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A comparison of survey methods to estimate visitor expenditure at a local event

by

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ABSTRACT

The aim of this study was to investigate the relationship between special events' expenditure and "social bravado" or peer pressure effects. The purpose was to compare the results of recalled expenditure survey data using individual vs. individual but within group interviews, with a view to establishing the extent to which "social bravado" or peer pressure affects the results.

This study replicated Faulkner and Raybould's (1995) research which found the diary recall method more accurate than interview recall; food and beverage expenditure recorded in diaries was found to be less than with recall interviews and expenditure by females was less than males. They suggested this was possibly due to a "social bravado" effect when males reported this expenditure in the presence of their peers. This study explored the "social bravado" factor using expenditure survey data, collected singly and singly but within groups. The findings strongly echo Faulkner and Raybould's (1995) by eliciting some significant differences in reported expenditure particularly where peer pressure may have been involved.

Results and discussion in the paper confirmed previous findings about the effects of memory decay and peer pressure. These are examples of specific behavioural characteristics that can influence survey results.

Key Words: local events, methodology, peer pressure.

INTRODUCTION

Event monitoring generally involves retrieving information from visitors, local residents and businesses, participants, sponsors, governments and others. Visitor surveys are often based on recall or diary questionnaire techniques, where there is a delicate balance between the requirements of reliability and cost effectiveness. Faulkner and Raybould (1995) undertook a study of the 1993 Australian University Games in Brisbane, which compared results of two different methods of expenditure data collection (the recall and diary) to determine the most appropriate method for measuring expenditure impacts of events.

Research by Faulkner and Raybould (1995) questioned the reliability of recall questionnaires and found significant differences with gender responses. In particular, they found significant differences in three areas of expenditure (entertainment, food and beverage and shopping) using the recall and diary based techniques. They suggested that the lower expenditure reported on entertainment and shopping using the recall method may be possibly due to memory decay. However, in the case of food and beverage expenditure the amounts reported using the diary technique were less than those based on recall. They suggested this was possibly related to peer pressure or 'social bravado'.

The term "social bravado" is meant to indicate a friendly companion-like boasting or swaggering pretence, (Macquarie Dictionary, 1982:247). In this study, "social bravado" is related to a homogeneous group of students related by their culture, associated sporting and social activities. Faulkner and Raybould (1995) use the term "social bravado" to add support to their explanation of why in the case of food and beverage expenditure amounts reported via the diary technique were less

than those based on recall, reporting a greater difference among males. They say this "social bravado" effect may have occurred because respondents were asked to report their expenditure on food and beverage in the presence of peers (Faulkner and Raybould, 1995: 80).

A local special event, the 1995 Northern Conference University Games (NCUSA) in Lismore, NSW, was a chance to replicate the Faulkner and Raybould's (1995) research. With the support of the NCUSA committee, a visitor expenditure survey was carried out. Recall and diary questionnaire techniques were compared to ascertain whether the 'social bravado' effect or peer pressure affected survey results. As well, differences in gender responses were investigated. The study of the Lismore NCUSA games explored this "social bravado" factor using interviews undertaken singly, and singly but within groups.

REVIEW OF RECALL AND DIARY QUESTIONNAIRE TECHNIQUES

Event tourism, Getz (1991) argues, is the "systematic planning, development, and marketing of festivals and special events as tourist attractions, development catalysts, and image builders for attractions and destination areas" (Getz, 1991:338). Further, Getz (1991) suggests, it is important that assessments of event impacts are reliable and valid, given the immaturity of event-related research (Getz, 1991:68). Thus, rigorous research methods are essential for the measurement and evaluation of event impacts.

Event assessments often begin with an estimation of visitor numbers and their expenditure. A common method of estimating visitor expenditure is through

surveying a probability sample of visitors. Two popular techniques used are exit interviews and daily expenditure records entered in a diary, during the visit.

