Wally Langschmidt
Market Research Africa Limited
Johannesburg, South Africa

2.7 A possible link between readership and circulation

INTRODUCTION

In the book *Reliability of response in readership research* the writer made the statement . . . "Until such time as reading claims can be linked more directly with circulation, readership surveys will remain suspect in the minds of many media men" (page 25).

With the target in mind of finding a link between circulation and readership the Board of the South African Advertising Research Foundation kindly agreed to add a question on origin of the 'last issue read' onto the 1979 South African AMPS (All Media & Product Survey). This was the first time that origin data was included in a large scale nationwide survey in South Africa and it was therefore the first opportunity provided to look for a link between readership and circulation.

To throw further light on the subject the following additional steps were taken:

(**a**) a complete two by two analysis was made of all the variables in the 1978 AMPS survey.

(**b**) a complete analysis was made of all the variables in the 1979 AMPS survey.

(**c**) MRA undertook a survey on the M & M postal panel in which all the standard questions normally asked in readership surveys were put to panel members together with a cover recognition section covering three issues of six well known South African magazines.

With the detailed data available from the above studies, we then examined various correlations such as: (**a**) the relationship between frequency and thoroughness of reading; (**b**) between frequency and when last read; (**c**) between frequency and origin of last copy read; (**d**) between origin and thoroughness; (**e**) between frequency and cover recognition, etc, etc.

We, in fact, *cross-tabulated everything against everything.*

It is not possible, in the confines of this paper, to report on all the findings. The paper will therefore be limited to the different elements or factors that we isolated and used in our 'final assault'.

SETTING THE SCENE

As the result of our various cross-tabulations and the linking of them to our earlier research (see the 41 factors listed in the book *Reliability of response in readership research*) the writer decided to concentrate on the most promising factors or aspects in our effort to find a link between reading claims and circulation. The factors were:

(**1**) population, circulation and sample size.
(**2**) number of points in the frequency scale.
(**3**) profile of the six-point frequency scale and theoretical reading levels.
(**4**) time lapse since the last reading event took place.
(**5**) when *buying could have* taken place.
(**6**) claimed origin of the 'last copy read'.
(**7**) maximum number of possible readers in the primary readership households.
(**8**) theoretical maximum number of readers.

Let us briefly review each of these factors.

(1) population, circulation and sample size

Sample size is seldom considered a key factor when calculating readers per copy. The writer contends however that many of the so-called readership irregularities are the result of including minority interest or low circulation publications in 'National' readership surveys. Let us take a closer look at the contention.

Although the total adult (16 years and over) population of South Africa was 15,828,000 in mid-1979, we included publications in AMPS with a circulation as low as 17,300 (*Sharpshoot Soccer*). Let us consider the 'effect' of *a single informant* with a low circulation publication and total adult population of 15,828,000.

The formula for calculating readers per copy is:

$$RPC = \frac{n}{N} \times \frac{P}{C}$$

Where n = *the number of informants that read the test publication.*
N = *the total sample size.*
P = *the total population.*
and C = *the circulation of the test publication.*

If, n = 1 and P = 15,828,000

$$\text{then, } RPC = \frac{15{,}828{,}000}{NC}$$

Table 1 shows the 'performance' per informant for various sample sizes and circulations. It can clearly be seen that in isolated areas where we have small samples and limited circulation there is a definite bias towards large RPC figures.

(2) number of points in the frequency scale

The extent to which a 'real life' situation can be simulated via a limited frequency scale is a moot point. For discussion

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TABLE 1
RPC per informant for different sample sizes and circulations

	Sample size						
Circulation	*300*	*500*	*1000*	*2000*	*4000*	*8000*	*16000*
20,000	2.64	1.58	0.791	0.396	0.198	0.099	0.049
40,000	1.32	0.79	0.396	0.198	0.099	0.049	0.025
60,000	0.88	0.53	0.264	0.132	0.066	0.033	0.016
80,000	0.66	0.40	0.198	0.099	0.049	0.025	0.012
100,000	0.52	0.32	0.158	0.079	0.040	0.020	0.010
150,000	0.35	0.21	0.106	0.053	0.026	0.013	0.007
200,000	0.26	0.16	0.078	0.039	0.020	0.010	0.005
400,000	0.13	0.08	0.040	0.020	0.010	0.005	0.002

TABLE 2
Theoretical when last readership within the various frequency groups using a seven point frequency scale

