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RESIDENT REACTIONS TO STAGING TOUR DE TAIWAN 2012: COMPARISON OF PRE- AND POST-EVENT

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ABSTRACT

This is the first study of the Tour de Taiwan (TDT) cycling race, which aims to identify and compare host resident perceptions of the impact of staging the TDT (both before and after the event). Data were collected from the host communities at three different stages of the race, located close to either the start or the finish line. For both pre- and post-test questionnaires, 482 out of 964 were obtained for analysis. An impact scale, which comprised of 22 items, was developed based on four factors: general perceptions, community coherence and development, image enhancement and tourism benefits and disadvantages. Host residents differed significantly in the perceptions of event impacts based on different geographical areas. The results also showed a significant change in resident perceptions over time [F (4, 235)= 3.69, p<0.01)]. The findings suggest that overall most residents were in favour of hosting the 2012 TDT. However, the planning stage did not adequately address direct daily concerns of the residents, such as the need for community development and specific economic benefits. Future studies and event organizers should consider the congruence between the image of the event and the image of the destination.

Key words: Tour de Taiwan; Major sport events; Cycling race; Resident perceptions.

INTRODUCTION

The Tour de Taiwan (TDT) is a professional bicycle-racing event of the *Union Cycliste Internationale* (UCI) Asia Tour. Giant Sports Foundation founder King Liu established the event in 1978. The first race began in Taipei and traversed through Western Taiwan, Southern Taiwan, and Eastern Taiwan, and finally ended in Taipei. This cycling tour championship was recognised by the UCI in 2005 and was classed 2.1 for the first time in 2012. The Taiwan External Trade Development Council (TAITRA) has since teamed up with the Chinese Taipei Cycling Association (CTCA) to jointly organise the TDT, which coincides with the Taipei International Cycle Show (Taipei CYCLE). TAITRA has organised Taipei CYCLE for 25 years and has developed it into Asia's largest bicycle exhibition and the world's top three cycle trade events. The event hit a record size in 2012, hosting 1,092 companies (an increase of 15% compared to 2011) and 3,288 booths (an increase of 7.5% compared to 2011) (TAITRA, 2012).

The 2012 TDT took place from 10 to 16 March. The race comprised of seven separate stages and covered approximately 870km of closed public roads. It involved 19 teams and more than 95 riders from 22 countries. The route began in Taipei City and ran through New Taipei City, Taoyuan County, Taichung City, Changhua County, and Tainan City to Kaohsiung City. Each stage was one day in duration, and began and ended in the same host city. More than 182 people were involved in organising the 2012 event in addition to over 1,145 volunteers, comprised of undergraduates and local residents. In order to highlight Taiwan as a tourist destination, two professional sports television channels, ESPN and Eurosport, were paid to broadcast the TDT. The event was broadcast for 30 minutes each day on ESPN reaching 24 Asian countries (approximately 170 million households) and 10 minutes each day on Eurosport reaching 47 European countries (approximately 50 million households). In Taiwan alone, a wide variety of media, including TV, newspapers, magazines and the Internet reached an audience of more than 4 470 000 people. Its value was equivalent to approximately USD$2.1 million. An estimated 43 362 people watched the cyclists along the course of seven stages, and an edited version of the event was developed for DVD (2 hours and 13 minutes in duration). In total, it cost approximately USD$2.7 million to host the 2012 TDT.

In contrast to many other major sporting events (Olympic Games or World Cups), cycling races such as the Tour de France (TDF) do not leave any tangible structures. Nonetheless, there is fierce competition amongst countries in Europe (England, Belgium, Italy, and Spain) to host various stages of the TDF (Bull & Lovell, 2007). Like with many other sporting events, the primary function of hosting cycling races is to encourage people to take up exercise in the host destinations, followed by tourism or advertising benefits (Smith, 2009). The TDF is now the largest annual sporting event in the world and the most popular (free) spectator event (Smith, 2009; Berridge, 2012). One of the main income sources is derived through contributions from local councils wishing to host either the start or the end of the race. Consequently, it is clear that the parallel functionality of hosting cycling races is the main motivation for cities to bid for a stage.

The power of major sporting events to deliver significant change to host cities has been widely acknowledged over the last 30 years. Indeed, the staging of major sporting events is increasingly recognised as one of the development strategies available to cities, regions, or even countries. This phenomenon highlights, "the generally held belief within policy-making circles that hosting such special or hallmark sporting events is hugely beneficial" (Roche, 2001, in Bull & Lovell, 2007:230). Governments usually play a big part in financing such events, and justify the expenditure of tax revenue in annual reports of economic impact. A similar trend is discernible in local government and central government in Taiwan. Examples include events such as the 2005 performance assessment of mega events or festivals (Tourism Bureau, 2005), the 2009 Dragon Boat Festival (Kaohsiung City Government, 2009), and the 2010 Kaohsiung Lantern Festival (Kaohsiung City Government, 2010), to name but a few.

