

QUESTIONNAIRE STRUCTURE AND READERSHIP LEVELS

Michael Brown

Abstract

Research reported at the first Symposium strongly suggested that the ratio of 'positive' to 'negative' recency scale categories was strongly correlated with the estimate of average issue readership obtained (where 'positive' indicates a response leading to classification of a respondent as a reader). The effect obtained even when the recency question was an open one and the response alternatives covert.

Examination of the pattern of AIR estimates across the last two major changes in the British National Readership Survey's questionnaire provides evidence in the same direction, although the effect appeared a weaker one, possibly due to other, concurrent alterations in survey design.

Introduction

Researchers in the private sector are not infrequently contrasted with their academic colleagues by contending that, whilst the latter dissect to the last corpuscle a tiny body of data, inadequately funded, the former welter in results whose surface they barely scratch and from which they take but a fraction of the understanding to be gained, before rushing ever onwards towards the next 'problem'.

Positioned in such a comparison, media audience measurers probably fare little better than the market research average. And they are beset with other sins, beyond superficiality in analysis: seeking generalisations from their findings, so as to build a corpus of knowledge, seems of limited appeal to them and decreasingly so, whilst the lessons of history figure seldom in their curriculum.

In very small redressment of such failings, this paper revisits experimentation dating from 1972 and 1980, asking whether its findings can or cannot be confirmed at a different time, in another country and in a very different research setting.

Random Qualifying Probability

In a substantive contribution to the New Orleans Symposium, Friedrich Tennstädt and Jochen Hansen contrasted the apparent magnitude of effect of various aspects of research design on recency-based average issue readership estimates [Tennstädt and Hansen 1982]. They showed that recall aid-design and sampling method made relatively small contributions; that variations between fieldwork agencies and the effects of questionnaire order rotation or of model bias were somewhat more substantive; but that all of these were dwarfed by the effect on the readership estimates of variations in the ratio of the number of 'positive' to 'negative' recency question response categories - that is to say, the respective numbers of possible responses leading to categorisation of a respondent as a reader and as a non-reader. In the experiment cited [IfD Allensbach 1972], variations in the response categories' ratio over a range from 2:5 to 4:3 produced a corresponding variation in the AIR estimate of approximately 200%.

In this work, the response categories were overt, or 'revealed': respondents were aware of the recency responses between which they were to choose - for example 'yesterday' as against 'within the past week'. However, Tennstädt and Hansen also cite results obtained when, although the recency question was pre-coded, the possible response classifications were unknown to the informant, who was posed an open question as to when they last read the publication in question. The same pattern was observed: with a variation in the response categories' ratio from 1:4 to 1:1, average issue readership increased by 145% [IfD Allensbach 1980].

Further confirmation of the generality of this phenomenon was provided by developmental research into the AG.MA questionnaire, reported at Montreal [Hess and Scheler 1984] and discussed further in Salzburg [Wenzel and Speetzen 1987].

We shall term the probability of categorising an informant as a reader, under the null hypothesis of random choice between the available response categories, 'Random Qualification Probability' or RQP. Thus, if a recency question offers the following alternative answers:

yesterday
 within the past seven days
 within the past four weeks
 within the past three months
 longer ago

(whether overtly or as questionnaire precodes, unknown to the respondent) then, for a weekly magazine, the ratio of 'positive' to 'negative' categories is 2:3 and the RQP equals $2/(2+3)$ or 0.40.

National Readership Survey Changes

It is necessary at this point to make a sizeable digression, to summarise certain changes in the design of the British National Readership Survey. We distinguish three phases: 'pre-EML' (1968-1983), 'EML' (1984 - June 1992) and 'CAPI' (July 1992 to date).

In 1968, for the first time in the NRS, reading frequency was estimated for all titles and the frequency question was brought to the head of the questionnaire, serving also as a filter. The numerical scale then used related to "... how many issues you have read or looked at recently". For Sunday newspapers, for their colour supplements and for all weekly magazines, the scale had six points, including 'none'. For all other publication groups, the scale was of eight points, again including 'none'.

