

Theatre Audience on Stage: Three Experiments Analysing the Effects of Survey Design Features on Survey Response in Audience Research

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In this article a two-stage method for the on site collection of data on a theatre audience is introduced and a number of techniques, acknowledged to reduce unit nonresponse in household surveys, are applied. More particularly, three experimental designs are used to test the impact of a number of survey design features on response rates and sample composition. The various survey design features included are the way in which the sample units are contacted on site, the use of incentives and the specific sequence of the questions in the questionnaire. Only type of contact proved to have a significant impact on the response rate. A selection bias with regard to age and topic salience was found. Suggestions for further research are presented.

Keywords: audience research, data collection method, nonresponse, mode of contact, incentive, questionnaire design, experimental design, nonresponse bias

Introduction

In audience research, surveys enjoy a persistent popularity when it comes to the on site collection of data on a film or theatre audience – especially within arts and humanities oriented research (e.g., Close & Donovan 1998; Davis & McConachie 1998). This use of surveys as an instrument for data collection in audience research can be attributed to their various obvious advantages: surveys are able to generate a representative image of an audience in a relatively short time span and against a relatively low cost.¹ Yet, audience research often lacks the methodological rigour necessary for these advantages to be exploited to their maximum. Due to selective sampling and high nonresponse rates – or a combination of both – sample estimates may be subject to nonresponse bias and other biases eventually threatening the internal and external validity of the results (see Berk 1983).

In this paper a method for the on site collection of data on a theatre audience is introduced. Furthermore, three experiments test the impact of a number of survey design features on response rates and sample composition. The various survey design features included are the way in which the sample units are contacted on site, the use of incentives and the specific sequence of the questions in the questionnaire.

Theoretical framework

Research questions

The central issue in this paper is nonresponse reduction in audience research, a type of research facing a very specific population in an equally unique research setting. The

¹ Data collection via box office systems or internet booking has the advantage of being fast, easy and cheap, but guarantees by no means a representative sample of an audience. The former only generates very rudimentary data, while the latter assumes that every member of the audience uses internet for booking – a false assumption (cf. Couper, 2000).

population of people attending cultural events² – the cultural participants – are younger, better educated and have a higher SES than the general population (Holt 1998). Moreover, the cultural participants are contacted when they are attending a cultural manifestation and not at their home address, which creates barriers typical for the audience research setting. These two characteristics make insights in impediments for surveys response in general household surveys slightly inapplicable to audience research and calls for in-depth analysis of research design characteristics facilitating response in audience research. The following two research questions will be addressed:

- 1) to what extent do survey design features, i.e., the specific way of contacting sample units, the use of an incentive and the sequence of the questions in the questionnaire, influence the final response rates in a self-administered questionnaire within the context of audience research ?
- 2) to what extent is the influence of these survey design features related to differences in sample composition ?

Survey environment in audience research

The specific situation in which people are contacted when attending an event, calls for the known procedures of data collection by means of surveys to be expanded and/or adjusted (Pol & Pak 1994). The application of the ordinary procedures of collecting data – defining the operational population, designing the sampling frame, contacting sample persons, trying to make them comply with the survey request and making them fill out the questionnaire – is inadequate in this situation and certain barriers typical for audience research arise.

First, no sampling frame is available since the population of people attending a certain cultural institution is unknown. This lack of a sampling frame hampers the drawing of a representative sample. Yet, by means of ‘time and place’ sampling techniques – i.e. by means of randomly varying the time and place of the moments of data collection so that aselectivity is maximised – samples can still approach representativeness. Furthermore, the absence of a sampling frame renders it impossible to estimate nonresponse bias through comparison with sample frame data on respondents and nonrespondents from another source, a common procedure used in research on nonresponse (see for example Groves & Couper 1998).

A second problem faced by researchers is the severe time restriction when attempting to contact members of an audience on site to participate in the survey. Contact has to be established either before the play when the audience is queueing to enter the auditorium or when it leaves the theatre – in this sense the situation mirrors or is parallel with an exit poll (Moon & McGregor 1991).

Related to this time restriction on the part of the contacting agency is the limited opportunity for the respondents to fill out the questionnaire when it suits them best. For the respondent who wants to participate in audience research on site, it is ‘now or never’: either she/he completes the survey at the playhouse or she/he becomes a nonrespondent. There is no option to fill it out at another, more appropriate moment or place – unlike in most survey research.