Furthermore, in recent years, the event strategy, such as hosting sporting events, has been regarded by the Taiwan government as a rapid means of promoting tourism and therefore benefiting the local economy. For example, in 2004 the Tourism Bureau developed a flagship project targeting sporting events (Fang, 2007). This included the Taipei International Dragon Boat Competition, the International Siouguluan River White-Water Rafting Race, the TDT

Cycling Race, the World Cup Marathon, the Taroko Gorge Marathon, the Yi-Lan International Collegiate Invitational Regatta, the 10 000 People Sun-Moon Lake Traverse, the Taiwan International Kite Festival and the Double-Handed Dinghy Open-49er. Given the increasing reliance of many cities on hosting major events to catalyse redevelopment and branding, the need to establish effective strategies to evaluate community impacts has become urgent (Ma *et al*., 2006).

It has also been noted that event planners and stakeholders use the views of the community to gauge the success and sustainability of their investment (Williams & Lawson, 2001). For example, the organisers of the London 2012 Olympic Games paid extra attention to strategies, which generated sustainable benefits over the long-term for host communities. In Taiwan, the reports published by both central and local government authorities about the performance assessment of festivals or events have found that most focus on issues such as service satisfaction (transportation, accommodation, food, facility, hotel, etc.), attractions (attendance, willingness to come back, etc.) and economic impact (visitor spending at the events). The participants in almost all of the surveys were visitors. Therefore, the opinions of the host communities have not been carefully considered. In this regard, a better understanding of the comprehensive impacts of major events (sporting events) on host communities will help develop effective event strategies based on constructive partnerships between participants, event planners and visitors.

RESEARCH PROBLEM

Against this background, the purpose of this study was to investigate the perceptions of the host residents of the impact of staging the TDT (both before and after the event). It is important to examine residents' perceptions before and after the event because it offers a better picture of the dynamics of event development. The results obtained prior to the event can help event organisers to identify concerns so that specific problems can be properly addressed and avoided. The investigation conducted after the event can be used to evaluate the success of the event. Nowadays, the TDT has become one of the most well-known scheduled cycling races in Taiwan and nearby regions. However, this major sporting event has not received any attention in relevant research.

Results from this study were expected to contribute to the development of a better understanding of the positive and negative contributions of the event. Furthermore, the results could shed light on how host communities under investigation respond to the impact of the event, which can be beneficial for the public sector and event organisers who will be able to better understand public concerns and gain support from residents through developing appropriate strategies. Such research will also provide a benchmark for future development of the event through taking into account the preferences of local communities. The findings will aid the cross-validation of investigations of various sport events in Taiwan. More importantly, the comparisons between the TDF and the TDT may also assist in the identification of patterns and trends regarding the impact of events (Ohmann *et al*., 2006).

LITERATURE REVIEW

Perceived impacts of sporting events

Previous studies have highlighted the economic impacts of staging events. Economic benefits are related to employment (Masterman, 2004), business leveraging (O'Brien, 2006), providing opportunities for recreational activities (Allen *et al.*, 1993), source of income (Kang & Perdue, 1994) and tourism (Solberg & Preuss, 2007). Social impacts involve an increase in community pride (Waitt, 2003), community engagement (Shipway, 2007), sport participation (Collins *et al.*, 1999) and health promotion (Frey *et al.*, 2007). In addition, environmental projects benefit from cities hosting major events (Preuss, 2004). High profile events, for example, the Olympic Games, are likely to generate an increased interest in natural landscapes (Deccio & Baloglu, 2002).

Deccio and Baloglu (2002) found that staging mega events inflates the prices of goods and services, placing a huge burden on local residents. Consequently, this generates opposition to the events. Ritchie *et al.* (2009) noted that the mismanagement of public funds actually increases costs over time. Various studies have also found that hosting major events has a negative social impact. Cashman (2006) noted that the interests of marginalised groups are frequently ignored. Fredline (2004) suggested that traffic congestion occurs during the construction of event venues or during the event itself. Ritchie *et al*. (2009) noted that crime increases due to an influx of visitors to the host destination. Hiller (1998) suggested that the planning of the event influences the image of the host community held by prospective visitors. Roche (1994) observed that political turmoil could occur due to a lack of community-wide participation. 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 (Gursoy & Kendall, 2006). According to Kim *et al.* (2006), these effects include changes to land use and the pollution of water areas caused by the construction of competition sites and a deterioration of natural resources.