The pre-EML questionnaire was vertically structured and, after claimed reading frequency had been established for all titles, a respondent was asked when they had last read or looked at a copy, for each publication where the frequency claim had been other than 'none'. The pre-coding of this 'open' recency question was *not* apparent to the respondent but comprised two categories only, for all publication groups: within the issue interval or longer ago.

The EML questioning sequence differed radically. Irrespective of publication group, titles were now presented in sets, with only narrow variation in the number of titles per set.

For any given set, respondents were first asked to sort the cards as between those containing any title that had been seen in the past year and the remainder (with a subsidiary procedure for 'not sure'). Then, for each card thus screened in, the respondent allocated each publication to one of four reading frequency claims, the scale being verbal/numerical and common to all publication groups, but *not* acting as a filter. Finally, card by card, respondents were asked, sequentially, which title or titles they had looked at 'yesterday' which one or ones in the seven days preceding the interview and, finally, title by title, for each title not so far mentioned and *not* earlier coded as 'not in the past year', when last it had been read. The pre-codes for this question were, again, not revealed to the respondent; there were five options, with the labelling of the scale positions varying as between fortnightly, bi-monthlies and all other publication groups.

The CAPI questionnaire introduced further major changes. Titles are still presented in groups and the card screening procedure remains basically as it was in the EML period; but, for any screened-in card, readership in the past year is now specifically questioned, title by title and acts as a filter to the recency question that follows it. For daily newspapers, there are two response categories only, but five or seven for other publication groups, with the scale differing as between fortnightly magazines, bi-monthlies and all other publications.

RQP and Average Issue Readership

With each of the changes in NRS questionnaire structure outlined above - from pre-EML to EML in January, 1984 and from EML to CAPI in July, 1992 - the probabilities of randomly categorising an informant as a reader have changed, too - but not evenly, across publication groups. In the light of the Allensbach results and the other German data, it is thus of interest to ask what relationships, if any, may be seen between the variations in RQP and AIR estimates.

In the Appendix, we set out the questionnaire structures just described and show the calculation of RQP for each period and for each publication group. These probabilities may be summarised as shown in Table 1.

Looking *down* the columns in the table, note that, in the National Readership Survey's 1968, pre-EML questionnaire, the probabilities of randomly classifying a respondent as a reader were broadly equal across publication groups, only the RQP for Sunday newspapers and other weekly publications being slightly lower

than the others (from the different reading frequency filter that applied to this publication group). With the advent of the Extended Media List questionnaire, differences between publication groups opened up; and under CAPI, RQPs differ quite markedly, too.

Looking *across* the table, it would be naive to expect the relative RQPs to bear any close relationship to the estimates of average issue readership provided by the different questionnaires since many other major changes were also introduced simultaneously with the recency and filter question variations that are of interest here. However if, as a first approximation, we were to assume that the changes in other aspects of survey design had an even effect, across publication groups (and we labour under no delusions as to the magnitude of such an assumption), then we might reasonably examine the *ratios* of RQPs, across questionnaire changes, against the corresponding AIR ratios. Consequently, title-by-title AIRs for 1984 (EML) were divided by those for 1983, with correction for circulation changes (so that, in effect, the ratios are of readers-per-copy) and the results averaged across groups of publications consistently measured, or very nearly so, across the three questionnaire periods.

Publication group	Questionnaire		
	pre-EML	EML ¹	CAPI ¹
National daily newspapers	0.4375	0.5375	0.2500
Provincial morning and evening newspapers ²	0.4375	0.5375	0.1000
Sunday newspapers, supplements and weekly magazines	0.4167	0.8500	0.2000
Fortnightly magazines	0.4375	0.8875	0.2500
Monthly magazines	0.4375	0.8875	0.3000
Bi-monthly magazines	0.4375	0.8875	0.3333
Quarterly magazines			0.4000

¹ the RQPs for these questionnaires assume the probability of screening-in any given card to be 1.0, or approximately so; see Appendix.

