashman, 2006), traffic congestion may occur during the construction of event venues or during the event itself (Fredline, 2004) and crime may increase due to an influx of visitors to the host destination (Ritchie *et al.*, 2009). In addition, the planning of the event may influence the image of the host community held by prospective visitors. This may be due, for example, to increased costs (Ritchie, 1984; Hillier, 1998). Furthermore, political turmoil may occur as a result of a lack of community wide

participation and empowerment in the decision-making process (Roche, 1994). Such a situation occurred during the 1991 Sheffield World Student Games where the main local political party was negatively affected as a result of alienating the community from decision-making processes (Bramwell, 1997). Likewise, with regards to the 1988 Olympics and the 2002 World Cup in Korea, Kim *et al.* (2006) argue that the residents' dissatisfaction with the actual benefits (such as economic benefits) may be attributed to their lack of involvement in the planning and decision-making process. Apart from the economic and social impact of hosting a major event, consideration needs to be given to the adverse effects of such an event on the natural and physical environment. This may be through changes of land use (Gursoy & Kendall, 2006), pollution of beaches and lakes caused by the construction of competition sites and a deterioration of historical or natural resources (Kim *et al.*, 2006).

RESEARCH METHODS

Setting

Kaohsiung is the largest commercial harbour and the second largest city in Taiwan, with a population of 1.5 million. Kaohsiung is situated on the southwestern coast of Taiwan and comprises an area of 154 square kilometres. The local economy is dependent mostly on heavy industry and the production of petrochemicals. The city is comprised of 11 districts, with the Zuoying and Cianjnn Districts being most relevant to this study. These districts are relevant firstly, because competition sites such as the Main Stadium, the Lotus Lake, the Kaohsiung Dome and the World Games Boulevard are located in Zuoying District. The Love Riverside, situated in Cianjnn District was the area used for Boules Sports. This area has long been the most popular site to hold various national and international festivals. Therefore, people living in these areas were more aware of events taking place and the events had a more immediate impact on their lives. Secondly, the areas targeted within each district were most likely to be influenced by the staging of the Games. This research examined the 'main effects', as they happened within the host areas, rather than the 'spill over effects', as they occurred within general areas.

As Finn *et al.* (2000) highlighted, an accurate sampling frame does not always exist, therefore non-probability samples, which are usually found in visitor attractions and sporting events, were used in our research. In studying this case, purposive sampling of non-probability was used for the survey, given an accurate sampling frame was unavailable. This was largely due to the ambiguous boundaries between host and non-host zones. While this sample cannot be representative of the larger population, it is recognised to be more representative of the majority of residents from host communities.

Survey and data-collection procedures

The tool used for data collection was a tourism impact scale, specifically developed for major sports events. This scale was used in a previous study conducted by Ma *et al.* (2011), which investigated residents' attitudes regarding the potential impact of the Games prior to the event. The scale is composed of 26 items based on the Verified Tourism Impact Attitude Scale (VTIAS) developed by Ma *et al.* (2011), as well as a number of sources in event tourism literature (Ritchie, 1984; Getz, 1991, 1997; Hall, 1992; Lankford & Howard, 1994; Shultis *et*

al., 1996, Twynam & Johnston, 2004). The VTIAS was developed by Lankford and Howard (1994) and has been previously used to assess residents' attitudes toward tourism. However, it is also noted that the impact of major events are generally quite similar to those of tourism (Fredline & Faulkner, 2002). Consequently, the VTIAS may be used to assess and interpret residents' perspectives of event tourism (Twynam & Johnston, 2004). The VTIAS measured various dimensions of the Games, including 5 statements on the economic impact, and 21 statements on the social and environmental impact of the event. Responses to the items of VTIAS were given on a 5-point Likert scale where 1 was equivalent to "strongly disagree", 3 was equivalent to "no opinion" and 5 was equivalent to "strongly agree". Basic demographic items were also included such as gender, marital status, age, occupation, educational attainment and annual personal income.

Data were collected from host communities located close to the 4 competition venues (the Main Stadium, the Kaohsiung Dome, the Lotus Lake and the Love River) in Kaohsiung City. Those selected for the questionnaires were citizens whose residence was close to the chosen survey sites. They were considered to be more exposed to the impacts of the event, including the preparatory work (construction work, the hosting of pre-events, etc.), and the actual competitions themselves. A total of 720 face-to-face questionnaires were undertaken to gauge host residents' views in early June (pre-event) and late November (post-event) 2009. Of the 720 questionnaires, 655 were used in our study. In order to minimise any sampling errors and to reduce potential bias to an acceptable level, various influential factors such as timing (weekdays vs. weekends, office hours vs. non-office hours), exact locations (precise streets and blocks), weather and residential proximity (tourism zones vs. non-tourism zones) were carefully considered.

For example, to account for fewer people being available at home on weekdays rather than weekends, weather restrictions and limited access to some houses, site visits to survey locations were scheduled to help reduce these problems. Furthermore, the surveyors were directed to seek an equal proportion of male and female respondents, yielding a response rate of 48% from males and 52% from females. This sampling plan was designed with the specific purpose to reflect the characteristics of the residents and their proximity to the host areas (Denscombe, 2003). More importantly, a pilot study was conducted in 2007 and the experience gained made it possible to pursue a smaller sampling frame in more targeted households.

A team of trained research assistants administered the pre-event surveys. The research team included undergraduate and master's degree students enrolled in the leisure, sport and tourism management program at the National Pingtung University of Science and Technology. The research assistants were selected based on their familiarity with the target areas. In addition, the research assistants participated in conducting a survey for a pilot study regarding the Games, carried out by the authors. The research team was instructed to visit host communities living close to the 4 competition venues. Citizens whose residences were closest to the selected survey sites were the most likely to be contacted. All respondents were well informed of the purpose of the study and they completed the questionnaire on the spot.