Impact studies of a cycling race

Bull and Lovell (2007) investigated the view of Canterbury residents in the lead up to the 2007 TDF. The majority of residents were aware of the arrival of the event, mainly through newspapers (36.6%), TV (32.7%) and word of mouth (21.5%). Slightly over half of respondents had plans to participate in various activities associated with the TDF. The vast majority of residents believed that the staging of the event had an important economic impact and resulted in increased tourism, with socio-cultural impacts (enhancement of community spirit; increased interest in sport and health; developing cross-cultural experiences), regarded as less important. Overall, the perceptions of the residents were positive. Residents were prepared to put up with temporary negative outcomes (disruption and inconvenience) for the sake of broader community benefits (Bowdin *et al*., 2006).

Desbordes (2007) reviewed two studies on the economic impacts of the 2005 TDF. The first survey was conducted in Digne, whereas the second survey was initiated by the organiser of the TDF and focused on three host cities (Nancy, Gerardmer, and Albi). It showed that host cities benefited short-term from the spending of spectators, increased city awareness and additional tourists. The majority of traders stated they would like the TDF to return to their

city. The findings also led to the conclusion that a significant positive economic impact of the unique sporting event satisfied the host city. However, the study did not reveal the negative impacts on local residents.

Smith (2009) assessed the value of major events as promotional tools for peripheral urban areas with reference to the case of Deptford, which rescheduled an event (Made in Deptford Festival [MIDF]), to coincide with a major event that was part of the TDF. Benefiting from the TDF, Deptford gained valuable local media coverage that helped to develop its image as a day visit destination for Londoners, although wider tourism effects were not expected to attract repeat visitors from elsewhere in Europe. This case showed that any destination could benefit from an event brand if general aspects of each are treated. It is further suggested that more work is required to see how sporting events and other types of events are affiliated with promotional benefits.

Balduck *et al*. (2011) examined the changing perceptions of the impacts of hosting a stage of the 2007 TDF in Ghent. Before the event, residents believed that the TDF was an excellent vehicle to obtain benefits relating to city marketing, cultural interest and consolidation. Subsequent to the TDF, residents perceived substantial positive cultural and image benefits with less negative impacts. In economic terms, Ghent residents did not perceive a significant increase in economic and tourism development. In predicting resident willingness to host the TDF in the future, the positive impact factor of cultural interest and consolidation, the negative impact factor of excessive spending and mobility problems, age and educational level were all significant predictors. The more residents who thought the TDF stimulated economic and tourism development, the less willing they were to support the hosting of the TDF in the following year. Younger residents were more likely to support the hosting of the TDF in the future, whereas higher educated residents were less willing to support the hosting of the TDF. Overall, the majority of residents anticipated the return of the TDF in the future.

The aforementioned studies collectively indicate that the destinations that host the TDF can benefit substantially from increased tourism, increased city awareness, development of cross-cultural experiences and an increased interest in sport and health. However, almost all of these studies were undertaken in the context of a developed society and were limited to the same event, namely the TDF. This case study of the TDT will contribute to literature about resident expectations and perceptions of the hosting of a cycling race in a different continent (Asia-Pacific), and the identification of the respective trends of the TDF and the TDT. More importantly, this is the first time that host resident reactions to the staging of a cycling race in this country will be identified and compared to previous studies.

RESEARCH METHODS

Questionnaire

The tool used for data collection was the tourism impact scale. The questionnaire was divided into 2 sections. Section A captured basic demographic items such as gender, age, occupation, educational attainment, and annual personal income. Section B captured event impact factors by measuring 23 items 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’. The

event impact statements included in this section were 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; Hall, 1992; Lankford & Howard, 1994; Shultis *et al.*, 1996; Twynam & Johnston, 2004). More importantly, to improve the validity of the questionnaires in the pre- and post-event surveys, the questions of the 2 time periods were integrated into the same copy of questionnaires.

Sampling method and survey

Data were collected over 1 week (10-18 March 2012) from the host communities of 3 selected areas, Taipei City, Changhua County and Kaohsiung City, which were close to either the start or the finish lines of the TDT. Two factors were considered important to obtaining a representative sample. On the one hand, the selected three stages were in the north, central and south of Taiwan, which constituted a good geographical coverage. On the other hand, some host communities close to the start or finish lines were in rural areas with under-represented populations, which may lead to skewed data. 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) and weather, were carefully considered. For example, to account for fewer people being available at home on weekdays rather than on weekends, weather restrictions, and limited access to some houses, and site visits to survey locations were scheduled to help reduce these problems. This sampling plan was designed with a specific purpose: to reflect the characteristics of the residents and their proximity to the host areas (Denscombe, 2003). More importantly, we conducted a pilot study in 2011, and our experiences in this research made it possible to pursue a smaller sampling frame in more targeted households.