An assumption implicit in exit interviews is that visitors can accurately recall their spending, suffering no memory decay. However researchers such as Pearce (1982), Pearce (1988), Howard, Lankford, and Havitz (1991), Frechtling (1994) and Faulkner and Raybould (1995) found, that some visitors cannot recall their activities or expenditures reliably, casting some doubt on the use of this popular technique.

Recall bias or error during an exit interview, seems to fall into two types; omission (under reporting) and telescoping (over reporting). According to Rylander, Propst and McMurtry (1995), omission tends to increase as the complexity of transactions increases and the length of time between the event and the interview increases. Frechtling (1994) suggests that the telescoping effect includes over-reporting during the recall period, possibly due to memory decay and/or prestige bias. The status of an activity contributes to its prestige bias and thus is linked to social desirability. It is argued then, the effect of prestige bias is somewhat similar to the effect of peer pressure. Their common goal is social desirability.

Potential recall bias due to peer pressure would partly depend on interview technique distinctions, particularly between individual interviews and individual but within group interviews. As suggested by Latham (1991), random selection for individual interviews within a group are important as the unspoken leader or loudest member will often select him or herself. Bias can be introduced if this

member is not representative of the group. Therefore, in this study interview techniques were designed to minimise potential bias.

In order to overcome potential recall bias difficulties found in visitor expenditure estimates during an interview, previous researchers have used a visitor diary, where daily activities and expenditure were recorded during the visit. Diary records of visitors' activity and expenditure maybe an alternative although not without their own problems and commitment by the record keeper is vital. Diary methods are not inherently more accurate.

Generally diary records are mailed back to the research team when the visit is completed, (Mak, Moncur and Yonamine, 1997; Howard, Lankford and Havitz, 1991; Rylander, Propst and McMurtry, 1995). Considerable resources can be consumed if multiple follow up contacts with respondents are necessary to get the diary returned. Frechtling (1994) argues, that a low response rate from mailed-back diaries is likely to produce a non-response bias. This bias is sometimes adjusted by socio-demographic weighting and/or wave analysis. Follow up mailings are often referred to as waves. Wave analysis is a surrogate procedure for estimating non-response bias. Using wave analysis, Rylander, Propst and McMurtry (1995) found only six significant differences between early respondents and late respondents among 172 variables. However, they cautioned that these variables could be critical and that generalisation was inappropriate.

Nevertheless in the travel industry, Shaw and Ling (1992) found that negligible differences existed between early respondents and late respondents (within a homogeneous group of agents). They suggested that resources used to follow up

non-respondents could be better utilised. Depending on the nature of the respondent population, non-response bias from diary returns seems to pose fewer problems than significant visitor under-estimations found through memory decay and recall bias at interview, as demonstrated by Faulkner and Raybould (1995).

Early research by Pearce (1988) suggested that gender differences had little effect in recall of visitor perceptions. Response bias and wave analysis of mailed surveys were investigated by Langford, Buxton, Hetzler and Little (1995) who found that significantly more females than males made up the non-respondent group.

Faulkner and Raybould (1995) in their event study, found that in both the diary and recall methods, average visitor expenditure reported by males was higher than females. A further breakdown of expenditure by gender and survey method revealed, that both genders reported higher expenditure for entertainment and shopping via the diary method. However, in the case of food and beverage expenditure amounts reported via the diary method were less than those on recall. This was particularly the case for male respondents who reported the highest expenditure in food and beverage. Faulkner and Raybould (1995) speculated that "this anomaly can be explained in terms of a "social bravado" effect as the recall method involved respondents being asked to report their expenditure on food and beverage in the presence of peers" (Faulkner and Raybould, 1995:80).

The 1995 Northern Conference University Games (NCUSA) in Lismore, NSW, replicated Faulkner and Raybould's (1995) research. A visitor expenditure survey was carried out. Recall and diary questionnaire techniques were compared to ascertain differences in expenditure estimates and gender responses.