The research assistants who implemented the pre-event survey also conducted the post-games surveys. Again, the same survey sites and the same methods of data collection were

employed. This research was a repeated cross-sectional study for which the data collection was conducted at various times using a different sample for each collection. This differs from longitudinal research, which surveys the same panel of participants over time in order to see how individuals change (Menard, 1991). The study also examined residents' perceptions over time in a similar method to other longitudinal studies focusing on major sport events, which indicated temporary changes in perceptions (Soutar & Mcleod, 1993; Mihalik & Simonetta, 1999; Kim & Petrick, 2005; Kim *et al.*, 2006; Lorde *et al.*, 2010).

Design and data analysis procedures

A series of statistical techniques were used, including an independent samples t-test, an exploratory factor analysis (construct validity), and a reliability analysis (Cronbach's alpha coefficient), to test and refine the VTIAS. Statistical procedures were conducted with data obtained prior to the Games, while data collected after the Games were used to validate the results of the exploratory factor analysis. By ranking each subject's total score from the highest to the lowest on VTIAS, 27% of both the highest and the lowest rankings were assigned to group 1 and group 2 respectively. With the assistance of Statistical Package for Social Sciences (SPSS) for Windows, the result of the equality test of means on each item, between the 2 groups was produced. If the item reached a significant level ($p < 0.05$ or $p < 0.01$), it meant that it was able to effectively explore the level of reaction made by each respondent.

Once this first step was complete, the exploratory factor analysis technique could be applied to test the 'construct validity' of the scale. The function of this technique is to reduce or summarise a set of data by using a smaller set of factors or components (Pallant, 2001). Using this technique raised an issue for sample size. The range of the sample size varied, for example, from a minimum 100 (Gorsuch, 1983; Kline, 1994) to 200 (Guilford, 1956), and 300 cases (Tabachnick & Fidell, 2007). Gorsuch (1983) and Tabachnick and Fidell (2007) recommend that 5 cases for each item are adequate in most situations. Given the above considerations in the context of this research, the sample size ($n=372$ before the games; $n=282$ after the Games) satisfied the requirement of at least 100 and the ratio requirement of 5 to 1 ($27 \times 5 = 135$ observations) was also satisfied. This research, therefore, satisfied the sample size requirement for factor analysis.

One-way MANOVA was performed to examine the changes in host residents' perceptions of the impact of the Games, both pre- and post-event. The mega-event (World Games) was treated as the independent variable and the four factors measuring residents' perceptions as the dependent variables.

RESULTS

TABLE 1: DEMOGRAPHIC PROFILES OF RESIDENTS

Demographic characteristics	Before the Games (n=372)		After the Games (n=283)		Total
	Frequency	%	Frequency	%	
<i>Gender</i>					
Male	173	47	143	51	316
Female	199	53	140	49	339
<i>Age group</i>					
Below 20 years	182	49	188	66	370
20-29 years	47	13	32	11	79
30-39 years	39	10	36	13	75
40-49 years	41	11	18	7	59
50-59 years	8	2	9	3	17
60 years and over	55	15	0	0	55
<i>Marital status</i>					
Single	266	72	205	72	471
Married	106	28	78	28	184
<i>Occupation</i>					
Shopkeeper	41	11	50	18	91
Student	179	48	155	55	334
Employed	105	28	41	14	146
Unemployed	8	3	13	5	21
Retired	5	1	9	3	14
Other	34	9	15	5	49
<i>Educational level</i>					
Junior High (& lower)	31	9	28	10	59
Senior High	119	32	84	30	203
Occupational School	112	30	73	26	185
College/University	105	28	86	30	191
Graduate (+above)	5	1	12	4	17
<i>Annual income</i>					
Below 240 000 NTD ^a	229	62	192	68	421
240 000-360 000 NTD	55	15	22	8	77
370 000-480 000 NTD	19	5	10	4	29
490 000-600 000 NTD	11	3	17	6	28
610 000-720 000 NTD	12	3	15	5	27
730 000-840 000 NTD	9	2	12	4	21
850 000-960 000 NTD	12	3	7	2	9
960 000 & above NTD	25	7	8	3	33

^a One US Dollar was approximately equivalent to 32 New Taiwan Dollar (NTD) at the time of this study.**Demographic profile of respondents**

Table 1 summarises the demographic profile of the study sample. Across the sample of 655 respondents, 48% were male and 52% were female. The majority of respondents were aged below 20 (72%), while groups aged over 50 made up 10% of respondents. A total of 72% of

the participants were single, while 28% were married. The respondents reported their occupations as: shopkeeper (14%), student (51%), employed (22%), unemployed (3%), retired (2%), and other (8%). The majority of respondents had at least a senior or above education (91%), and 9% were educated at junior high school level or below. Eighty-four per cent (84%) earned below NT\$600,000 (\approx USD\$20,000) per year, while 16% were above the national income level of NT\$600,000.

Factor analysis and reliability

When conducting the independent-samples t-test, items not reaching an appropriate significance level were removed from the analysis. Principal components extraction with varimax rotation was conducted. Three items were removed after 3 analyses because each of them covered only 1 item (3 to 7 items are required). Twenty-three items were left remaining.

For the factor analysis, the number of factors was determined using an eigenvalue equal to or greater than 1.0. Items with loadings of lower than 0.40 and with double loading were eliminated (Stevens, 1996). For each factor, an alpha coefficient equal to or greater than 0.50 is the minimum coefficient that could be accepted (Baumgartner & Jackson, 1999). The results of the factor analysis and reliability are presented in Table 2, using data collected before the Games. A four-factor solution was identified, with a total of 60.74% of the variance explained. The Cronbach alpha coefficient of all sub-scales on the VTIAS ideally ranged from 0.78 to 0.90, along with 0.91 on the total scale. According to the construct of VTIAS, content validity was achieved through rigorous research design and appropriate data analysis, supported by practical information coming from field observations. This analysis was finalized with 4 factors totalling 23 items. Table 3 shows the means scores and standard deviations for the samples before and after the Games.