² the RQPs for this publication group are shown for completeness only; it does not figure in the analyses.

All adults readership was employed, except in the case of women's weekly and monthly magazines, where the AIRs related to women. These data are set alongside the corresponding RQP ratios in Table 2; the publications making up the various groups are shown in the Appendix.

Looking at the first column of figures in Table 2, RQP increased relatively less for daily newspapers than for any other publication group, with virtually no variation across the latter. Thus, if this probability were positively correlated with average issue readership (as in the Allensbach findings), we should expect to see dailies *relatively* disadvantaged in their readership levels, as between 1983 and 1984 and, indeed, this is so: the mean dailies' AIR ratio is 0.918, against 0.930 for the group of weekly newspapers and magazines and 1.003 for the other titles. But the data are, clearly, not very stable: the effects of publication interval (and thus of RQP) do not appear consistent, as is apparent from the considerable variation in the AIR ratio *within* the second and third main groups in Table 2.

Publication group	RQP ratio	Mean AIR ratio
National daily newspapers (10)	1.229	0.918
National Sunday newspapers (10)	2.040	1.005
Colour supplements (6)		1.014
General weekly magazines (12)		0.854
Women's weekly magazines (6)		0.876
Total Sunday newspapers/weekly magazines (31)		0.930
Fortnightly magazine (1)	2.029	1.430
General monthly magazines (7)		1.023
Women's monthly magazines (19)		0.967
Bi-monthly magazine (1)		1.105
Total fortnightly/monthly/bi-monthly magazines (28)		1.003

Further, the effect is small: compared with daily newspapers, the RQP ratio of all other titles is approximately 65% greater, but the corresponding AIR differential was only approximately 5% - a very shallow slope compared to that found in Allensbach's regression of relative average issue readership on RQP.

Comparable data for the second major NRS questionnaire change are shown in Table 3.

For this second comparison, only six months' CAPI-based data were available at the time of writing, thus dictating the periods chosen. Further, in this instance, the AIR ratios were *not* corrected for circulation change, only some of the magazines' figures being yet available. However, the mid-points of the two readership measurement periods are here only six months' apart, as against a year in the previous comparison; and by-eye comparison of such circulation data as were to hand did not suggest that any major distortions were likely as a result of neglecting a correction.

We should underline again that, whilst the RQPs in Tables 2 and 3 are nominally comparable, their effect should not be expected to be so, given other, very major changes in survey design across the three questionnaire periods.

The pattern of probabilities in Table 3 differs from that of Table 2 in two relevant ways.

First, the position of daily newspapers relative to all other publication groups is reversed: in the pre-EML/EML change, they were (apparently) disadvantaged; now they are the publication group at an advantage, with the relatively higher RQP (arising from there being, uniquely in the CAPI questionnaire, but two response categories for their recency question).

Second, in the earlier comparison, all magazines sub-groups' RQPs were closely similar; now they are graded.

Publication group	RQP ratio	Mean AIR ratio
National daily newspapers (10)	0.465	1.162
National Sunday newspapers (10)		1.036
Colour supplements (6)		1.043
General weekly magazines (11)	0.235	1.039
Women's weekly magazines (6)		1.100
Total Sunday newspapers/weekly magazines (33)		1.050
Fortnightly magazine (1)	0.222	1.102
General monthly magazines (7)		1.216
Women's monthly magazines (19)	0.338	1.195
Total monthly magazines (26)		1.201
Bi-monthly magazine (1)	0.375	1.076

Both these features carry through to the EML/CAPI AIR changes. The daily newspapers' July-Dec 1992/Jan-June 1992 ratio is higher than those for any of the other individual publication groups or their averages; and the figure for Sunday newspapers and weekly magazines is below that for monthly publications, as the respective RQP ratios would forecast. (The single-title results for the one fortnightly and one bi-monthly magazine considered do *not* fit the model so well but are, of course, less stable). Though not reported here, a regression analysis of the Table 3 data showed a very reasonable fit.