Three teams of trained research assistants administered the surveys. The research team included undergraduate and master's degree students enrolled in the leisure, sport and tourism management program from three universities in each survey site. Citizens whose residences were closest to the selected survey sites were the most likely to be contacted. All respondents were informed about the purpose of the study and they completed the questionnaire on the spot. Five hundred face-to-face questionnaires were conducted either on the date of, or after the event. Instead of conducting surveys some time prior to, and sometime after the event, the collection plan was devised to avoid the difficulties of reaching representative participants who live in over 30-story apartments in metropolitan areas such as Taipei and Kaohsiung cities.

As participants were asked to complete the questionnaire on the spot, a high return rate of valid questionnaires was obtained. Although the high return rate was partly owing to questionnaire design and the timing of the survey (on the date or after), one must bear in mind a potential shortcoming of the survey is that respondents' opinions are likely to be influenced by the 'atmosphere' of the event. The researchers intended to each reach 500 respondents during the pre- and post-event periods. Ultimately, 482 useable responses of each period were obtained for the study, with a 96% response rate. However, incomplete questionnaires were removed from the MANOVA analysis. This yielded 336 and 335 valid responses (using the list-wise method) for pre- and post-event respectively, with a 69% overall valid return rate. In a population of 8 000, 381 respondents (4.7% of the population)

would be seen as representative and result in a 95% level of confidence with a ±5% sampling error (Israel, 2009). However, the data collection was based on the 'household' unit, with one member of each household completing the questionnaire. In this case, since approximately 7 000 households were targeted in total, the number of completed questionnaires (4.7% of the total targeted households) (n=336, pre-event; n=335, post-event) was adequate.

Statistical analysis of data

A series of statistical techniques were used, including an exploratory factor analysis (EFA) (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 event. The exploratory factor analysis technique was 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). Principal component analysis with varimax rotation was used to extract the impact dimensions. The Kaiser-Meyer-Olkin (KMO) index (should equal to or above 0.6) was adopted to assess the factor-ability of the data (Tabachnick & Fidell, 2007). Factors with an eigenvalue greater than 1 were retained for interpretation. Items with communalities and factor loadings higher than 0.40, were retained and finalised in the factor.

Cronbach's alpha was used to measure the internal consistency of the items that make up the scale. Following the EFA, confirmatory factor analysis using LISREL 8.72 was employed to test the adequacy of the measurement tool (post-event data). Several model goodness-of-fit indices were selected to evaluate the models, including χ^2, Root Mean Square Error of Approximation (RMSEA) (less than 0.08), Comparative Fit Index (CFI) (greater than 0.95), and Normed Fit Index (NFI) (greater than 0.95) (Hu & Bentler, 1999). Chi-square is non-significant and shows that the model fits the sample matrix. However, as indicated by the indices with caution because issues surrounding goodness-of-fit indices remain debated. For instance, RESEA tends to falsely reject models when the sample size is small (Hu & Bentler, 1999). These indices rely differentially on sample size, model complexity and estimated method (Brown, 2006).

ANOVAS, Scheffe's and Dunnett's T3 multiple comparisons were used to investigate any significant differences in host residents' perceptions of the impact of staging the event between the three areas (i.e., Taipei City, Changhua County and Kaohsiung City). A repeated measure MANOVA was performed to examine any changes in the host residents' perceptions of the impact of the event. Impact factors were treated as dependent variables whilst the period of the pre- and post-event survey was the independent variable.

RESULTS

This section presents the results of the demographic profile of the study sample, the factor analysis and discusses the results of the MANOVA to investigate significant differences.

Demographic profile of respondents

Table 1 summarises the demographic profile of the study participants, which are categorised into 'before' and 'after' the TDT. There were 336 participants before the TDT and 335 after

the TDT. Over one half (55%) of respondents in the 'before the event' category were male, 64.9% aged below 40, 45.2% worked as employees, 40.2% were college or university students, and 78.6% of the respondents earned below NT$600 000 (≈ USD$18 750) per year which is less than the national income level (NT$603 367) (Directorate-General of Budget, Accounting and Statistics, 2013). Almost the same proportion of respondents across different demographic characteristics participated in the post-event survey.