² Cultural events refer to manifestations of the so-called highbrow or legitimate culture, such as a theatre performance, an opera, an exposition at a museum of the fine arts, etc.

A third problem is situated at the level of the interview or questionnaire itself. Because of these time restrictions the interviews necessarily need to be limited in time and/or the questionnaires can comprise only a few pages. People tend to make arrangements after the play and need to leave immediately without being able to cooperate with an elaborate – and time consuming – survey on site. This seriously limits the potential to gain sufficiently relevant information.

Finally, so-called interference – i.e. the contaminating influence of the presence of other people when doing an interview or filling out a questionnaire – can be considered as a serious obstruction to a smooth and distraction-free interview in audience research.

Taken together, these impediments make up the unique context or surveying environment in which an audience research takes place and limit the applicability of the normal procedures of data collection as commonly used in household surveys (see for example Rossi et al. 1983). Therefore, this paper focuses on the development of a research design that on the one hand, tries to maximise response rates in audience research and that on the other, makes it possible to estimate – and eventually control for – the impact of nonresponse on the sample estimates.

Theory, hypotheses and treatments

The three features of the research design under study here – namely type of contact, sequence of questions and use of incentives – form a continuation or an extension of the existing literature on the impact of survey design features on survey response (cf. Groves & Couper 1998). Basically, the theoretical perspective underpinning all the experiments is the social exchange theory, a theory that has already proven its value to explain response behaviour (Dillman 2000; Groves & Couper 1998). Central in its argument is to maximise the perceived value of cooperation in addition to a minimisation of the perceived burden associated with complying to the survey request.

In the following section we will briefly discuss the specific theoretical background and hypotheses of each of the treatments.

Type of contact. The way in which the interviewer approaches and contacts the potential respondent has consistently been reported as an important factor in inducing survey cooperation (Hornik & Ellis 1988; Carton & Loosveldt 1999). The more the interviewer is able to read the verbal and non-verbal cues from the respondents, the more she/he is able to apply certain workable strategies to ensure compliance from the respondent – this is better known as tailoring (Groves & Couper 1998). Tailoring involves strategies to ensure and maximise the perceived value of complying with the survey request.

As discussed in detail in the previous section, the audience research context does not lend itself to much time consuming tailoring strategies: the trade-off between convincing initially uncooperative members and contacting others might result in too great an amount of noncontacts. Therefore, it can be argued that instead of contacting the theatre audience personally before they enter the auditorium, it would be better – at least from a practical point of view – to put the questionnaires randomly on the seats before the play starts and inform the theatre audience of the research intentions when they enter the playhouse by means of large publicity folders attached to the walls and/or windows (see Gardiner & Collins 1992). In this way what is lost in cooperation rates (through the lack of sufficient tailoring) could be gained

through the much greater practical potential of impersonal contact via the questionnaires put on the seats.

Sequence of questions. A Dutch manual for audience research advises practitioners to develop and design the questionnaire in such a way, that the questions relating to the play or the museum collection come first and the socio-demographic characteristics of the audience are dealt with at the end (Ganzeboom & Ranshuysen 1994). This would result in higher response rates and higher quality data. This procedure is consistent with and based on the idea – put forth by Dillman (1978, 2000) for example – that respondents can be motivated to complete the whole questionnaire by beginning it with the most interesting questions and hence increasing their involvement in and value attached to the survey – consistent with social exchange theory (Dommeyer 1985). Thus, a questionnaire beginning with the most interesting questions (theatre-related) will yield more response. The effects on sample composition are impossible to predict.

Use of incentives. The research literature is quite unequivocal on the positive effects of incentives on the response rates of mail and face-to-face surveys (see for example Groves et al. 1999; Shettle & Mooney 1999). Especially prepaid cash incentives seem to be the most effective in boosting the cooperation rates in general populations (Groves & Couper 1998). These consistent findings can theoretically be attributed to either the norm of reciprocity or to the *quid pro quo* cost-benefit calculus. The norm of reciprocity refers to “a strong normative standing leading individuals to strive to repay favours freely given” (Gendall, Hoek & Brennan 1998), central in social exchange. A voucher for a drink in the foyer of the theatre institution was chosen as an obvious prepaid incentive. Such a voucher is worth approximately € 1.33. Moreover, if such a voucher proves to be effective in increasing response rates, its use and implementation in similar contexts would be very easy and relatively inexpensive for the organising theatre institution. Thus, the final hypothesis can be formulated: members of the audience who have received an incentive will be more inclined to comply with the survey request. Regarding sample composition the analysis will be exploratory.