Host residents' perceptions before and after the Games

A one-way between-groups multivariate analysis of variance was performed to investigate the change in perceptions of pre- and post-event impact (Table 4). Four dependent variables were used: general benefits; community involvement and development; negative impact; and economic and image benefits. The independent variable was the mega-event. There was a statistically significant difference between pre- and post-event on the dependent variables, $F(4, 649)=8.07, p<0.001$; Wilk's Lambda=0.95, partial eta squared=0.04. When the results for the dependent variables were considered separately, the differences to reach statistical significance using Bonferroni adjusted alpha levels of 0.005 and 0.000, were general benefits, $F(1, 655)=4.33, p<0.05$, partial eta squared=0.007, and negative impact, $F(1, 655)=23.95, p<0.001$, partial eta squared=0.036.

An inspection of the mean scores indicated that post-event reported slightly higher levels of general benefits ($M=4.04, SD=0.65$) than pre-event ($M=3.94, SD=0.61$), while post-event showed higher levels of negative impact ($M=3.36, SD=0.76$) than pre-event ($M=3.08, SD=0.68$). Overall, expected benefits ('community involvement and development' and 'economic and image benefits') had higher mean scores than perceived benefits, with the exception of 'general benefits' regarding those items, such as 'residents' pride', 'interest in participating in sport' and 'additional recreational opportunities'. This suggests that local residents had higher expectations with regards to the benefits that the Games would generate for their community, which were not fully met.

TABLE 2: RESULTS OF EXPLORATORY FACTOR ANALYSIS (Pre-Games)

Factors	Factor Loading	% of Variance	Cronbach Alpha
<i>General benefits</i>		22.71	0.90
3. The city government made the right decision in hosting of the World Games	0.78		
5. City residents' pride has risen because of the World Games	0.76		
6. I believe the World Games should be actively supported in the local area	0.74		
1. I would like to see the city government to host sports mega-events like the World Games	0.73		
2. Hosting the World Games will give Kaohsiung more opportunities to host other sporting events	0.69		
4. Because of the World Games I will have more recreational opportunities	0.60		
16. The benefits of hosting the World Games will outweigh any of its negative impacts	0.57		
7. The World Games will increase local peoples' interest in participating in sport	0.55		
12. Hosting the World Games will enhance the city's beauty	0.48		
<i>Community involvement and development</i>		14.72	0.82
13. The city government listens to residents about their concerns with the World Games	0.70		
20. The World Games will boost this area's long-term economy	0.69		
17. Overall I believe my standard of living will be increased because of the World Games	0.68		
15. I support the World Games because of its vital role in our community	0.53		
18. Hosting the World Games will make Kaohsiung more of a tourist destination	0.52		
<i>Negative impacts</i>		11.90	0.78
23. The World Games will increase the crime rate in the local community	0.78		
22. The World Games will negatively impact the environment	0.73		
26. The World Games will result in price increase	0.72		
25. The World Games will result in traffic congestion	0.70		
24. Hosting the World Games will leave Kaohsiung with a negative image	0.69		
<i>Economic and image benefits</i>		11.42	0.80
9. The World Games will provide a short-term boost to the economy in this area	0.77		
8. Visitors to the World Games will contribute a sizable revenue to the local economy	0.67		
11. The World Games will draw national and international attention to this area	0.64		
10. The World Games will provide jobs for local people	0.60		
Total		60.74	0.91

TABLE 3: MEAN AND SD OF IMPACT STATEMENTS (Pre- and Post-Games)

Statements	Pre-Games M±SD	Post-Games M±SD
1. I would like to see the city government to host sports mega-events like the World Games	4.01±0.76	4.08±0.79
2. Hosting the World Games will give Kaohsiung more opportunities to host other sporting events	4.07±0.72	4.16±0.76
3. The city government made the right decision in hosting of the World Games	4.03±0.81	4.14±0.83
4. Because of the World Games I will have more recreational opportunities	3.92±0.84	3.89±0.96
5. City residents' pride has risen because of the World Games	3.98±0.82	4.19±0.84
6. I believe the World Games should be actively supported in the local area	3.91±0.79	4.01±0.81
7. The World Games will increase local people' interest in participating in sport	3.77±0.83	3.97±0.94
8. Visitors to the World Games will contribute a sizable revenue to the local economy	3.85±0.92	3.78±1.05
9. The World Games will provide a short-term boost to the economy in this area	4.03±0.80	3.98±0.93
10. The World Games will provide jobs for local people	3.53±0.96	3.45±1.00
11. The World Games will draw national and international attention to this area	4.09±0.77	4.09±0.85
12. Hosting the World Games will enhance the city's beauty	3.94±0.87	4.06±0.87
13. The city government listens to residents about their concerns with the World Games	3.48±0.94	3.57±0.99
15. I support the World Games because of its vital role in our community	3.73±0.80	3.86±0.88
16. The benefits of hosting the World Games will outweigh any of its negative impacts	3.79±0.81	3.41±0.99
17. Overall I believe my standard of living will be increased because of the World Games	3.51±0.90	4.07±0.75
18. Hosting the World Games will make Kaohsiung more of a tourist destination	3.97±0.74	3.83±0.89
20. The World Games will boost this area's long-term economy	3.46±0.94	3.19±1.00
22. The World Games will negatively impact the environment	2.82±0.95	3.57±0.92
23. The World Games will increase the crime rate in the local community	3.32±0.88	3.85±0.94
24. Hosting the World Games will leave Kaohsiung with a negative image	3.65±0.93	2.89±1.16
25. The World Games will result in traffic congestion	2.56±0.94	3.31±1.02
26. The World Games will result in price increase	3.05±0.95	3.88±0.95

The 5-point Likert scale has been reversed on five negative items (22, 23, 24, 25, 26).

SD = Standard Deviation

The positive impacts that were expected prior the Games included 'general benefits' (M=3.94), followed by 'economic and image benefits' (M=3.88) and 'community involvement and development' (M=3.63). The highly perceived positive impacts after the World Games were 'general benefits' (M=4.04), followed by 'economic and image benefits' (M=3.83), as well as 'community involvement and development' (M=3.62). The largest gap

score (0.10) between pre- and post-event surveys of positive impact was found with regard to 'general benefits'.