The aim of the study was to contribute to the research investigating the most accurate ways of obtaining data on expenditure at events. The objective was to compare expenditure estimates obtained by some of the most frequently used methods. In particular, the researchers were interested in behavioural factors (such as social bravado) that may cause variation in claimed expenditure patterns.

The research attempted to compare the accuracy and reliability of visitor responses through recall at exit interviews with responses from diary records. The diary method was split into two: those collected at the games and those mailed back. The purpose of this was firstly, to overcome potential low response rates associated with mail-back diaries and secondly, to perform a sub-test to see if there was a difference in results between the two diary methods. Low response rate from mail back can introduce bias (Fretchling, 1994). Having two methods of data collection can assist overcome this prejudice. In addition, the researchers in this study wished to investigate whether different methods of submitting expenditure diaries would produce different estimates.

A further objective was to compare interview results of individuals alone with individuals as part of a larger group. The aim was to identify differences between the single and single within-group interviews, with a view to establishing the extent to which "social bravado" or peer pressure affects results. It was hypothesised that male respondents would over-estimate their recalled food and beverage expenditure at a within-group interview, as a result of peer pressure.

THE 1995 NORTHERN CONFERENCE UNIVERSITY GAMES (LISMORE)

The 1995 Schweppes Northern Conference University Games (NCUSA) were hosted by Southern Cross University (SCU) Lismore, 2-6 July, 1995. This annual event attracted participants from universities in the Queensland and Northern NSW regions. Approximately 1600 people attended the Games. Of these, 1300 were participants in 14 sports while approximately 300 were officials, volunteers and supporters. Sports facilities at Southern Cross University were used along with local sports fields. A range of venues throughout the Lismore region were used for these games.

Methodology

The survey objective was to obtain visitor expenditure on: accommodation, entertainment, food and beverage, shopping/souvenirs and local transport, by four parallel survey methods to compare the results. The four survey methods were: individual recall interview, individual recall interview within a group, diary collected on the final day of the Games, and mail-back diary. Both diary methods required respondents to record daily expenditure for each of the categories, which was then totalled. Respondents participating in the interviews were simply requested to recall total expenditure over the 4 days, in each of the categories.

There were two stages of data collection. The first stage was the selection of a random sample of every fourth visitor registering at the accreditation desk on the first day of the event. After explanation and agreement, the participant's demographic details were recorded and expenditure diary distributed in which participants were asked to record daily expenditure. Every second diary distributed was to be returned by mail, while the other was to be collected by the

research team, on the final day of the Games. Demographic details were coded to assist with the diary response on return. An incentive prize of fashionable sunglasses (x 2) was offered, and a reply paid envelope was distributed to the participants.

The second stage of data collection was the selection of a random sample of every fourth visitor (excluding those with diaries) at the entrance to the sports venues used on the final day of the Games. Each participant was asked to recall his/her total expenditure in each of the categories, during the Games. Every second interview was held alone, apart from colleagues, while the other was held within a group of colleagues. From the sample of 150 individual recall interviews, 69 were conducted alone while 81 were conducted within a group of colleagues or peers. All interview questionnaires (100%) were usable.

As with Faulkner and Raybould's (1995) study there was consistency across both survey methods using the same questions for both the interview and diary methods. The demographic details were also recorded in the same way. Thus variations in responses could not be due to instrument bias.

It was assumed that being a homogeneous student group, there would be no significant variations in the ages and spending patterns of the visitors. The response rate for the combined recall interviews was 150 (100%) compared with the combined diary records of 83 (32.5%). Of the 110 diaries distributed on day one, only 32 were ready for collection on the final day of the Games. Of the 140 diaries distributed for mail back, 51 were returned, making a combined total of 83 diary records.

It is recognised that the response rate for mail-back diary returns was low, but it is within the modal response rate for mail surveys found by Green, Tull and Albaum (1988). In all, 48 diaries were returned in the first wave. Follow up mailing managed to increase responses by only 3, making a total of 51 diaries returned.