***TABLE 1*: DEMOGRAPHIC PROFILES OF RESIDENTS**

Demographic characteristics	**Before the TDT (n=336)**		**After the TDT (n=335)**	
	Frequency	%	Frequency	%
Gender				
Male	186	55.4	181	54.0
Female	150	44.6	154	46.0
Age group				
Below 20 years	44	13.1	42	12.5
20–29 years	77	22.9	79	23.6
30–39 years	97	28.9	101	30.1
40–49 years	51	15.2	52	15.5
50–59 years	43	12.8	40	11.9
60 years and over	24	7.1	21	6.3
Occupation				
Shopkeeper	24	7.1	24	7.2
Student	85	25.3	82	24.5
Employed	152	45.2	156	46.6
Unemployed	11	3.3	13	3.9
Retired	20	6.0	17	5.1
Others	44	13.1	43	12.8
Educational level				
Junior high or below	48	14.3	43	12.9
Senior high school	52	15.5	52	15.5
Occupational school	57	17.0	56	16.7
College/University	135	40.2	137	40.9
Graduate and above	44	13.1	47	14.0
Annual income				
Below 240 000 NTD[a]	140	41.7	138	41.2
240 000–360 000 NTD	54	16.1	57	17.0
370 000–480 000 NTD	38	11.3	38	11.3
490 000–600 000 NTD	32	9.5	31	9.3
610 000–720 000 NTD	27	8.0	27	8.1
730 000–840 000 NTD	14	4.2	15	4.5
850 000–960 000 NTD	7	2.1	6	1.8
960 000 and above NTD	24	7.1	23	6.9

[a] One US dollar was approximately equivalent to 32 New Taiwan Dollar (NTD) at time of study

Factor analysis and reliability

***TABLE 2*: RESULTS OF EXPLORATORY FACTOR ANALYSIS (Pre-event survey)**

Factors	Factor loading	Commu-nalties	Eigen-value	% of Variance	Cronbach 's alpha
Factor 1: General benefits			8.16	22.59	0.91
City government made right decision to host TDT	0.818	0.736			
Would like to see city government host sports events like TDT	0.800	0.672			
Hosting TDT will give local area more opportunities to host other sporting events	0.761	0.654			
TDT will enhance recognition of the local area	0.719	0.619			
City residents' pride has risen because of TDT	0.712	0.672			
Because of the TDT, I will have more recreational opportunities	0.604	0.584			
TDT will increase local people's interest to participate in sports	0.598	0.625			
Hosting TDT will make local area more of a tourist destination	0.546	0.562			
I believe TDT should be actively supported in local area	0.544	0.563			
Factor 2: Community coherence and development			3.44	18.27	0.82
City government listens to residents about their concerns regarding TDT	0.741	0.610			
Hosting Tour de Taiwan will increase local people's interaction	0.714	0.608			
Hosting TDT will enhance the beauty of local community	0.702	0.586			
TDT will provide jobs for local people	0.642	0.703			
TDT will boost this area's long-term economy	0.585	0.465			
Factor 3: Negative impacts			1.43	15.45	0.88
TDT will increase noise	0.884	0.816			
TDT will increase garbage on the street	0.829	0.715			
TDT will result in traffic congestion	0.790	0.690			
TDT will increase the crime rate in local community	0.787	0.724			
Hosting TDT will leave local area with negative image	0.717	0.745			
Factor4: Image enhancement and tourism benefits			1.12	8.05	0.65
TDT will draw national and international attention to this area	0.778	0.613			
TDT will provide a short-term boost to the economy in this area	0.590	0.607			
Visitors to TDT will contribute a sizable revenue to local economy	0.514	0.590			
Total				**64.35**	**0.90**

A principal components extraction with varimax rotation was conducted. For the factor analysis, the number of factors was determined using an eigenvalue equal to or greater than 1.0. Items with loadings, as well as communalities, lower than 0.40 and with double loading, were eliminated (Stevens, 1996). One item did not meet the factor loading criteria and it was therefore excluded from further analysis. For each factor, an alpha coefficient equal to, or greater than 0.50, was the minimum coefficient that could be accepted (Baumgartner & Jackson, 1999).

***TABLE 3*: MEAN AND SD OF IMPACT STATEMENTS (pre- and post-event)**

Statements	Pre-Games M±SD	Post-Games M±SD
1. City government made right decision to host TDT	4.18±0.79	4.16±0.83
2. I would like to see city government host sports events like TDT	4.18±0.82	4.18±0.80
3. Hosting TDT will give local area more opportunities to host other sporting events	4.20±0.79	4.21±0.79
4. TDT will enhance recognition of local area	4.19±0.81	4.25±0.80
5. City residents' pride has risen because of TDT	4.09±0.87	4.11±0.88
6. Because of TDT I will have more recreational opportunities	3.99±0.86	4.06±0.86
7. TDT will increase local people's interest to participate in sports	3.95±0.90	3.98±0.88
8. Hosting TDT will make local area more of a tourist destination	4.08±0.86	4.13±0.86
9. I believe TDT should be actively supported in local area	3.81±0.92	3.80±0.93
10. City government listens to residents about their concerns regarding TDT	3.35±1.07	3.35±1.06
11. Hosting Tour de Taiwan will increase local people's interaction	3.65±0.96	3.72±0.94
12. Hosting TDT will enhance beauty of local community	3.56±1.04	3.58±1.02
13. TDT will provide jobs for local people	3.49±0.99	3.45±1.01
14. TDT will boost this area's long-term economy	3.58±1.02	3.56±1.05
15. TDT will increase noise	3.05±1.09	2.91±1.10
16. TDT will increase garbage on the street	3.17±1.09	3.03±1.09
17. TDT will result in traffic congestion	3.29±1.17	3.19±1.20
18. TDT will increase the crime rate in local community	2.47±1.12	2.37±1.09
19. Hosting TDT will leave local area with a negative image	2.41±1.14	2.27±1.10
20. TDT will draw national and international attention to this area	3.77±1.09	3.85±0.97
21. TDT will provide a short-term boost to economy in this area	3.86±0.90	3.82±0.93
22. Visitors to TDT will contribute a sizable revenue to local economy	3.83±0.90	3.81±0.93