		When last – by issue periods						
Frequency Group	*Number of ways*	*'Last' period*	*Second last period*	*Third last period*	*Fourth last period*	*5th last period*	*6th last period*	*Longer ago or never*
0 out of 6	1							1
1 out of 6	6	1	1	1	1	1	1	
2 out of 6	15	5	4	3	2	1		
3 out of 6	20	10	6	3	1			
4 out of 6	15	10	4	1				
5 out of 6	6	5	1					
6 out of 6	1	1						
Total no. ways ie 2^6	64	32	16	8	4	2	1	1
Totals as %	100%	50%	25%	12.5%	6.25%	3.125%	1.5625%	1.5625%

purposes let us take a look at the effectiveness of frequency scales to reflect a 'real life' situation at the 50% incidence level.

In theory there is a positive link between frequency of reading and 'when last read'. Thus, for example the average time lapse for a reading frequency of .....

$$1 \text{ out of } 6 = \frac{1}{.1667} = 6 \text{ issue periods}$$

or

$$1 \text{ out of } 4 = \frac{1}{.2500} = 4 \text{ issue periods}$$

Thus, for example, the average time lapse in issue periods at the 50% readership level should be two (ie 1 ÷ .5). We cannot however achieve this theoretical time lapse with 'normal' frequency scales. Thus the average time lapse achieved with the various frequency scales are as follows:

4 point frequency scale = 1.667 periods;
6 point frequency scale = 1.75 periods;
12 point frequency scale = 1.856 periods; and
∞ point frequency scale = 2.00 periods.

Theoretically the longer frequency scales should provide greater accuracy but in practice the ability of the general public to use long scales effectively is suspect.

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Figure 1 shows how the length of the 'tail' of the when last read event gets longer and longer as the number of points in our frequency scale is increased. However, whichever scale is used, the proportion of our informants that fall into the 'last issue period' or who have read the average issue remains the same. The crux of the matter is that the 'last issue figure' *and the issues earlier than that*, are constant. In other words, at the 50% level 50% theoretically read their last issue during the last issue period and the rest read earlier issues than the last one.

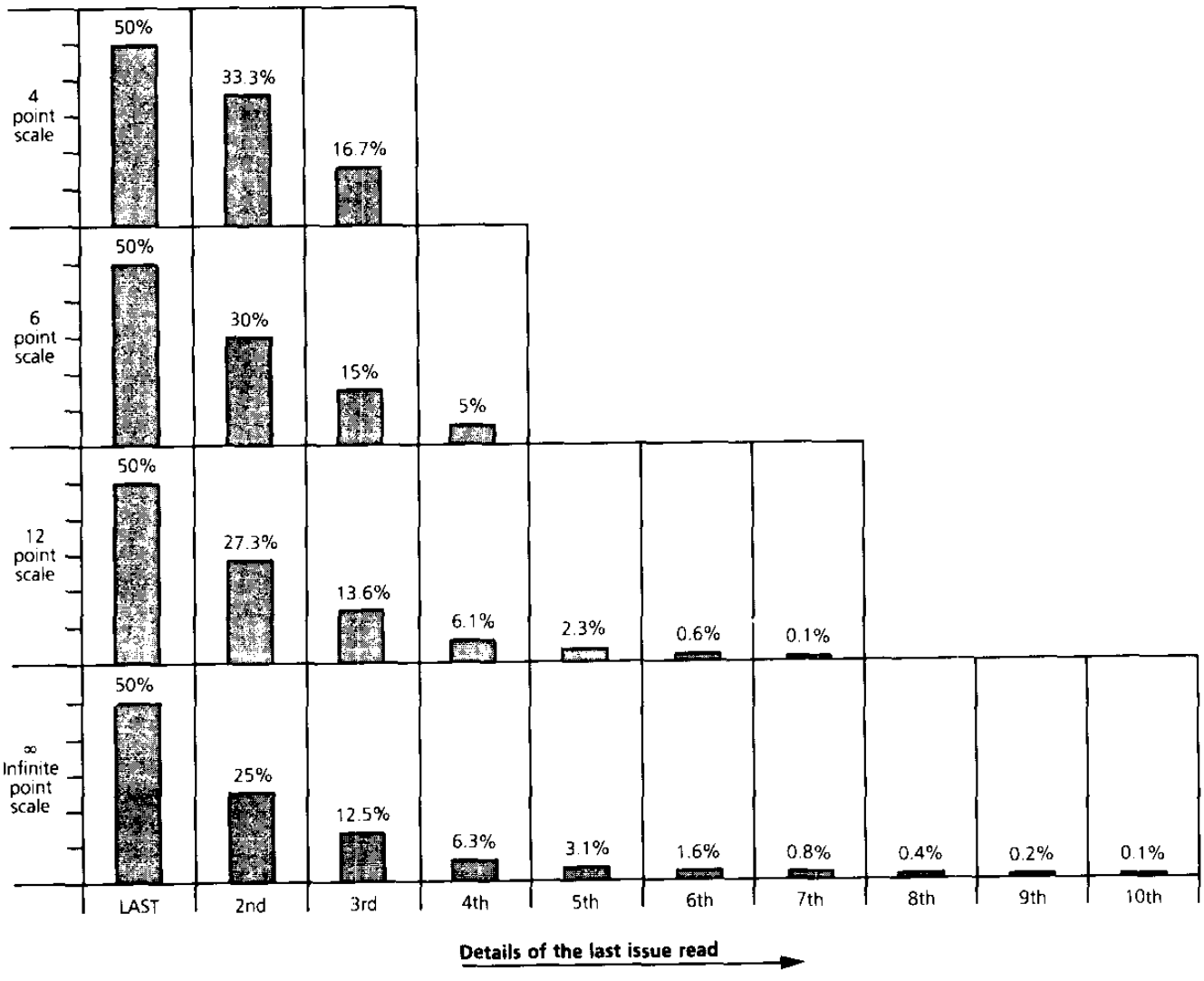
If the 'when last' concept is followed through, using a six-point frequency scale for the other frequency levels then the following pattern emerges (see **Table 2**).