Expected costs (M=3.08) had a significantly lower mean score than perceived costs (M=3.35), indicating that local residents initially had "high" expectations about negative impacts as a result of the Games. However, throughout the phases of planning and event management, negative impacts as a result of the Games were lower than anticipated. The high expected costs prior to the Games were 'traffic congestion' (M=2.56), followed by 'environment impact' (M=2.82), 'price increase' (M=3.05) and 'crime rate' (M=3.32). 'Negative image of Kaohsiung' (M=3.65) was expected to have the least impact. After the Games, highly perceived negative impacts, surprisingly, were 'negative image of Kaohsiung' (M=2.89), followed by 'traffic congestion' (M=3.31), 'environmental impact' (M=3.57) and 'crime rate' (M=3.58). 'Price increase' (M=3.88) was ranked the lowest. It should be noted that the 'negative image of Kaohsiung' is the only item that created a negative gap score between the two time periods.

TABLE 4: MEANS AND ANOVA RESULTS BEFORE AND AFTER THE GAMES

Factors	Mean		Mean Diff.	F-test	p
	Before	After			
General benefits	3.94	4.04	0.10	4.19*	0.041
Community involvement and development	3.63	3.62	0.01	0.05	0.815
Negative Impacts	3.08	3.35	0.28	24.71***	0.000
Economic and Image Benefits	3.88	3.83	0.05	0.80	0.369

All items assessed on a 5-point scale (1= strongly disagree; 3= no opinion; 5= strongly agree).

* p<0.05 ** p<0.01 *** p<0.001

DISCUSSION AND CONCLUSIONS

The application of the Nicosia model and the longitudinal perspective develops this research beyond the typical impact study of event tourism. The Nicosia model offers a means to understand how host residents expect and perceive attributes and impacts of a major sport event over a period of time.

Host residents' perceptions of the positive and negative impacts changed significantly over time. This was particularly associated with 'general benefits' and 'negative impacts'. The findings indicate that host residents' pre-event expectations of general benefits were comparatively high. Post-event perceptions were even higher than their expectations, with the exception of 'more recreational opportunities' and 'benefits outweigh any of its negative impacts'. This may explain that while host residents supported the Games enthusiastically prior to the event, due to pride, increased sport participation and beautifying the city, they felt recreational facilities and opportunities would not increase dramatically after the event. The results may further relate to host residents' perceptions, that the benefits of hosting the event would not be worth the costs incurred.

Regarding pre-event perceptions of positive impacts, residents held relatively high expectations of general benefits, benefits of community involvement and development, as well as economic and image benefits. Nonetheless, subsequent to the Games, they realised that tangible or more direct benefits (additional recreational opportunities, short- and long-term boosts to the local economy and employment) were lower than expected. The results are consistent with findings by Mihalik (2000), Kim and Petrick (2005), Kim *et al.* (2006), and Lorde *et al.* (2010) and may be explained by applying the Nicosia model. During the pre-event period, host residents received messages generated from event agencies, so that perceptions of messages (or impacts) were essentially determined by organisational attributes. Given that host residents continue to be influenced by well-prepared messages for political purposes at the expense of more realistic challenges, the expectations regarding impact may possibly remain high. An individual's perceptions during the Games became the basis for their decision on whether to ignore them or become involved, forming a feedback loop. Based on this, residents modified their perceptions, post-games, which triggered another loop. Furthermore, another possible explanation for the results may be the high unemployment rate in Kaohsiung (noted earlier). Even if major sport events generate a wide variety of host benefits, residents are more concerned about personal issues, such as additional income, increased employment opportunities and increased amounts of visitors to the host destination (Crompton *et al.*, 1998).

Even if the differences between host residents' pre- and post-games perceptions of 'community involvement and development' were small, the fact is that post-game perceptions declined. This study is similar to previous research (Teye *et al.*, 2002; Gursoy & Kendall, 2006), which suggests that community involvement in the phases of planning, decision-making and management of events in developing countries, tends to be limited. For example, a study undertaken two years prior to the Games demonstrated a lack of community involvement in relation to decision-making ($M=3.59$) (Ma *et al.*, 2011). Accordingly, this study highlights that host residents' attitudes are relatively consistent with their perceptions ($M=3.57$). The results suggest that despite the importance of recognising host communities' views in ensuring event sustainability (Frey *et al.*, 2007) and the involvement of the host community in portraying positive messages to visitors (Getz, 2005; Bowdin *et al.*, 2006), political issues are given top priority.

In terms of negative impacts of hosting the Games, 'traffic congestion' and 'overall environmental impact' were expected to have the largest negative impacts, followed by 'price increase' and 'crime rate'. 'Negative image of Kaohsiung City' was considered to be the least significant problem. Post-game perceptions suggest that actual congestion and overall environmental impact were less than originally expected. The present findings reveal gap scores for negative impact that were comparatively large and positive, suggesting that these issues did not occur as much as anticipated during the Games. This was consistent with previous research by Soutar & McLeod (1993), Kim *et al.* (2006) and Lorde *et al.* (2010), indicating that the Games were held without major negative social impacts, traffic congestion, or environmental impact (pollution).

Traffic congestion was expected to be a serious problem during the event. The post-event perceptions of the impact of traffic, indicates that it was handled much better than expected. Current findings were consistent with previous studies (Kim *et al.*, 2006; Lorde *et al.*, 2010),

suggesting that the commitment made by the organising committee and the KCG to implement an efficient traffic plan, was well executed and successfully eased the feelings of uncertainty among local residents. However, host residents were increasingly concerned about the impact of a 'negative image of Kaohsiung'. A survey undertaken two years prior to the Games (Ma *et al.*, 2011) indicates that a 'negative image of Kaohsiung' was the least anticipated negative impact. The outcome of the aforementioned survey is consistent with the results of this study. Surprisingly, residents perceived it as the most serious post-event impact. It was postulated that the withdrawal of the Chinese team during the opening and closing ceremonies, could have been a possible reason. Furthermore, it may have been due to the political disputes over the budget as reported in Taiwanese newspapers (Shan, 2009). It should be noted, that Ma *et al.*'s (2011) study was carried out at a time when the same party governed both the central Government and Kaohsiung City. However, this was undertaken at a time when different parties governed the central Government and Kaohsiung City. According to Smith (2005), many cities adopt sport as part of a re-imagining strategy, though such initiatives do not necessarily boost the credibility of a destination and can even hinder the city's reputation. Indeed, future studies could evaluate the extent to which the re-imagining strategies are in conjunction with the hosting of the Games, as it may be used to assess how this may contribute to attracting visitors.