Results

As Faulkner and Raybould (1995) noted, response bias may occur due to attrition with the diary technique. This can be tested by comparing the demographic profiles of those first approached with those who returned diaries. Analysis using t-tests found no significant difference in values of demographic variables, between those who were approached for an interview and those who returned diaries. Furthermore, there was no significant difference between the two diary sub-methods.

There was one exception, accommodation, where the results may over-represent those staying in university accommodation at the expense of those staying in hotels and motels. Of the diaries issued, 48% were given to those staying in university units and 57% of these were returned. By contrast, 36% of diaries issued were given to those staying in local hotels and motels but only 25% were returned. Thus, bias (if any) will be towards those staying in university accommodation and away from those staying in hotels and motels, but expenditure of those two groups shows no significant difference in any category. No other evidence of response bias was found. There were no significant differences between any results obtained by the collected diary and the mail back diary methods. This indicates that the lower response rate from the diary mail back method did not in this case produce a bias

compared with other diary results. Hence, the result for the two diary methods were combined.

Demographic data was obtained from survey participants for both the diary and recall interview methods.

Insert Table 1 about here.

Table 1 provides a demographic profile of the survey participants. Of the total respondents 46.5% were female and 53.5% male. As could be expected with a university based sports event, the majority of respondents (62.5%) were under 21 with 95% of respondents under 30 years of age. The mean age was 21.3 years. In addition, 87.8% of respondents were competitors in the Games.

The visitor survey found that over three-quarters of respondents either stayed at the university (42.5%) or used Lismore's hotels/motels (35.8%) for accommodation. The remainder were distributed between visiting friends and relatives (VFR) (9%), caravans (6.0%), rented units (3.0%) and others (3.8%).

While some participants were involved in several sports, most were only involved with one sport. The highest proportion were participants in team sports - touch football, rugby union, netball and soccer.

Mean Visitor Expenditure

Table 2 shows the mean expenditure over four days, by expenditure categories and by type of respondent involvement.

Insert Table 2 about here.

The NCUSA Games were held over four days. The expenditure per day may be calculated by dividing the total mean expenditure by four.

Respondents were asked to estimate their expenditure on accommodation, entertainment, food & beverage, souvenirs/shopping and local transport. The total average expenditure was $233.05, with almost half being spent on food and beverages.

Expenditure by Gender

Insert Table 3 about here.

As seen in Table 3, there was a significant difference between the mean total expenditure by males ($255.62) and that of females ($207.49) ($t = 3.07$ $p = .002$). This was largely attributable to reported expenditure on food and beverage. There was no significant difference between female and male expenditure on any other item.

Expenditure by Survey Method

As shown in Table 4, the weighted mean total spending reported by the diary method, $254.50, significantly exceeded that reported by the recall interview method $217.47 ($t = 2.2$, $p = 0.029$). The difference in these reported expenditures may be due to memory decay, even though the time period was short and the trip

was not very complex. For every expenditure item, the diary method consistently produced higher values than the recall method, and in the cases where values differed significantly, it would be vital in further studies to determine which is more accurate, and what are the underlying behavioural factors causing bias.

Insert Table 4 about here.

Expenditure on Accommodation by Survey Method

Table 5 provides a comparison of the mean expenditure on accommodation by each of the survey methods.

Insert Table 5 about here.

There was a significant difference in accommodation expenditure between the diary mean of $92, and the interview mean of $77 ($t = 2.27$, $p = 0.024$). There was also a significant difference between the mean from the within-group interviews ($70.34) and that reported for all other methods ($t = 2.65$, $p = 0.009$). It appears that respondents at recall interviews reported a lower range of expenditure on accommodation, particularly those interviewed within their group of colleagues.

With package tours, Frechtling (1994) points out that visitors cannot always attribute expenditure to specific items, having paid one fee for many items. As accommodation was included in the students' package trip, perhaps the lower reported difference in accommodation expenditure was due to them not knowing the exact cost of the accommodation or in some cases they may simply have forgotten this detail.