There are pros and cons for the various frequency scales. The Americans use a four-point scale, the Germans a 12-point scale and the British and South Africans have opted for a six-point scale.

(3) profile of the six-point scale

An aspect of frequency rating scales which the writer feels

FIGURE 1
How the 'When last tail' gets longer as the number of points in the frequency scale increases



Note: These four examples are for readership at the 50% LEVEL

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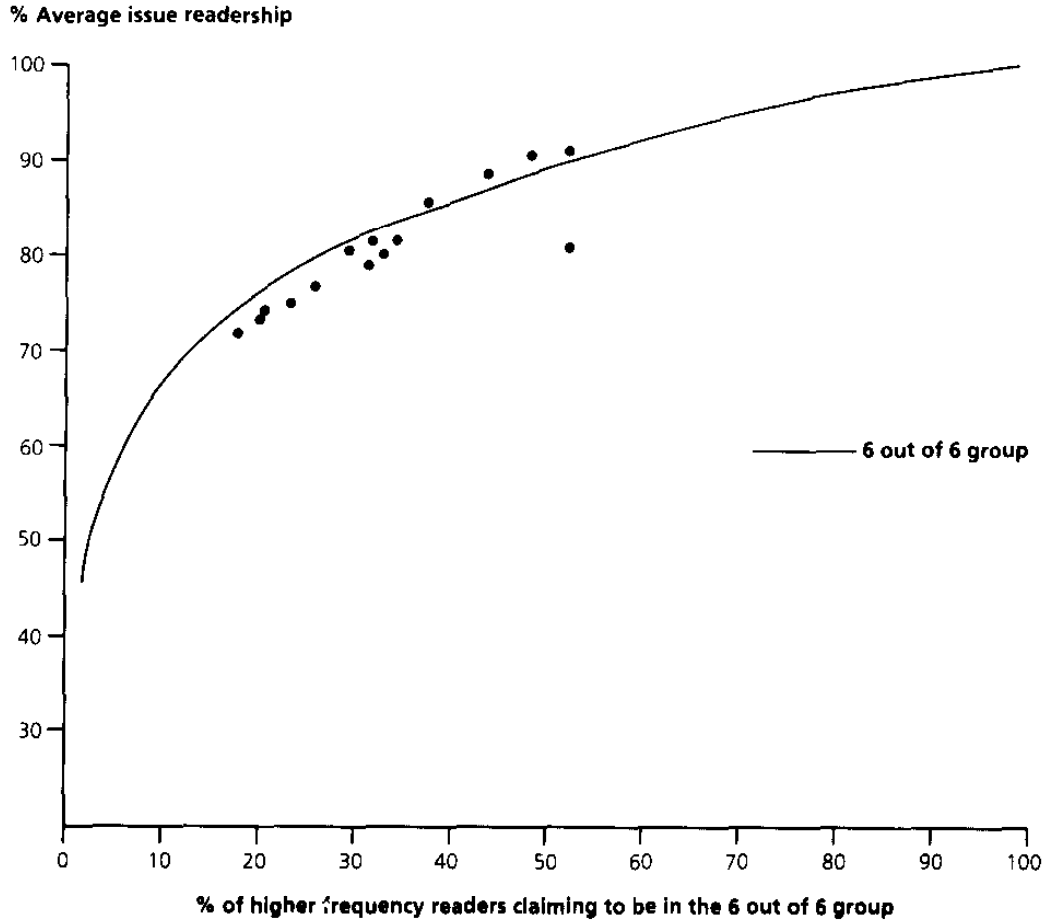
FIGURE 2
The theoretical link between average readership and profile proportions in the 6 out of 6 frequency group