Kaohsiung City is likely to host other major sport events in future. Information based on host residents' pre- and post-event perceptions may assist policy makers, event planners and entrepreneurs to better understand factors that are key to the success of future events, but were not well managed during the planning stage of the Games. The Games were subsidised through public expenditure, similar to other events such as the 2002 World Cup in South Korea and the 2007 ICC Cricket in the Caribbean area. In other words, host communities are directly and significantly affected by the events, particularly with regard to contributing intensive public resources and capital. Therefore, if the reasons for hosting a major event are political in nature, then the opinion of host communities is more likely to influence its success.

The regular assessment of residents' perceptions has long been requested, as the cumulative information may be more informative and insightful (Ritchie & Lyons, 1987; Kim *et al.*, 2006; Ritchie *et al.*, 2009; Lorde *et al.*, 2010). For example, intervals from three to six months between pre- and post-game periods were commonly adopted. However, this raised a question as to how long or how often assessments should be made. On some occasions, it is possible that another major event of a similar magnitude may be planned (including in nearby areas) before or during post-games surveys are conducted. The event will become a moderator, which interacts with the targeted event. Therefore, it is argued that pre- and post-data are obtained only once, with a one-month lead and four-month lag, otherwise data may not be sufficient to measure views on perceived impacts due to an interactive relationship between an individual and the Games. It is strongly recommended that for future research, the consideration of regular assessment of residents' be appraised.

Determining the number of impacts to include in the survey required a sufficient review of the related literature. To create comparable benchmarks across different cases, it needs to be understood why previous study designs were used to determine the contents of the survey (Kim *et al.*, 2006; Lorde *et al.*, 2010) including this study. Yet, the character of each host

location and event differ. The current study suggests that “impacts” should be justified specifically based on the multifaceted nature of event magnitude and character, as well as the development stage of a host city. Consequently, the results might be more informative. For example, findings of this study indicate that host residents were increasingly concerned about economic output of the Games. This corresponds to the high unemployment rate in local areas.

From a practical standpoint, the findings of our study suggest that for the most part, host respondents agree that the KCG made the right decision with regard to hosting the Games. It should be noted, that these views are derived from host rather than non-host communities. Event organisers cannot assume that most Kaohsiung citizens hold similar views. Perhaps in future event studies, it might be appropriate to survey the perceptions of non-host residents also in order to ascertain if they differ or are similar over time. Furthermore, it is known that challenges regarding economic issues did exist in terms of organising the Games. Obviously, some of the expected rewards from staging a major sport event are yet to be seen, such as to the ‘trickle-down effect’ of sport participation and health improvement. For how long and to what extent does staging a major sport event play in encouraging sport participation and thus improve the health of residents in a host city? How is this measured? The answers to these questions need to be investigated so that evidence of the trickle-down effect can be scientifically studied.

Hosting major events is a part of a strategy in response to solving Kaohsiung City's economic problems. However, to achieve a positive change, it is clear that longer-term issues need to be addressed and relevant strategies put in place. For instance, the event venues such as the Main Stadium (developed with public funding) are a significant long-term economic challenge. When the Games ended, the Main Stadium became an icon of Kaohsiung City. However, it costs approximately USD\$2.5 million each year for it to be operational. Such issues are not only relevant to other host cities, but also require substantial solutions from event studies. Firstly, in order to establish a long-term relationship with local communities, Government authorities such as the Sports Department and public health officials can partner with local schools and universities, to design and implement Physical Education curricula that are specific for local residents. This will enhance the patronage of sport facilities. Secondly, in future events the Games themed programs can involve local residents before and during the event, as well as recruiting volunteers from host residents to manage the facilities and environments in the long-term. Thirdly, to enhance the usage rate and to maximise the return on investment, relevant authorities should consider potential solutions, such as attracting the health industry to the Main Stadium. Potential examples include using the facility as a sport club, setting up a memorial hall and promoting the Main Stadium as a tourist attraction. The Sports Department of the KCG could assign a team, which would be responsible for theme marketing, activities, as well as national and international events and programming.

As the areas under the jurisdiction of Kaohsiung City have been expanded from 11 to 37 in 2010, this may suggest a need for rethinking a brand new event strategy in the future, which differs from the Games. Districts located on the edge of the jurisdiction are generally abundant with natural resources, yet lack infrastructure (the expanded areas). The public sector should initiate measures to balance the economic disparities that exist in these areas in comparison to those areas in the urban centre of the city. To this end, the Central Place

Theory (Malizia & Feser, 1999; Daniels, 2007), which examines why some destinations are better suited to tourism development than others, may offer some additional insight for future research. Along with the use of the Nicosia model, the Central Place Theory may be used to assist in better understanding the multi-faceted nature of mega-events through externally driven effects.