The experimental stimulus – the change of design feature – could not be implemented in one and the same theatre performance, since contact between members of the experimental and the control group would confound and bias results. Therefore, its implementation is spread over two performances of the same play: the audience of the first forming the experimental group, the public of the second being the control group. Thus, we use a quasi-experimental design.

In the next section, a method for data collection is introduced that tries to cope with the exigencies of the unique surveying context in audience research.

Method

The method for data collection used in this paper is inspired by the procedure introduced by Pol (Pol 1992; Pol & Pak 1994). He suggests a two-stage surveying process. In the first stage members of the audience are approached on site, asked to participate in a survey and to provide their name and telephone number, generating a list of cooperative audience members. Stage two then, consists of telephone interviews in the week following the first contact with the people who agreed to participate. The final response rate obtained via this method is

considerable, i.e. 81.7 %.³ In this way, through separating contact and data collection and changing the interview environment in stage two, time constraints and interference concerns are avoided. One potential drawback is the time lag between stage one and stage two: respondents can have problems with exactly remembering what they saw, thought or felt and hence, the provided information might suffer from recall error (Pol 1992).

In our research the two-stage procedure with the promising idea of changing the interviewing environment in stage two is adopted. Yet, a number of new elements are introduced that open research possibilities in two ways. Instead of limiting stage one to just asking for cooperation, a short self-administered questionnaire is handed out to each contacted member of the audience. It contains some basic questions on socio-demographic characteristics and on the evaluation of the play. First of all, the problem of recall error – a shortcoming in Pol's approach – is solved through the on site collection of data on the performance. Secondly, the inclusion of a series of questions in stage one provides micro-data to map response behaviour in stage two: considering the two-stages as waves in a panel design, an analysis of respondent related predictors of nonresponse becomes possible (cf. Hox, de Leeuw & Vorst 1995). Stage two consists of handing over a second – and longer – self-administered questionnaire that can be filled out at home and needs to be sent back in a pre-stamped envelope.

Of course, the introduction of the small questionnaire in the first stage brings back some of the problems associated with the on site collection of data. The introduction of the initial short questionnaire has to be an achievable and feasible *modus operandi* for the following reasons. Theatre audiences are highly educated and a higher educational level has consistently been associated with higher cooperation (Brehm 1993; Goyder, Warriner, Coutts & Basic, 1999). Moreover, the questionnaire in stage one requires only a small amount of effort.

The data collection for the experiments was part of an extensive inquiry into the socio-demographic composition, the evaluation of theatre performances and the aesthetic expectations of theatre audiences, that was carried out during the months February and March 2001 by the University of Ghent. The audience of three theatre institutions in Ghent (Belgium) was selected by means of 'time and place' sampling⁴ and was contacted on site. Every member of the audience was personally contacted by students of the 1st licentiate Sociology of Ghent University, when they entered the playhouse or queued to enter the auditorium. The students had been carefully instructed to read out a prepared statement, explaining the goal of the study and ensuring the anonymity of the respondents. To convince initial refusers the students were instructed to alternately appeal to the need for representativeness ('For the results to be representative, it is important that everybody cooperates') and to the helping norm ('It would really help us out').

³ The response rate is somewhat overestimated due to a different calculation procedure. They used the formula: number of completed interviews divided by number of contacted sample persons (no indication of the number of eligibles is given and as a consequence, no contact rates are calculated). However, we incorporate the contact rate and the cooperation rate to calculate the final response rate (as is usually done in ordinary survey research).

⁴ As the population of people attending theatres is unknown – as mentioned before –, no sampling frame is available. Therefore, we had to resort to techniques of nonprobability sampling that would still maximise aselectivity and representativeness. We opted for 'time and place' sampling, randomly selecting 24 performances out of a total of 68 that were being played at that time.

Results and Discussion

Response rates

Response rate⁵ is defined as the proportion of participating units in stage one among all eligible units in the theatre auditorium (Lessler & Kalsbeek 1992). Eligible subjects involve everybody present in the theatre auditorium at the beginning of the play and older than 18 years.

Table 1 shows the effect of contacting the sample units personally versus not personally on the response rates. The difference in percentage points – a considerable 18.82 – is significant at the 0.0001 level ($z = 7.38$) and strongly supports the contention that contacting the potential respondents personally increases the chance of survey participation.