The magnitude of the effect is also much larger (although still far smaller than in the Allensbach findings): a 10% change in the probability of randomly classifying a respondent as a reader corresponds, approximately, to a similarly sized, 10% change in AIR.

Discussion and Conclusions

Briefly to summarise the critical points of the results just presented, further support has been given to the hypothesis of a positive correlation between average issue readership and the probability that a respondent would be classified as a reader, given random choice between the possible response categories. In the British National Readership Survey, the effect is to be seen both for the change to the EML questionnaire at the start of 1984 and at the introduction of CAPI in mid-1992. The effect is stronger in the latter case than the former but numerically far weaker, in both instances, than in the German work.

We are, in fact, probably lucky to have detected *any* effects in the British data. The Allensbach research experimentally manipulated the recency question structure, under otherwise controlled conditions, no doubt; the probability variations used here arose as by-products of other, radical changes to the Survey - in 1984, grouped presentation of titles was introduced for the first time and the media list greatly extended, whilst in mid-1992, Computer Assisted Personal Interviewing brought with it a new questionnaire that re-introduced a time-period filter, common to all publication groups *and* reversed the previous order of the recency and frequency questions. Further, Allensbach dealt only with the probabilities arising from the ratio of 'positive' to 'negative' recency scale categories; we have here complicated matters by also taking in any preceding filter question. Again, the later German work clearly shows that the effect of recency scale changes may be expected to vary with the absolute penetration of a title and with the incidence of irregular readers; we have not considered these refinements to the model.

We are, of course, in no way suggesting that most readers are so classified as a result of their making random choice between the alternative answers that are offered them; a better 'random error' model, successfully used for 'cleaning' AG.MA data, assumes that, at each branching-point in the questionnaire, some proportion of respondents guess [Wenzel and Speetzen *op cit*]. The German work would put this proportion at around 15%.

Again, a model that implies equal, random probabilities of selecting alternative recency claims is probably naïve; more realistically, we might conceive a probability density function with both its mean and variance related to respondents' regularity of reading.

But, despite all these provisos, the effect exists, as we have attempted to demonstrate afresh. Of course, when designing a readership questionnaire, the phenomenon may be discounted, from sheer ignorance or for reasons of political convenience - but the relationship will persevere, and it is perhaps better to advantage (or disadvantage) some particular publication group by design than by accident.

References

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Appendix

The three questionnaire structures are shown diagrammatically below, with vertically-aligned responses being alternatives within the same question and indentation representing question sequence. The random probability of making each successive choice is shown as a fraction and the probabilities associated with each possible combination of responses are listed to the right. Finally, below the table, the RQPs for different publication groups are built up by the addition of cell probabilities.

Pre-EML : all publication groups *except* Sunday newspapers/colour supplements/weekly magazines.

	Group	RQP
Frequency of reading : 6 issues out of 6 or 5/6 or 4/6 or 3/6 or 2/6 or 1/6 or less than one issue out of 6 (p = 7/8)		
Recency : within issue period (eg 'yester- for daily newspapers) (p = 1/2)	A	0.4375
Recency : longer ago (p = 1/2)	B	0.4375
Frequency of reading : 0 issues out of 6 (p = 1/8)	C	0.1250
	TOTAL	1.0000

Pre-EML : Sunday newspapers/colour supplements/weekly magazines

	Group	RQP
Frequency of reading : 4 issues out of 4 3/4 or 2/4 or 1/4 or less than one issue out of 4 (p = 5/6)		
Recency : within issue period (eg 'yester- for daily newspapers) (p = 1/2)	A	0.4167
Recency : longer ago (p = 1/2)	B	0.4167
Frequency of reading : 0 issues out of 4 (p = 1/6)	C	0.1666
	TOTAL	1.0000