REFERENCES

- ALLEN, L.R.; HAFER, H.R.; LONG, P.T. & PERDUE, R.R. (1993). Rural residents' attitudes toward recreation and tourism development. *Journal of Travel Research*, 31(4): 27-33.
- AP, J. (1992). Residents' perceptions on tourism impacts. *Annals of Tourism Research*, 19(4): 665-690.
- BAUMGARTNER, T.A. & JACKSON, A.S. (1999). *Measurement for evaluation in physical education and exercise science* (6thed.). Boston, MA: WCB-McGraw-Hill.
- BOWDIN, G.; ALLEN, J.; O'TOOLE, W.; HARRIS, R. & MCDONNELL, I. (2006). *Events management* (2nded.). Oxford: Elsevier.
- BRAMWELL, B. (1997). A sport mega-event as a sustainable tourism development strategy. *Tourism Recreation Research*, 22(2): 13-19.
- BRYANT, E.G. & NAPIER, T.L. (1981). The application of social exchange theory to the study of satisfaction with outdoor recreation facilities. In T.L. Napier (Ed.), *Outdoor recreation planning, perspectives and research* (83-98). Dubuque, IA: Kendall P. Hunt.
- BULL, C. & LOVELL, J. (2007). The impact of hosting major sporting events on local residents: An analysis of the views and perceptions of Canterbury residents in relation to the Tour de France 2007. *Journal of Sport and Tourism*, 12(3-4): 229-248.
- CASHMAN, R. (2006). *The bitter-sweet awakening: The legacy of the Sydney 2000 Olympic Games*. Sydney: Walla Press.
- CHANG, S.C. & HUANG, J.H. (2009). Analysing the impacts of hosting sports mega-events on sustainable city development: A case study of the World Games 2009 Kaohsiung. *City Development*, 8: 8-24.
- COLLINS, M.E.; HENRY, I.P. & HOULIHAN, B.M.J. (1999). *Sport and social exclusion: A report to policy action team 10*. London: DCMS.
- CROMPTON, J.L.; VAR, T. & LEE, S. (1998). "Repositioning TPWD and local park and recreation agencies: A technical report completed as part of the Texas outdoors: A vision for the future commissioned by the Texas Parks and Wildlife Department". [<http://www.rpts.tamu.edu/tpwd/reports.htm>]. Retrieved on 5 December 2008.
- DANIELS, M.J. (2007). Central place theory and sport tourism impacts. *Annals of Tourism Research*, 34(2): 332-347.
- DECCIO, C. & BALOGLU, S. (2002). Non-host community resident reactions to the 2002 Winter Olympics: The spill over impacts. *Journal of Travel Research*, 41(1): 46-56.
- DENSCOMBE, M. (2003). *The good research guide: For small-scale social research projects* (2nded.). London: Open University Press.
- DEPARTMENT OF BUDGET, ACCOUNTING AND STATISTICS, KAOHSIUNG CITY GOVERNMENT (2008). "Key economic and social indicators of Kaohsiung City". [<http://dbaskmg.kcg.gov.tw/>]. Retrieved on 20 August 2008.
- DIRECTORATE GENERAL OF BUDGET, ACCOUNTING AND STATISTICS, EXECUTIVE YUAN, R.O.C. (2008). "National statistics". [<http://www.stat.gov.tw/>]. Retrieved on 20 August 2008.

- FINN, M.; ELLIOTT-WHITE, M. & WALTON, M. (2000). *Tourism and leisure research methods: Data collection, analysis and interpretation*. Essex: Pearson Education.
- FREDLINE, E. (2006). Host and guest relations and sport tourism. In E. Gibson (Ed.), *Sport tourism: Concepts and theories* (131-147). London: Routledge.
- FREDLINE, E. (2004). Host community reactions to motor sports events: The perception of impact on quality of life. In B. Ritchie & D. Adair (Eds.), *Sport tourism: Interrelationships, impacts and issues* (155-173). Clevedon (UK): Channel View Publications.
- FREDLINE, E. & FAULKNER, B. (1998). Resident reactions to a major tourist event: The Gold Coast Indy Car Race. *Festival Management and Event Tourism*, 5(4): 185-205.
- FREDLINE, E. & FAULKNER, B. (2002). Variations in residents' reactions to major motor sport events: Why residents perceive the impacts of events differently. *Event Management*, 7(2): 115-125.
- FREY, M.; IRALDO, F. & MELIS, M. (2007). The impact of wide-scale sport events on local development: An assessment of the XXth Torino Olympics through the sustainability report. Paper presented at the Regional Studies Association (RSA) International Conference, Lisbon, Portugal, 2-5 April.
- GARCIA, B. (2003). Securing sustainable legacies through cultural programming in sporting events. In M. de Moragas, C. Kennett & N. Puig (Eds.), *The legacy of the Olympic Games 1984-2000* (314-320). Lausanne (Switzerland): IOC.
- GARCIA, B. (2004). More than a game: Olympic arts programming can increase local participation. *Culture @ the Olympics*, 6(3): 35-40.
- GETZ, D. (1989). Special events defining the product. *Tourism Management*, 10(2): 125-137.
- GETZ, D. (1991). *Festivals, special events and tourism*. New York, NY: Van Nostrand Reinhold.
- GETZ, D. (1997). *Event management and event tourism*. New York, NY: Cognizant Communication.
- GETZ, D. (2005). *Event management and event tourism*. New York, NY: Cognizant Communication.
- GILLIGAN, C. & Wilson, R.M.S. (2003). *Strategic marketing planning*. Oxford: Butterworth-Heinemann.
- GORSUCH, R.L. (1983). *Factor analysis*. Hillsdale, NJ: Erlbaum.
- GRATTON, C.; SHIBLI, S. & COLEMAN, R. (2005). Sport and economic regeneration in cities. *Urban Studies*, 42(5/6): 1-15.
- GRATTON, C. & TAYLOR, P. (2000). *Economics of sport and recreation*. London: E & FN Spon.
- GUILFORD, J.P. (1956). The structure of intellect. *Psychological Bulletin*, 53(4): 267-293.
- GURSOY, D. & KENDALL, K.W. (2006). Hosting mega events: Modelling locals' support. *Annals of Tourism Research*, 33(3): 603-623.
- HALL, C.M. (1989). Hallmark tourist events: Analysis, definition, methodology and review. In G.J. Syme, B.J. Shaw, D.M. Fenton & W.S. Mueller (Eds.), *The planning and evaluation of hallmark events* (3-40). Sydney: Avebury.
- HALL, C.M. (1992). *Hallmark tourist events: Impacts, management and planning*. London: Belhaven Press.
- HILLIER, H.H. (1998). Assessing the impact of mega-events: A linkage model. *Current Issues in Tourism*, 1(1): 47-57.
- HSIEH, T.C. (2006). Human resource management of volunteers in non-profit organization: On recruiting the volunteers of the 2009 World Games Kaohsiung. Unpublished Master's thesis. Kaohsiung (Taiwan): National Sun Yat-Sen University.