Table 1. The effect of contacting sample units personally vs. not personally on the general response rates

| | Total eligible | Response | |
|---------------------|----------------|----------|-------|
| | N | n | % |
| Personal contact | 453 | 239 | 52.76 |
| No personal contact | 439 | 149 | 33.94 |

Difference is significant at $p < 0.0001$ ($z = 7.38$).

It seems that the idea of a greater potential of impersonal contact by means of the questionnaires put on the seats – certainly from a practical point of view – is not confirmed empirically. On the contrary, personal contact with the potential respondents seriously encourages participation. Possibly the questionnaires put on the seats are confused with publicity material and hence are ignored by some members of the audience. So, however great the potential for contacting people by means of leaving the questionnaires on the seats, the amount of actual contacts may be much smaller. Another explanation is that people could be more prone to comply with a request when personally contacted than via an impersonal – i.e. written – contact (cf. Mayer, et al. 1987), a finding that has been replicated in research on response on mail questionnaires (Schlegelmilch & Diamantopoulos 1991). This is theoretically attributed to the activation of a helping norm, to a feeling of social responsibility – or even moral obligation – that seems especially relevant in personal interaction between people. Besides, contacting people personally⁶ reduces the chance of forgetting to fill out the questionnaire after the play is finished.

In Table 2 the effect of the specific sequence of the questions in the questionnaire is reported. Sequence 1 refers to the questionnaire opening with the more salient questions. In Sequence 2

⁵ Cooperation and refusal rates are also included in the analyses. The cooperation rate is measured as the proportion of participating units among all contacted units in stage one. The direct refusal rate refers to the proportion of contacted units who immediately refuse to cooperate when faced with the survey request, i.e. the percentage of people who do not accept the questionnaire from the contacting agency. The indirect refusal rate is considered as the proportion of contacted units who accept the questionnaire, but refuse to hand it back in.

⁶ By contacting people personally they receive a verbal and a visual stimulus at the same time, making it more probable that they will remember the request for participation after the play is finished than by a visual stimulus alone (questionnaires on the seats). This explanation is inspired by the dual coding theory (see Paivio 1986).

the questionnaire starts off with the socio-demographic features. The effect is measured via the cooperation rate.

Table 2. The effect of the specific sequence of the questions on the general cooperation rates

| | Total contact | | Cooperation | |
|------------|---------------|-----|-------------|-------|
| | N | n | n | % |
| Sequence 1 | 527 | 360 | 360 | 68.31 |
| Sequence 2 | 551 | 370 | 370 | 67.15 |

Difference is not significant ($z = 0.40, p = 0.69$).

The percentage point difference between the cooperation rates of the two sequences is negligible and statistically insignificant, i.e. 1.16 ($z = 0.40, p = 0.69$). Hence, the hypothesis of inducing response by starting off the questionnaire with the more interesting questions as formulated by Ganzeboom and Ranshuysen (1994), is rejected by our data.

Table 3 shows the results of the effects of the use of an incentive on the refusal (direct and indirect) and cooperation rates. A somewhat intriguing pattern of response behaviour emerges. Incentives increase the number of direct refusals, though the difference remains insignificant: 14.42 % versus 8.41 % ($z = 1.38, p = 0.084$). The number of indirect refusals however, decreases significantly. The percentage point difference in the indirect refusal rates between the incentive group and the control group is 14.52 ($z = 2.52, p = 0.006$). So, once the sample unit has accepted the questionnaire, the incentive substantially boosts survey participation.

Table 3. The effect of the use of an incentive (voucher). on the direct/indirect refusal rates and the cooperation rate

| | Total eligible N | Contact | | Direct refusal | | Indirect refusal | | Cooperation | |
|---------------------------|---------------------|---------|-------|----------------|-------|------------------|-------|-------------|-------|
| | | n | % | n | % | n | % | n | % |
| Incentive | 181 | 104 | 57.46 | 15 | 14.42 | 16 | 15.39 | 73 | 70.19 |
| No incentive (control) | 165 | 107 | 64.85 | 9 | 8.41 | 32 | 29.91 | 66 | 61.68 |

Difference between cooperation rates is marginally significant ($z = 1.30, p = 0.097$).