SD= Standard Deviation 5-point Likert scale was reversed for five negative items (items 15~19)

In Table 2 the results of the factor analysis and reliability of data collected by means of the pre-event survey, are presented. A 4-factor solution, representing 22 items, was identified, with 64.35% of the variance explained. The 4 factors were labelled: *general benefits* (9 items); *community coherence and development* (5 items); *negative impacts* (5 items); and

image enhancement and tourism benefit (3 items). Cronbach's alpha coefficient of all sub-scales on the VTIAS ideally ranged from 0.65-0.91, to indicate the internal consistency of each of the factors.

Table 3 shows the mean scores and standard deviations for the samples before and after the event. The overall goodness-of-fit indices showed that the proposed four-factor impact model fits the data (χ^2 (205)= 708.9, CFI= 0.96, NFI= 0.94, RESEA= 0.07). The results confirmed the scales theoretical validity and the four-factor model of perceptions were deemed appropriate for this study.

Perceptions of host residents before and after TDT

ANOVAS were applied to determine whether significant differences existed between the 4 impact factors based on the 3 communities. As shown in Table 4, significant differences were found regarding perceptions of 4 impact factors among the communities investigated in the 3 areas. In comparison to the Taipei residents in the pre-event survey, Kaohsiung and Changhua residents were more concerned about negative impacts of hosting the 2012 TDT. Changhua residents were more optimistic about the benefits, such as general benefits, community coherence and development, as well as image enhancement and tourism benefits than Kaohsiung and Taipei residents. In the post-event survey, no differences were found regarding perceptions of community coherence and development based on the communities in the three areas, whereas significant differences were found for general benefits, image enhancement and tourism benefits and negative impacts. Taipei and Changhua residents perceived a higher level of positive impacts (general benefits and image enhancement and tourism benefits) than Kaohsiung residents and a lower level of negative impacts than Kaohsiung residents.

***TABLE 4*: ONE-WAY ANALYSIS OF VARIANCE EXAMINING DIFFERENCES IN PERCEPTIONS OF IMPACT FACTORS OF HOSTING AREAS**

Factors	Pre-event			F	Post Hoc	Post-event			F	Post Hoc
	K	C	T			K	C	T		
General benefits	3.78	4.54	3.87	84.82***	C>K C>T	3.88	4.23	4.21	14.72***	C>K T>K
Community coherence & development	2.99	4.09	3.16	119.13***	C>K C>T	3.40	3.60	3.56	2.40	
Image enhance-ment & tourism benefits	3.54	4.30	3.62	64.07***	C>K C>T	3.72	3.81	3.95	4.31***	T>K
Negative impacts	2.92	3.05	3.32	7.44**	T>K T>C	2.99	3.43	3.33	10.55*	T>K C>K

K= Kaohsiung City; C= Changhua County; T= Taipei City *p<0.05; **p<0.01; ***p<0.001

A repeated measure MANOVA was performed to investigate the changing perceptions of the pre- and post-event impact (Table 5). Four dependent variables were used: general benefits, community coherence and development, negative impacts and image enhancement and

tourism benefits. The independent variable was the mega-event. There was a statistically significant difference between the pre- and post-event on the dependent variables: F (4, 235) = 3.69, p<0.01; Wilk's Lambda= 0.94, Partial eta squared= 0.06. Univariate tests were employed to analyse which impact dimensions were significantly different over time. An inspection of the mean scores indicated that post-event reported slightly higher levels of general benefits (M= 4.19, SD= 0.63) than pre-event (M= 4.01, SD= 0.65); whereas post-event showed higher levels of negative impacts (M=3.44, SD= 0.85) than pre-event (M= 3.19, SD= 0.87). Overall, perceived benefits (general benefits, community coherence and development and image enhancement and tourism benefits) had higher mean scores than expected benefits. This suggests that local residents had higher expectations of the benefits that the TDT would generate for their community to some degree, than were met.