EML

	Group	RQP
Recency : at least one publication on card in past year (p = 1/1; see text)		
Frequency : almost always or quite often or only occasionally (p = 3/4)		
Recency : yesterday (p = 1/2)	A	0.2750
Recency : not yesterday (p = 1/2)		
Recency : past 7 days (p = 1/2)	B	0.1875
Recency : not past 7 days (p = 1/2)		
Recency : yesterday (p = 1/5)	C	0.0375
Recency : past 7 days (p = 1/5)	D	0.0375
Recency : past 14 days/4 weeks/ 2 months (depending on publi- cation) (p = 1/5)	E	0.0375
Recency : past 3 mo (p = 1/5)	F	0.0375
Recency : longer ago	G	0.0375
Frequency : not in past year (p = 1/4)		
Recency : yesterday (p = 1/2)	H	0.1250
Recency : not yesterday (p = 1/2)		
Recency : past 7 days (p = 1/2)	I	0.0625
Recency : not past 7 days (p = 1/2)	J	0.0625
Recency : no publication on card in past year (p = 0/1; see text)		
TOTAL		1.000

With the EML questionnaire (and, indeed, the CAPI one), the question arises of the probability correctly to ascribe to screening-in a card by chance. Two viewpoints are tenable. If the respondent treats the card as a whole, the probability is clearly 1/2; but if (as implicitly instructed) he or she considers each title individually then with, say, six titles on the card, the chance of screening it out is small - $(1/2)^6$ and the chance of screening the card in is close to unity.

The truth probably lies between these two extremes but, for simplicity, we have taken the probability to be 1.0. Note that this decision has no bearing on the conclusions drawn, except in respect of the apparent absolute magnitude of the RQP effect and the comparisons drawn, in this respect, between our two examples and between them and the Allensbach data. For the EML questionnaire, the make-up of readers varies by publication frequency and comprises the following groups:

Daily newspapers Groups A+C+H; total RQP = 0.5375

Sunday newspapers / colour supplements / weekly magazines
Groups A+B+C+D+H+I; total RQP = 0.8500

Fortnightly / monthly / bi-monthly magazines Groups
A+B+C+D+E+H+I; total RQP = 0.8875

CAPI

With the CAPI questionnaire, the make-up of readers again varies by publication frequency and comprises the following groups:

Daily newspapers Group A only; RQP = 0.2500

Sunday newspapers/colour supplements/weekly, monthly and quarterly magazines Groups A+B; total RQP = 0.2000

Fortnightly magazines Groups A+B+C; total RQP = 0.2500

Bi-monthly magazines Groups A+B+C+D; total RQP = 0.3333

The grids are shown below.

CAPI : daily newspapers

	Group	RQP
Recency : at least one publication on card in past year (p = 1.0; see text)		
Recency (title by title) : past year (p = 1/2)		
Recency : yesterday (p = 1/2)	A	0.2500
Recency : not yesterday (p = 1/2)	B	0.2500
Recency (title by title) : not in past year (p = 1/2)	C	0.5000
Recency : no publication on card in past year (p = 0.0; see text)		
	TOTAL	1.0000

CAPI : Sunday newspapers/colour supplements/weekly, monthly and quarterly magazines

	Group	RQP
Recency : at least one publication on card in past year (p = 1.0; see text)		
Recency (title by title) : past year (p = 1/2)		
Recency : yesterday or Saturday (p = 1/5)	A	0.1000
Recency : past 7 days (p = 1/5)	B	0.1000
Recency : past 4 weeks (p = 1/5)	C	0.1000
Recency : past 3 months (p = 1/5)	D	0.1000
Recency : longer ago (p = 1/5)	E	0.1000
Recency (title by title) : not in past year (p = 1/2)	F	0.5000
Recency : no publication on card in past year (p = 0.0; see text)		
	TOTAL	1.0000