- HSUEH, C.Y. (2007). A stakeholder research on event planning of the World Games 2009 Kaohsiung: Perspectives from government, organizer and residents. Unpublished Master's thesis. Tainan: Southern Taiwan University.
- HSU, K.P. & HAUNG, C.S. (2007). The discussion about how Kaohsiung World Games 2009 promote national image. *Journal of National College of Physical Education and Sports*, 20: 139-151.
- INTERNATIONAL OLYMPIC COMMITTEE (1999). Olympic movement's agenda 21: Sport for sustainable development. Lausanne (Switzerland): Sport and Environment Commission.
- JENG, L.J. (2007). Study of strategic analysis of Kao-Hsiung city's success in applying for hosting the 2009 World Games: An application of Porter's five forces analysis. Unpublished PhD dissertation. Taichun: National College of Physical Education and Sports.
- KANG, Y.S. & PERDUE, R. (1994). Long-term impact of a mega-event on international tourism to the host country: A conceptual model and the case of the 1988 Seoul Olympics. *Journal of International Consumer Marketing*, 6(3/4): 205-225.
- KIM, H.J.; GURSOY, D. & LEE, S.B. (2006). The impact of the 2002 World Cup on South Korea: Comparisons of pre- and post-games. *Tourism Management*, 27(1): 86-96.
- KIM, S.S. & PETRICK, J.F. (2005). Residents' perceptions on impacts of the FIFA 2002 World Cup: The case of Seoul as a host city. *Tourism Management*, 26(1): 25-38.
- KLINE, P. (1994). *An easy guide to factor analysis*. London: Routledge.
- LAI, Y.H. (2006). A study of poster design about Games and Host City-Take project "the World Games 2009 Kaohsiung" for example. Unpublished Master's thesis. Kaohsiung (Taiwan): National Kaohsiung Normal University.
- LANKFORD, S.V. & HOWARD, D.R. (1994). Developing a tourism impact attitude scale. *Annals of Tourism Research*, 21(1): 121-139.
- LEONARDESEN, D. (2007). Planning of mega events: Experiences and lessons. *Planning Theory and Practice*, 8(1): 11-30.
- LIEN, H.C. (2006). Assessment of planning and setting up for the grid-tied photovoltaic system. Unpublished Master's thesis. Taipei: National Taiwan University of Science and Technology.
- LIU, H.Y. (2009). A Study of 2009 World Games in Kaohsiung: The Mega Sport Event and City Development. *City Development*, 8: 45-60.
- LI, Y.F. (2006). A study of the relationship between sports facilities and urban re-development: A case study of the sports facilities planning for World Games 2009, Kaohsiung. Unpublished Master's thesis. Taipei: National Taiwan University.
- LONDON ORGANISING COMMITTEE OF THE OLYMPIC AND PARALYMPIC GAMES AND OLYMPIC DELIVERY AUTHORITY (2007a). "London 2012 candidate file". [<http://www.london2012.com/search.php?q=candidate&category=documents>]. Retrieved on 18 July 2008.
- LONDON ORGANISING COMMITTEE OF THE OLYMPIC AND PARALYMPIC GAMES AND OLYMPIC DELIVERY AUTHORITY (2007b). "London 2012 sustainability plan: Towards a one planet 2012". [<http://www.sel.org.uk/uploads/London-2012-Sustainability-Plan.pdf>]. Retrieved on 28 January 2008.
- LORDE, T.; GREENIDGE, D. & DEVONISH, D. (2010). "Local residents' perceptions of the impacts of the ICC Cricket World Cup 2007 on Barbados: Comparisons of pre- and post-games", *Tourism Management*. Hyperlink [doi:10.1016/j.tourman.2010.03.004]. Retrieved on 7 October 2010.
- MADDEN, J. (2002). The economic consequences of the Sydney Olympics: The CREA/Arthur Anderson study. *Current Issues in Tourism*, 5(1): 7-21.
- MA, S.C. (2009). Kaohsiung World Games as a catalyst for sustainable urban development. Unpublished PhD dissertation. Sheffield (UK): Sheffield Hallam University.