***TABLE 5*: REPEATED MEASURES MANOVA RESULTS BEFORE AND AFTER TDT**

Factors	Mean		Mean Diff	F	p
	Before	After			
General benefits	4.01	4.19	+0.18	10.71**	0.001
Community coherence & development	3.41	3.53	+0.12	2.96	0.087
Image enhancement & tourism benefits	3.75	3.86	+0.11	2.63	0.107
Negative impacts	3.19	3.44	+0.25	9.29**	0.003

All items were assessed on a 5-point scale (1= strongly disagree; 3= no opinion; 5= strongly agree).
N=235 *p<0.05 **p<0.01

The positive impacts that were expected prior to the TDT included general benefits (M= 4.01), followed by image enhancement and tourism benefits (M= 3.75) and community coherence and development (M= 3.41). As per the pre-event survey, the highly perceived positive impacts subsequent to the TDT were general benefits (M= 4.19), followed by image enhancement and tourism benefits (M= 3.86) and community coherence and development (M= 3.53). The largest gap score (0.18) between the pre- and post-event surveys of positive impacts was for general benefits. Expected costs (M= 3.19) had a significantly lower mean score than perceived costs (M= 3.44), indicating that local residents initially had 'high' expectations about the negative impacts of the TDT. However, throughout the phases of planning and event management, the negative impacts of the TDT were lower than anticipated. It should be noted that of all the impact factors, the negative impacts created the largest gap score between the two periods.

DISCUSSION AND IMPLICATIONS

The principal purpose of this study was to assess host residents' views and perceptions of the impact of staging the 2012 TDT. Host residents' perceptions of the positive and negative impacts changed significantly over time. In the lead up to the hosting of the TDT, the residents believed that the event could bring general benefits by enhancing Taiwan's international image, which would increase tourism. However, they adopted a neutral attitude toward the negative impacts. In line with the pre-event expectations, the post-event

perceptions indicated that the TDT generated more benefits and less negative impacts than originally expected in the host cities. Overall, the findings of this study are partially similar to Bull and Lovell (2007) and Balduck *et al*. (2011). Before the arrival of the TDF, Canterbury residents anticipated that the event would result in more benefits for the economy, the country's image, and tourism, which would have less of a socio-cultural impact. Ghent residents had high expectations of image and cultural benefits rather than the development of the economy and tourism. After the TDF, Ghent residents did perceive cultural and image benefits and less negative impacts, which is similar to the host residents of the TDT. If the primary objective of both the TDT and the TDF is to promote the host destination to the world, their influential stakeholders (the host residents) have clearly recognised this fact.

The TDT is staged across Taiwan's seven main cities over one week. Unlike each stage of the TDF that starts and finishes in different cities, the start and finish lines of the TDT are in the same city in each stage. As Balduck *et al*. (2011) observed a major event of this kind might only have a limited time effect and a small impact on each host city. This is more the case for the 2012 TDT than it is for the TDF. It is reported that the 'Taipei CYCLE' is perhaps the sole and prominent affiliated activity organised because of the TDT. In contrast, the host destinations of the TDF, for example, Canterbury and Ghent, took the opportunities to organise social and cultural activities prior to, and during the race week, in order to broaden local residents' experiences (Bull & Lovell, 2007; Balduck *et al*., 2011). Therefore, residents held opinions about the impacts of the 2012 TDT on a shorter-term basis. Conversely, our study also suggests that the majority of residents were informed of the arrival of the TDT and related news by public media (newspaper, TV, the Internet). When event organisers and local authorities consider the inclusion of more social activities into a broader TDT network in the future, local and national media broadcasts will provide the required intense publicity. This should encourage the host residents to become involved in the TDT, and probably even more previously non-sports enthusiasts will be attracted to the event because of its 'carnivalesque atmosphere.'

Residents' perceptions of impacts of the 2012 TDT in the three areas were compared. Before the arrival of the event, Changhua residents viewed the impacts more positively than Kaohsiung and Taipei residents. After the event, Changhua residents perceived fewer benefits than expected prior to the event. Specifically, Changhau and Taipei residents substantially perceived general benefits than Kaohsiung residents, while Taipei residents who lived in the capital city earned much attention from national and international media and enjoyed revenue brought in by tourism. Although the selected communities of Kaohsiung were located in tourist areas (Love River area), residents received less tourism benefits than Taipei (commercial area) and Changhua (tourist area) residents.

To some degree, the TDT aims to stimulate tourism growth for the host destinations and Taiwan as a whole, as each stage of the event is subsidised through tax revenue. As Pennington-Gray and Holdank (2002:178) argues, "Many events can be insular; the spectator merely comes to attend the event and then leaves, resulting in little net gain for the tourism venues". Kaohsiung residents also perceived a higher level of negative impacts than the Taipei and Changhua residents. This may be due to the traffic congestion they experienced. Consequently, Kaohsiung residents received less benefits and higher negative impacts than other host destinations. This implies that local tourism providers should work closely with the

cycling association to combine event and tourism packages based on the needs of local communities. A more proactive approach would help to alleviate residents' concern while winning a high level of support for hosting the TDT in future.