TOTAL		1.0000
Group	ROP	
A	0.0833	Recency : yesterday or Saturday (p = 1/6)
B	0.0833	Recency : past 7 days (p = 1/6)
C	0.0833	Recency : past 2 weeks (p = 1/6)
D	0.0833	Recency : past 4 weeks (p = 1/6)
E	0.0833	Recency : past 3 months (p = 1/6)
F	0.0833	Recency : longer ago (p = 1/6)
G	0.0500	Recency (title by title) : not in past year (p = 1/2)
TOTAL		1.0000
Group		ROP
Recency : at least one publication on card in past year (p = 1.0; see text)		
Recency (title by title) : past year (p = 1/2)		
Recency : yesterday or Saturday (p = 1/6)		
Recency : past 7 days (p = 1/6)		
Recency : past 2 weeks (p = 1/6)		
Recency : past 4 weeks (p = 1/6)		
Recency : past 3 months (p = 1/6)		
Recency : longer ago (p = 1/6)		
Recency (title by title) : not in past year (p = 1/2)		
Recency : no publication on card in past year (p = 0.0; see text)		

CAP1 : bi-monthly magazines

TOTAL		1.0000
Group	ROP	
A	0.0833	Recency : yesterday or Saturday (p = 1/6)
B	0.0833	Recency : past 7 days (p = 1/6)
C	0.0833	Recency : past 2 weeks (p = 1/6)
D	0.0833	Recency : past 4 weeks (p = 1/6)
E	0.0833	Recency : past 3 months (p = 1/6)
F	0.0833	Recency : longer ago (p = 1/6)
G	0.5000	Recency (title by title) : not in past year (p = 1/2)
TOTAL		1.0000
Group		ROP
Recency : at least one publication on card in past year (p = 1.0; see text)		
Recency (title by title) : past year (p = 1/2)		
Recency : yesterday or Saturday (p = 1/6)		
Recency : past 7 days (p = 1/6)		
Recency : past 2 weeks (p = 1/6)		
Recency : past 4 weeks (p = 1/6)		
Recency : past 3 months (p = 1/6)		
Recency : longer ago (p = 1/6)		
Recency (title by title) : not in past year (p = 1/2)		
Recency : no publication on card in past year (p = 0.0; see text)		

CAP1 : fortnightly magazines

Throughout the analyses, the make-up of the publication groups was, consistently (except as noted below):

Daily newspapers *The Sun, Daily Mirror, Daily Express, Daily Mail, Daily Star, The Daily Telegraph, Daily Record, The Times and Financial Times*

Sunday newspapers *News of the World, Sunday Mirror, Sunday People/The People, Sunday Express, The Sunday Post, The Mail on Sunday, The Sunday Times, Sunday Mail, The Observer and Sunday Telegraph*

Weekly colour supplements *Sunday, Sunday Express Magazine, Sunday Times Magazine, You, Observer Colour Magazine and Telegraph Sunday Magazine*

General weekly magazines *TV Times, Radio Times, The Weekly News, Exchange & Mart, New Musical Express, Country Life, Autocar, Motor, New Scientist, The Economist, Shoot and Time Out*

Women's weekly magazines *Woman's Own, Woman, Woman's Weekly, Woman's Realm, My Weekly and The People's Friend*

Fortnightly magazine *Smash Hits*

General monthly magazines *Reader's Digest, Do-It-Yourself, Custom Car, Hot Car/Performance Car, Car and Street Machine*

Women's monthly magazines *Woman & Home, Family Circle, Good Housekeeping, Vogue, Cosmopolitan, Ideal Home, Homes & Gardens, House & Garden, She, Living, True Romances, Woman's Journal, Options, True Story, Annabel, Company, 19, Harpers & Queen and Look Now*

Bi-monthly magazine *Slimming*

By the time of the 1992 fieldwork, *Autocar* and *Motor* had merged, whilst *Performance Car* had dropped *Hot Car* from its title.