This chart shows the percentage of 3 to 6 out of 6 readers that should, theoretically, be placed in the 6 out of 6 frequency group at the indicated readership level with the actual results achieved via Through-the-book and cover recognition methods.

has not been fully utilised in readership research is the link between the *profile* of the frequency scale and the *theoretically true readership level.*

Thus, for example if a group of informants claim they are six out of six readers then they should, theoretically, read *every* issue of that publication. With 'through-the-book' and cover recognition tests the six out of sixers have however been found to only have a reading probability of 70% to 90%.

Among the six out of six claimants we have found a very good correlation between the theoretically 'correct' proportion of readers who should be placed in the six out of six frequency group and the proven level of readership. **Figure 2** clearly shows the relationship between the theoretical profile proportions of true readership and the results achieved in actual tests.

The crux of these findings is that *the percentage of the profile of the publication that is placed in the six out of six frequency group, follows the theoretically expected readership levels.*

This fact is clearly illustrated in **Figure 2** and the probabilities given to the six out of six group should *not* be taken at 100% but should be based on the percentage of the three to six profile that is placed in the six out of six

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frequency group.

(4) time lapse since the last reading event

This factor was covered under heading number two. The only additional point that warrants mention is that the claimed time lapse since the last reading event took place can also be used as a readership measurement method. The writer has found that it usually provides results slightly lower than the frequency or recency methods.

The basis of the time lapse method is as follows:

$$\text{Average time lapse in issue periods} = \frac{1}{\text{Probability}}$$

$$\therefore \text{ reading probability} = \frac{1}{\text{Average time lapse}}$$

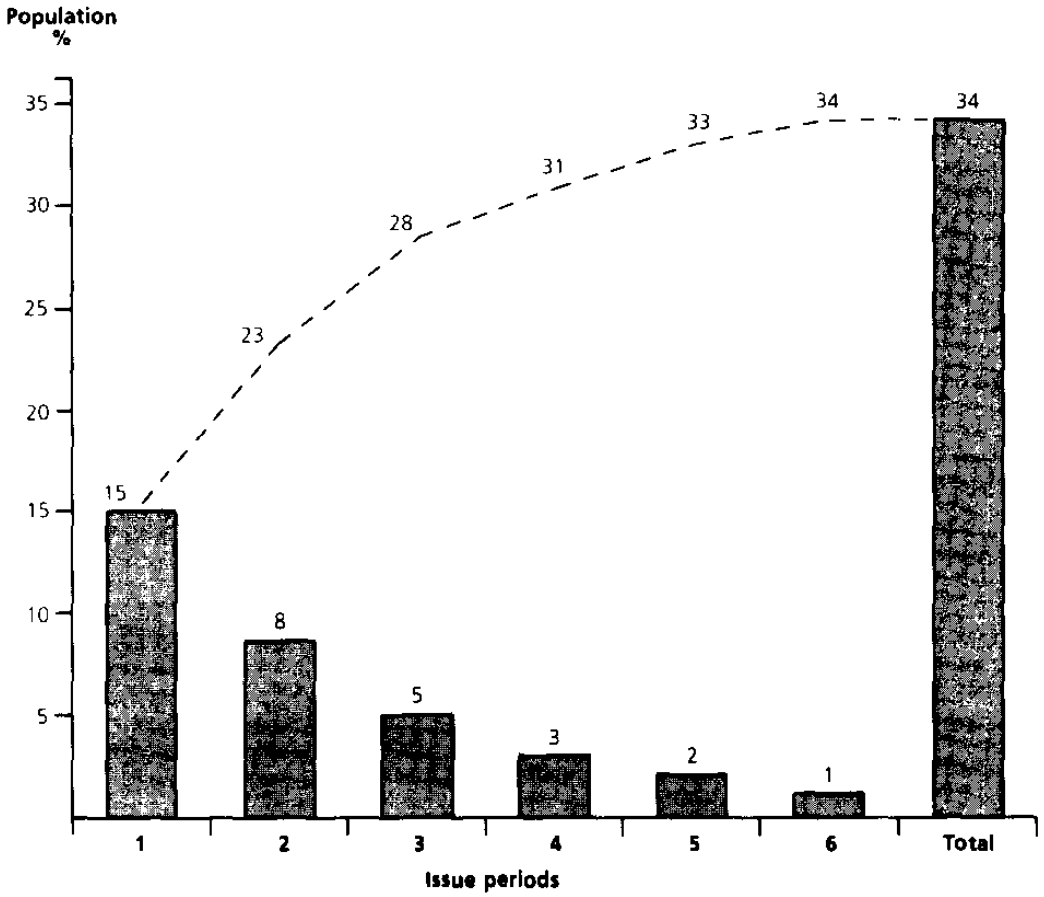
(5) when buying could have taken place

In theory a specific issue of a specific publication can keep gaining additional readers until it is thrown away or destroyed. A simplified version of this concept is shown in **Figure 3**.

Although it can gain additional readers *it cannot gain additional buyer readers when it is no longer on sale!*

Let us expand on the above statement. The basic recency method of readership measurement in fact consists of the linking together of a whole series of 'life cycles', such as shown in **Figure 3**, into an overall pattern such as shown in **Figure 4**. **Figure 4** shows clearly that if a series of 'life cycles' are linked together the audience that a specific issue captures during its 'life' is in fact the same as *different issues* capture during a specific issue period.

FIGURE 3
How a specific issue of magazine gains additional readers during its life



Note: a magazine can add readers to its total audience during its 'life' but it can't add claimed buyers *after the period in which the publication was on sale.*

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FIGURE 4
The concept of the recency method

Time		Time in publishing intervals										Total
		1	2	3	4	5	6	7	8	9	10	
Time in issues	1st issue	**15**	8	5	3	2	1					34
	2nd issue		**15**	8	5	3	2	1				34
	3rd issue			**15**	8	5	3	2	1			34
	4th issue				**15**	8	5	3	2	1		34
	5th issue					**15**	8	5	3	2	1	34
	6th issue						**15**	8	5	3	2	33
	7th issue							**15**	8	5	3	31
	8th issue								**15**	8	5	28
	9th issue									**15**	8	23
	10th issue										**15**	15
	Totals	15	23	28	31	33	34	34	34	34	34	300

Figure 4 shows how the 'issue sums' in the horizontal lines or rows are in fact equal to the 'publishing periods or intervals' in the vertical columns.

A further look at the basic recency model (**Figure 4**) also shows that time can be presented in two ways in the publishing field. We can call it a double time scale. The one measurement of time can be in terms of issue periods, and the other measurement of time can be in terms of actual issues. In **Figure 4** we have time in terms of issue periods along the horizontal scale and time via actual issues vertically.

If we want to link the number of claimed readers to the number of copies printed, ie readers per copy then it can be seen that in this model specific issues could only have been bought during specific time periods (ie during the 'shaded' periods). The concept of a publication picking up additional readers during its lifetime can in fact be compared with the aspect of linking of 'when last read' with frequency.

If a specific issue of the publication could only have been bought during a specific period of time, which is directly linked to its publishing interval, then it becomes clear that (by and large) only the readers that were captured by a specific issue of the publication *during the period when it was on sale could claim to be buyer readers.*

If a specific issue could only have been bought during a specific time period, then any readers added to the audience after the period when it was on sale must consist of people who became readers after the period during which it was on sale and *must* therefore be *non-buyer readers* (again there may be a few exceptions of delayed reading).