Regarding pre-event perceptions of positive impacts, residents had high expectations of general benefits, as well as image and tourism benefits, but considered community coherence and development to be the least positive impact. The perceived benefits were higher than expected, except regarding community coherence and development, as issues such as an increase in jobs for local people, a boost to the area's long-term economy and local social interactions, were the least perceived benefits. This finding is similar to the study by Balduck *et al*. (2011). As indicated by Desbordes (2007), a city that staged the TDF would indeed benefit from the short-term spending of spectators, an increased awareness of the urban locales and a boost to tourism. The residents hosting the TDT may well recognise this, but they are also sceptical about how they could substantially benefit over the longer-term, especially when a very low percentage of them are shopkeepers (7%). Therefore, the social exchange aspect may be perceived as less important.

Residents took a neutral attitude toward negative impacts prior to the 2012 TDT and perceived fewer impacts than expected. Issues regarding traffic congestion, garbage and noise were expected to have the largest negative impacts, followed by crime rate, with negative image considered to be the least significant problem. Post-event perceptions suggest that actual congestion and overall environmental impact were less than originally expected. Our findings reveal gap scores for negative impact that were the largest and positive, suggesting that these issues did not occur as much as anticipated during the event. However, impact of traffic was still perceived as the most serious problem. This may be unavoidable as this is also the case in the TDF (Bull & Lovell, 2007; Balduck *et al*., 2011). In fact, it was observed by the investigators that there was no information available about road closures and traffic control before the event, especially when those routes went through city centres during rush hour. Many had no idea about why they were stuck on the road for half an hour or longer until they saw the cyclists pass by. In future, event organisers and local authorities of the host cities will need a plan that allows local residents to select their optimal traffic route. Negative perceptions regarding hosting the event could then be managed.

CONCLUSIONS

Overall, the findings suggest that most host residents supported the hosting of the 2012 TDT because they believed it would bring positive change to the local area. However, more direct daily concerns, such as the need for community development and specific economic benefits, have not been sufficiently addressed in the planning of the TDT. Host residents differ significantly in the perceptions of event impacts based on different geographical areas. For this reason, strategies and event-related activities that would create more interaction with communities and promote each host destination should be designed in accordance to their needs. The event will be restaged in host cities in the future. Information based on host residents' pre- and post-event perceptions may assist event planners, sponsors and entrepreneurs to better understand the factors that are vital to the success of future events, but were not well managed during the planning stages.

This was the first time that host resident reactions to the staging of a cycling race in Taiwan were analysed and from this analysis, several contributions were made to the subject area. Importantly, particular insight was gained in the host residents' perceptions of impacts of the TDT. The current study is the only study conducted that focused beyond TDF. In comparison to the results of previous studies, the results of this study offer a better understanding of the dynamic process (pre- and post-event) of staging a cycling race. While most previous research was restricted to investigating only one city or stage that hosted the TDF, this research examined residents' perceptions of event impacts covering wider geographical areas. The findings of this research can assist in the overall strategic planning of the event, as well as planning for each host destination.

The collection of data during the event and the post-event period presented special difficulties for this study. It must be noted that using a short interval to determine changing opinions about expected and perceived impacts may not be sufficient. However, as the cities and the communities have hosted the TDT for a long period, it could be assumed that local residents are familiar with the issues investigated. Researchers should be encouraged to regularly collect information as the cumulative data might assist event organisers, sponsors and local authorities to make wise decisions.

Since research on the perception of sporting events of this type has only just begun to flourish, local residents are the most targeted stakeholders. However, various stakeholders may perceive the event in a different way. In addition to the views of residents that need to be considered, the opinions of stakeholders, such as sponsors, media, athletes, international sport federations, local authorities and visitors share the common goal of achieving a successful event. It is therefore suggested that a wider range of stakeholders should be included in future studies to facilitate a comprehensive understanding of event impacts.

One of the main purposes of each stage is to promote the host area to the world through events, including the TDT and the TDF. For the TDT, the event tourism strategies of each stage should be addressed in an overall package because its distance and the number of host cities is on a smaller scale and geographically concentrated, in contrast to the TDF. For the TDF, the contest is normally composed of 20 stages covering a far longer distance than those of the TDT. Strategies in each stage may be on a project-by-project basis. Therefore, future studies and event organisers should consider not only the congruence between the event image and the destination image, but also the differences of such congruency relating to tourism strategies in events of different scales and in different geographical areas.

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