- MA, S.C.; EGAN, D.J.; ROTHERHAM, I.D. & MA, S.M. (2011). A framework for monitoring during the planning stage for a sports mega-event. *Journal of Sustainable Tourism*, 19(1): 79-96.
- MA, S.C.; ROTHERHAM, I.D.; EGAN, D.J. & MA, S.M. (2006). Sports mega-events: An approach to sustainable urban development? *City Development*, 2: 97-126.
- MALIZIA, E. & FESER, E. (1999). *Understanding local economic development*. New Brunswick, NJ: Center for Urban Policy Research.
- MASTERMAN, G. (2004). *Strategic sports event management: An international approach*. Oxford: Elsevier Butterworth-Heinemann.
- MENARD, S. (1991). *Longitudinal research*. Newbury Park, CA: Sage.
- MIHALIK, B.J. (2000). Host population perceptions of the 1996 Atlanta Olympics: Support, benefits, and liabilities. *Tourism Analysis*, 5(1): 49-53.
- MIHALIK, B.J. & SIMONETTA, L. (1999). A midterm assessment of host populations' perceptions of the 1996 Summer Olympics: Support, attendance, benefits, and liabilities. *Journal of Travel Research*, 37(3): 244-248.
- MOSCOVICI, S. (1982). The coming era of social representations. In J.P. Codol & D.J.P. Leyens (Eds.), *Cognitive approaches to social behavior* (115-150). The Hague: Nijhoff.
- MULES, T. & FAULKNER, B. (1996). An economic perspective on special events. *Tourism Economics*, 2(2): 107-118.
- NICOSIA, F.M. (1968). Advertising management, consumer behavior and simulation. *Journal of Advertising*, 8(1): 29-37.
- O'BRIEN, D. (2006). Event business leveraging the Sydney 2000 Olympic Games. *Annals of Tourism Research*, 33(1): 240-261.
- PALLANT, J. (2001). *SPSS survival manual: A step-by-step guide to data analysis using SPSS for Windows* (Version 10). Sydney: Allen & Unwin.
- PEARCE, P.L.; MOSCARDO, G. & ROSS, G.F. (1996). *Tourism community relationships*. Oxford: Pergamon.
- PERDUE, R.R.; LONG, P.T. & KANG, Y.S. (1999). Boomtown tourism and resident quality of life: The marketing of gaming to host community residents. *Journal of Business Research*, 44: 165-177.
- PREUSS, H. (2004). *The economics of staging the Olympics: A comparison of the Games 1972-2008*. Cheltenham (UK): Edward Elga.
- RESEARCH, DEVELOPMENT AND EVALUATION COMMISSION, KAOHSIUNG CITY GOVERNMENT (2010). The study of impacts of 2009 World Games on social development of Kaohsiung City. Unpublished report. Kaohsiung City (Taiwan): Government.
- RITCHIE, B.W.; SHIPWAY, R. & CLEEVE, B. (2009). Resident perceptions of mega-sporting events: A non-host city perspective of the 2012 London Olympic Games. *Journal of Sport and Tourism*, 14(2-3): 143-167.
- RITCHIE, J.R.B. (1984). Assessing the impact of hallmark events: Conceptual and research issues. *Journal of Travel Research*, 22(1): 2-11.
- RITCHIE, J.R.B. & LYONS, M. (1987). Olympulse III/Olympulse IV: A mid-term report on resident attitudes concerning the XV Olympic Winter Games. *Journal of Travel Research*, 25(1): 18-26.
- RITCHIE, J.R.B. & SMITH, B.H. (1991). The impact of a mega-event on host region awareness: A longitudinal study. *Journal of Travel Research*, 29(1): 3-10.
- ROCHE, M. (1994). Mega-events and urban policy. *Annals of Tourism Research*, 21(1): 1-19.
- SHIPWAY, R. (2007). Sustainable legacies for the 2012 Olympic Games. *Journal of the Royal Society for the Promotion of Health*, 127(3): 119-124.

- SHIPWAY, R. & BROWN, L. (2007). Challenges for a Regional Cultural Programme of the London 2012 Games. *Culture @ the Olympics*, 9(5): 21-35.
- SHULTIS, J.D.; JOHNSON, M.E. & TWYNAM, G.D. (1996). Developing a longitudinal research program to measure impacts of a special event. *Festival Management and Event Tourism*, 4(1/2): 59-66.
- SMITH, A. (2006). Tourists' consumption and interpretation of sport event imagery. *Journal of Sport and Tourism*, 11(1): 77-100.
- SOLBERG, H.A. & PREUSS, H. (2007). Major sport events and long-term tourism impacts. *Journal of Sport Management*, 21(2): 215-236.
- SOUTAR, G.N. & MCLEOD, P.B. (1993). Residents' perceptions on impact of the America's Cup. *Annals of Tourism Research*, 30: 571-582.
- SPILLING, O.R. (1998). Beyond intermezzo? On the long-term industrial impacts of mega-events: The case of Lillehammer 1994. *Festival Management and Event Tourism*, 5(3): 101-122.
- STEVENS, J. (1996). *Applied multivariate statistics for the social sciences* (3rded.). Mahwah, NJ: Lawrence Erlbaum.
- TABACHNICK, B.G. & FIDELL, L.S. (2007). *Using multivariate statistics* (5thed.). Boston, MA: Pearson Education.
- SHAN, S. (2009). "SAC rejects Kaohsiung's budget for World Games", *Taipei Times*, March 4. [<http://www.taipetimes.com/News/taiwan/archives/2009/03/04/2003437509>]. Retrieved on 19 May 2009.
- TEYE, V.; SÖNMEZ, S.F. & SIRAKAYA, E. (2002). Residents' attitudes toward tourism development. *Annals of Tourism Research*, 29(3): 668-688.
- THORNE, R. & MUNRO-CLARK, M. (1989). Hallmark events as an excuse for autocracy in urban planning: A case history. In G.J. Syme, B.J. Shaw, D.M. Fenton & W.S. Mueller (Eds.), *The planning and evaluation of hallmark events* (153-171). Aldershot (UK): Avebury.
- TSAI, Y.H. (2006). A study of the graphic design for urban image-the World Games 2009 Kaohsiung. Unpublished Master's thesis. Kaohsiung: National Kaohsiung Normal University.
- TWYNAM, G.D. & JOHNSTON, M. (2004). Changes in host community reactions to a special sporting event. *Current Issues in Tourism*, 7(3): 242-261.
- VIGNALI, C.; GOMEZ, E.; VIGNALI, M. & VRANESEVIC, T. (2001). The influence of consumer behavior within the Spanish food retail industry. *British Food Journal*, 103(7): 460-478.
- WAITT, G. (2003). Social impacts of the Sydney Olympics. *Annals of Tourism Research*, 30(1): 194-215.
- WALLACE, S. (2001). Behind the headlines, *The Telegraph*, June 15.
- WANG, W. & THEODORAKI, E. (2007). Mass sport policy development in the Olympic City: The case of Qingdao, host to the 2008 sailing regatta. *Journal of the Royal Society for the Promotion of Health*, 127(3): 125-132.
- WENG, H.M. (2007). The application of operational risk management to test and verify the counter terrorism preparation of Kaohsiung Mass Rapid Transit. Unpublished Master's thesis. Kaohsiung: National Kaohsiung University of Applied Sciences.
- WILLIAMS, J. & LAWSON, R. (2001). Community issues and resident opinions of tourism. *Annals of Tourism Research*, 28(2): 269-290.

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(Subject Editor: Prof. Wim Hollander)