(6) claimed origin of the last copy read

Theoretically every person who ever read an issue of a publication could answer a question on the origin of the 'last copy' read. It is in this field, the writer believes, where researchers looking for a link between readership and circulation have erred.

Let us take a group of informants who read half the issues of a certain publication. The people who read half the copies should therefore be classified in the three out of six group. There are 20 ways or combinations in which readers can read three out of six issues of a publication.

Complete details of the 20 possible combinations are shown in **Figure 5**.

If this figure is studied closely it will be seen that each of the vertical columns contain 10 readers and each of the horizontal rows contain three readers. Each reader has therefore read three out of six issues, which is a 50% probability, and each issue, that is the vertical columns,

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FIGURE 5
Details of all the readership combinations for the out of 6 frequency group

Headings	*The last issue read*					
	Last issue	*2nd last issue*	*3rd last issue*	*4th last issue*	*5th last issue*	*6th last issue*
Combination 1	[R]	R	R	—	—	—
Combination 2	—	[R]	R	R	—	—
Combination 3	—	—	[R]	R	R	—
Combination 4	—	—	—	[R]	R	R
Combination 5	[R]	—	R	R	—	—
Combination 6	—	[R]	—	R	R	—
Combination 7	—	—	[R]	—	R	R
Combination 8	[R]	R	—	R		—
Combination 9	—	[R]	R	—	R	—
Combination 10	—	—	[R]	R	—	
Combination 11	[R]	—	—	R	R	—
Combination 12	—	[R]	—	—	R	R
Combination 13	[R]	R	—	—	R	—
Combination 14	—	[R]	R	—	—	R
Combination 15	[R]	—	—	—	R	R
Combination 16	[R]	R	—	—	—	R
Combination 17	[R]	—	R	—	—	R
Combination 18	[R]	—	R	—	R	—
Combination 19	—	[R]	—	R	—	R
Combination 20	[R]	—	—	R	—	R
Total per issue	10	10	10	10	10	10
Last issue	[10]	[6]	[3]	[1]	—	—
% last issue	50%	30%	15%	5%	—	—

Note: there are 20 possible combinations of 3 out of 6 issues

contains ten readers out of the 20 possible combinations, this also yields a 50% probability.

If we now look at the vertical columns, and we go back in time it will be seen that the most recent issue period contains ten readers. However if we go back to the second last issue period, another six additional readers are added, if we go back three issue periods we add another three readers and if we go back to the fourth last issue period we add another single reader. *The when last read* row therefore contains positive replies from *all the informants.*

The 'when last' or 'last issue read' aspect is illustrated even more clearly in **Figure 6** which shows the purely theoretical 'when last' situation at the 50% readership level in an 'infinite' (real life?) universe.

In the same way as half the three out of six readers fall into the 'last' issue period it can be shown that only one sixth of the one out of six frequency group will fall into the 'last' issue period, two-sixths of the two out of six group and so on.

The following are the main points in my *buying period probability theory*:

(**1**) average circulation is 'created' during a series of single issue periods.

(**2**) *all readers* are capable of providing a definite reply to the *origin* of the 'last issue read' question (see **Figure 6**) *but* only a subsection of them can be linked to those specific issue periods when a specific issue is on sale.

(**3**) the number of readers in a frequency group that can be linked to the same specific issue periods as those during which sales are made can be calculated by applying *the square of the frequency probability of the group to all the readers in the group.*

Maximum number of readers in the primary reader households

Users of market research often get confused between owners, users, buyers and the number of items involved.