The results on the effects of a voucher on the final cooperation rates remain inconclusive. The use of a voucher for a free drink as an incentive increases the chance of cooperation with 8.51 percentage points, but this difference is not significant ($z = 1.30, p = 0.097$). This may be due to the small sample size. Apparently the eventual decision to comply – and preceding heuristic consideration (see Groves & Couper, 1998) – shifts to the earlier contact phase. The incentive induces an early consideration of the request – however short – and forces a response decision. Once the questionnaire has been accepted the norm of reciprocity seems to be the active component in increasing the chance of cooperation. Furthermore, the high

salience of the survey topic may have suppressed the effect of differential sensitivity to incentives: people may have planned to participate anyhow, with or without the incentive.

Sample composition

To be able to assess the differential effects of the survey design features on different sample units – resulting in response bias – the respondent distribution of the socio-demographic characteristics is compared across the different treatments. The socio-demographic features included are gender, age, educational attainment and occupational category. We add yet another feature to the analysis of the sample composition: a measure of topic salience, i.e., having a season ticket or not. Previous research on this matter has shown that interest in the survey topic – i.e. topic salience – is one of the strongest predictors of survey participation in audience research (Roose, Waeye & Agneessens 2002).

The remaining question is whether the experimental stimuli generate differences in sample composition. Techniques that reduce unit nonresponse might appeal differently to different groups of people and generate sample selection bias – an unwanted side-effect. Neither the use of an incentive nor the sequence of the questions in the questionnaire affect the sample composition: the distributions of gender, age, educational level, occupational category and topic salience do not differ significantly (tables not shown).⁷ Type of contact however influences the age distribution of the sample significantly: there are more older people in the personal contact group than in the control group. Older people are more inclined to fill out a questionnaire when personally contacted than via impersonal contact ($\chi^2 = 16.96$, $df = 3$, $p = 0.001$). The sensitivity to tailoring and motivation enhancing techniques is probably higher for older people.

Also, topic salience interacts with type of contact and survey participation ($\chi^2 = 5.627$, $df = 1$, $p = 0.018$). There are relatively more persons without a season ticket in the personal contact group. People for whom theatre is less salient are more prone to cooperate when personally contacted than when they would find a questionnaire on their seat. The question which of the two sample compositions is valid, remains unanswered and cannot be addressed here, since no population benchmarks are available.

Conclusion

Audience research in theatres calls for a specific approach for the collection of data on site. We proposed a two-stage procedure for data collection (cf. Pol & Pak 1994). In stage one, we collected some audience quintessentials on site, i.e. socio-demographic characteristics and their evaluation of the play. Stage two consisted of a more elaborate questionnaire which had to be filled out at home and returned by mail. It covered topics such as lifestyle, attitudes towards the legitimate arts, leisure activities, etc.

Of the three quasi-experiments we implemented to improve response rates – type of contact, sequence of the questions and the use of an incentive – only type of contact actually reduced the unit nonresponse rate significantly. Personally contacting members of a theatre audience encouraged participation. Yet, much more effort is needed on the part of the contacting agency, but this additional effort was worthwhile. The personal contact also left more room for tailoring efforts, if time constraints are not too burdensome.

⁷ We used χ^2 -tests to compare the distributions.

Contrary to type of contact, the sequence of the questions in the questionnaire did not affect the unit nonresponse rate in audience research. Also the use of an incentive did not reduce the unit nonresponse rate significantly, although cooperation rates went in the expected direction. Moreover, an incentive produced more direct refusals and significantly less indirect refusals. Based on these findings we suggested that audience researchers invest in fieldwork personnel to motivate potential respondents to participate. Vouchers did not enhance response rates significantly. Perhaps other types of incentives might yield better results, such as cash payments or non-monetary incentives with a higher value. Further research is needed in this area.

Neither the sequence of the questions nor the use of an incentive affected the sample composition. However, contacting members of the audience personally increased the proportion of older people and diminished the proportion of theatre adepts – i.e. those for whom the topic of the survey is salient – in the sample. The questions remains which sample distribution reflects the population distribution. Unfortunately, due to the lack of reliable population benchmarks we have to leave this question unanswered.

The method of data collection and the three experiments presented here are an illustration of how audience researchers try to boost response rates in audience surveys – and hence limit the possible nonresponse bias in the survey estimates. Further research in this area needs to focus on the development and experimental testing of features of the research design that may increase response rates. The specific and restrictive setting in audience research will probably prevent response rates from attaining the magnitude of the rates obtained in household survey research. Yet, the application of carefully planned research designs and refined methods for data collection might close this gap considerably.

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