Expenditure on Entertainment by Survey Method

Insert Table 6 about here.

Table 6 reveals there was a significant difference in entertainment expenditure between the diary mean of $13.62, and the interview mean of $7.95 ($t = 2.16$, $p = 0.032$). Entertainment is a category where there is some scope for variation. Reported diary expenditure is greater than that based on recall at interview. Again, this difference in expenditure could be due to memory decay, even though the time period was short.

Expenditure on Food and Beverage by Gender and by Survey Method

Insert Table 7 about here.

Table 7 shows there was a significant difference between mean food and beverage expenditure reported generally by females ($89.04) and by males ($138.96), ($t = 4.98$, $p = 0.000$).

However, Table 7 specifically reveals:

- There were conflicting findings in respect of food and beverage expenditure reported by males.

- There was a significant difference in food and beverage expenditure reported by males within-group interviews $152.83, and the mean for *all* other

categories (of both genders) $106.74 ($t = 3.19$, $p = 0.002$). There were no significant differences in food and beverage expenditure between the means reported by different methods overall (using ANOVA, $F = .5524$, $p = .6470$).

- The significant difference in food and beverage expenditure between the mean spending lends support to the hypothesis of 'social bravado' or peer pressure effects.

This is a potentially highly interesting finding because the reported value of $152.83 by the individuals within-groups is clearly higher that other reported expenditure. It happened only for males and only for the food and beverage category. It might be interesting in a later study to separate food from beverage expenditure.

Summary of Analysis of Mean Visitor Expenditure by Gender and by Survey Method

Table 8 provides a summary of mean expenditures by category, by gender and by survey methods. Note that the diary methods have been combined using a weighted average, as there was no significant difference between the two diary sub-methods.

Insert Table 8 about here.

Table 8 shows major differences between males and females and between survey methods. It further highlights the effect that peer pressure may possibly have on claimed expenditure in within-group interviews, and demonstrates the existence of

further possible anomalies. Females reported accommodation expenditure at a significantly lower level (t = 4.47) within-group interviews and both genders reported marginally lower travel expenditure at within-group interviews. Possibly other factors are at work in the two interview situations. For example, it could be that distraction of peers and the need not to keep them waiting, could cause the within-group interview responses to be less thoughtful and considered. This issue could be the basis for a further study.

CONCLUSIONS

With regard to diary non-response bias caused by low diary returns, this study echoes Faulkner and Raybould's (1995) findings that bias does not seem to be a problem, possibly due to a group of relatively homogeneous respondents, young university students interested in sporting activities. There were no significant differences reported between those who had their diary collected on the final day of the Games and those who returned their diary by mail.

This research confirms previous findings suggesting that the recall interview technique may result in lower estimation of visitor expenditure in certain key areas owing to memory decay. This seems to be true in the reporting on accommodation and entertainment. It appears that 'social bravado' or peer pressure only affected males, and only in relation to reporting of food and beverage expenditure.

These findings add weight to Faulkner and Raybould's (1995) research. The findings suggest the need for some specific research on how males recall and record expenditure on items where status with the peer group may be involved.

Furthermore, results based on survey methods used at special events need to be viewed critically due to the potential for response bias.

This study has suggested that, there is a need to examine underlying behavioural factors amongst respondents such as peer pressure, memory recall, distraction or urgency to get away. We suggest these issues are a key to selecting an appropriate survey method for data collection.

A useful step for further research is to identify which method of data collection at such events is actually more accurate. This would involve finding an event where average expenditure on various items was known from the event organisers, so that this could be compared with estimates based on survey data from participants.