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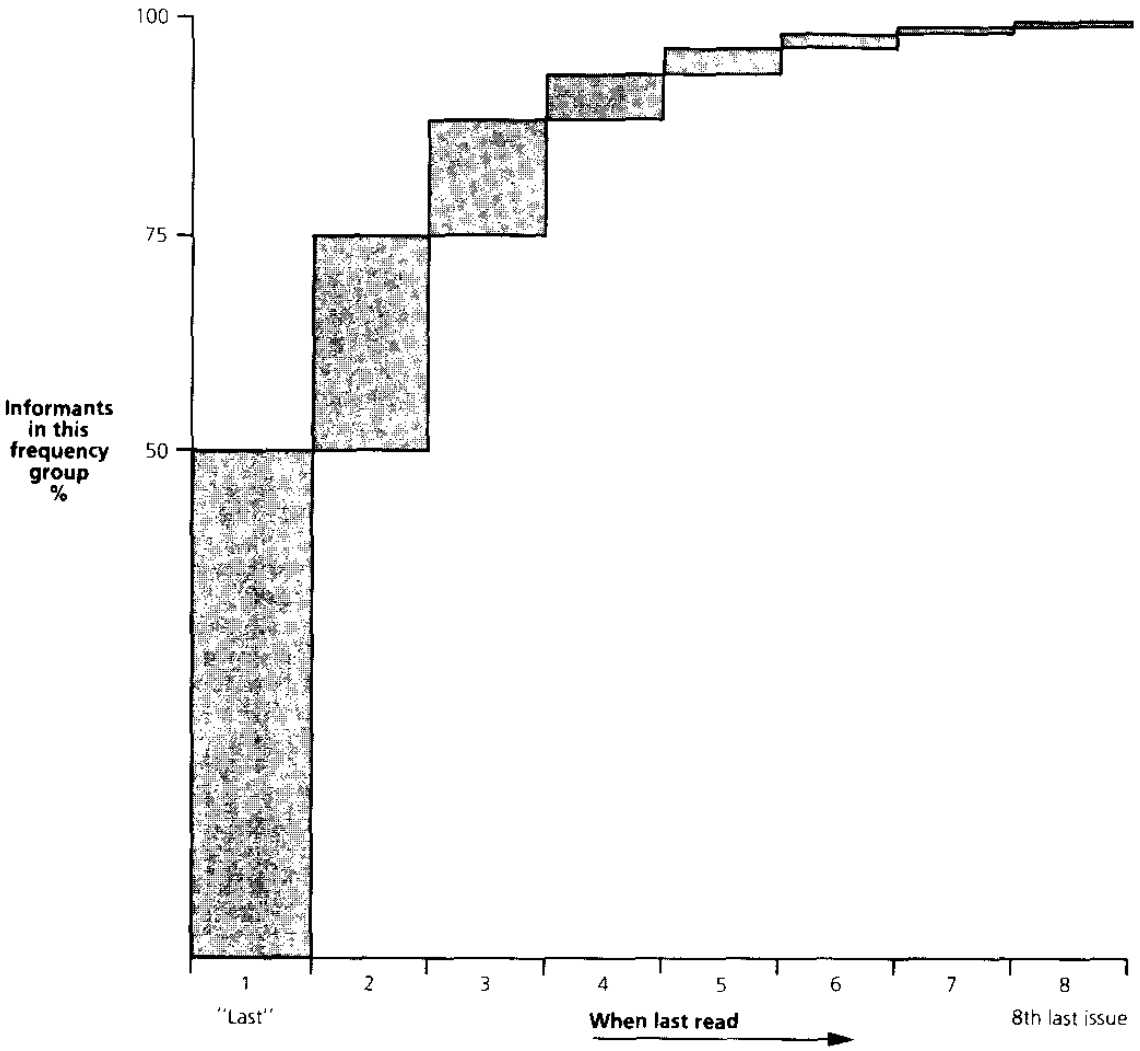
FIGURE 6
The theoretical 'When last read' pattern at the 50% probability level



Let us take a closer look at this problem via **Figure 7**.

In the above example we have 1000 households. 50% of these households contain 'a thing', that is there are 500 'things' in our sample households.

If we had to question all 2400 adults in these households 50% of them, ie 1200 of them, would claim ownership of 'a thing'.

The only way we can get back to the truth is if we divide 1200 by the average size household ie by 2.4 and 1200 ÷ 2.4 = 500.

In the same way if we only interviewed women (or men) then 50% of them would claim ownership of 'a thing' and 50% of 1200 women would equal 600. If however the 600 women is divided by the average number of adult women per household ie, by 1.2 we also get back to the truth (600 ÷ 1.2 = 500).

A very good example of the application of this household concept is shown in **Table 3** taken from AMPS '79 and showing TV ownership figures for South Africa.

In the same way as different informants in the same household can lay claim on the same TV set the writer has evidence that in many cases *readers in the same household also lay claim on having bought, or subscribing to the same issue of a publication.*

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TABLE 3
Validation via TV ownership AMPS '79

Population details

Racial group	*Adult population ('000s)*	*Number of households ('000s)*	*Percentage with TV set %*	*Number of sets ('000s)*
Whites	2996	1303	80.1	1044
Coloureds	1229	346	32.6	113
Asians	429	112	57.3	64
Blacks	11173	3355	1.5	50
Total	15827	5116	24.8	1271

Number of sets according to SABC 1270

With this statement as a hypothesis the following reasoning becomes possible.