Table 1 Profile of Respondents n = 233		
		Percent %
Gender	Female	46.5
	Male	53.5
Age	15 - 20 years	62.5
	21 - 30 years	32.5
	Over 30 years	5.00
Place of Residence	Northern NSW	10.8
	Northern QLD	10.5
	Southeast QLD	66.8
	Other	12
Accommodation	Caravan	6.0
	Hotel	35.8
	Rented Unit	3.0
	University	42.5
	VFR *	9.0
	Other	3.8
Type of Involvement	Competitors	87.8
	Supporter	7.0
	Official	5.3

*VFR - visiting friends and relatives

Table 2
Mean Expenditure by Category and Type of Involvement

Expenditure Item	Total Exp (4 days) $Mean	Competitor Total $ Mean	Official Total $ Mean	Supporter Total $ Mean
Accommodation	82.29	85.24	111.56	27.50
Entertainment	9.99	9.29	16.83	10.60
Food & Beverage	113.89	117.45	110.44	82.65
Souvenirs	13.02	11.60	29.17	12.10
Local Transport	13.86	10.29	49.39	16.30
Total	**233.05**	**231.83**	**317.39**	**149.15**
n	**233**	**204**	**20**	**9**

Table 3 Expenditure by Gender		
Expenditure Item	**Female** **Mean total expenditure** **$**	**Male** **Mean total expenditure** **$**
Accommodation	83.21	81.37
Entertainment	8.07	11.93
Food/beverage	89.04	138.96
Shop/souvenirs	13.53	12.49
Transport	13.63	14.10
Total	**207.49 ***	**255.62 ***
n	**115**	**118**
*** test is significant at 0.05 level**		

Table 4
Expenditure by Survey Method

Expenditure Item	Recall Mean total expenditure	Diary Mean total expenditure	T value
Accommodation	76.03	91.68	2.27*
Entertainment	8.19	13.18	21.6*
Food/beverage	111.92	119.22	0.55
Shop/souvenirs	10.51	17.37	2.53*
Transport	13.31	13.82	0.21
Total	**217.47***	**254.50**	
n	**150**	**83**	

*** test is significant at 0.05 level**

Table 5
Comparison of Mean Expenditure on Accommodation by Survey Method

Survey Method	Accommodation $	Test for significance at 95% level
Collected diary	94.22	No
Mailed-back diary	90.08	No
Mean diary	92.00	Yes
Individual recall alone	82.71	No
Individual recall within-group	70.34	Yes
Mean Interview	77.00	Yes

Table 6
Comparison of Mean Expenditure on Entertainment by Survey Method

Survey Method	**Entertainment $**	**Test for significance at 95% level**
Collected diary	13.34	No
Mailed-back diary	13.80	No
Mean diary	13.62	Yes
Individual recall alone	6.60	No
Individual recall within-group	9.54	No
Mean Interview	7.95	Yes

Table 7
Comparison of Mean Expenditure on Food/Beverage by Gender and by Survey Method

Survey Method	**Male** $	**Female** $	**Mean** $
Collected diary	141.19	91.09	123.97
Mailed-back diary	134.46	102.48	116.24
Mean diary	137.02	98.02	117.52
Individual recall alone	127.30	86.05	105.13
Individual recall within-group	152.83*	80.45	117.71
Mean Interview	140.92	83.06	111.99
Overall Mean	138.96*	89.04*	113.89

*** test is significant at 0.05 level**

Table 8
Summary of Mean Expenditures by Gender and by Survey Method

Expenditure Item	Single Interview n = 69 $	Within Group Interview n = 81 $	Combined Diary n = 83 $
	Females		
Accommodation	89.60	58.79	96.11
Entertainment	6.56	8.70	9.14
Food/beverage	86.05	80.45	98.09
Shop/souvenirs	9.07	10.21	21.47
Transport	16.97	9.45	14.17
Total	**208.24**	**167. 60**	**238.98**
	Males		
Accommodation	74.70	81.23	85.78
Entertainment	6.65	10.34	18.19
Food/beverage	127.30	152.83	136.99
Shop/souvenirs	13.11	10.07	14.06
Transport	17.38	10.57	13.71
Total	**239.14**	**265.04**	**268.73**

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