Only when a publication appeals equally to both men and women will it be read by men and women, that is by *all adults* in the household.

The appeal of the publication to both sexes will be reflected in its sex profile. As a single sex, male or female starts dominating the sex profile the maximum number of readers in the household *must* drop from the maximum 'dual sex' total to the single sex total.

In South Africa the average number of adults per household varies appreciably between the different racial groups.

Racial group	*Average adults per household*
Asians	3.8
Coloureds	3.5
Blacks	3.3
Whites	2.3
Average all races	3.1

Although the average white household in South Africa contains marginally more adults than those in Europe the average multiracial household contains over 40% more adults than in Europe. The fact *must* influence the average number of readers per copy.

With the sex profile of readership, within the various racial groups, known via the large scale AMPS surveys, it is possible to calculate the overall *maximum number of readers in the primary households.*

With the marked differences in the number of adults per household for each racial group the maximum number of readers per copy has to be calculated from the *reader-sex profile within each racial group.* Full details of this procedure are shown in **Table 4**.

With this maximum figure known we can, theoretically, as in the case of 'the thing', in the above example, get back to the 'truth' ie, circulation.

(8) theoretical maximum number of readers per copy

In an article on readers per copy the well known media researcher Dr Timothy Joyce stated "The users of magazine audience research tend to evaluate it according to whether it 'looks reasonable' and whether the relationships found do or don't accord with common sense. There is no harm in this provided that the logic *is* logical and that the common sense *does* make sense."

The crux of the matter is 'what is reasonable'. In Britain the well-known magazine *Vogue* regularly records over 20 readers per copy yet when Dr Belson studied it in depth some years ago he claimed that its readership was understated by 20% (12% vs 10%).

It is a well known fact that the *potential for inflation* of readership is at a maximum in the lower frequency groups. What is not so well known is that it is among these groups that 'public place' reading is at a maximum. The origin of copy by frequency group, for six well-known South African magazines among whites only is shown in **Table 5**.

Let us have a look at the origin profile of the 'last issue read' of a well-known magazine among all four racial groups.

(*a*) bought it/subscribe to it myself	26%
(*b*) member of my own family bought it	28%
(*c*) got it from friend	21%
(*d*) saw it elsewhere	35%

On a multiracial basis the average size household contains 3.1 adults. On this basis headings *a* and *b* above can both

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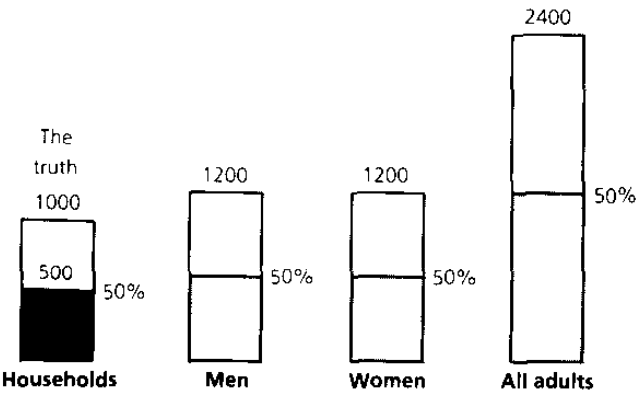
FIGURE 7
I, we and multiple claims



'score' 3.1 readers per copy.

Heading *c* can 'score' 6.2 – because in the friend's household the magazine could have been seen by 3.1 adults and in the informant's own household it could also have been seen by 3.1 people.

Heading *d* contains the big question mark. Based on consensus *but without the support of a properly conducted survey* my colleagues and friends contend that the magazines in beauty parlours, barber shops and doctors' waiting rooms 'lie around for months'. If 'public place copies' have a life of *only one month* and only *one person* per working day picked it up it could build up to 21 readers in a month and we would then have the following pattern emerging:

'Bought' self	26% @	3.1 =	80.6
Family member	18% @	3.1 =	55.8
Friend	21% @	6.2 =	130.2
Elsewhere	35% @	21.0 =	735.0
		Maximum average =	10.0 RPC

If the public place origin had to average *two pick-ups* per working day per magazine then the theoretical maximum average could climb to 17.4 RPC. This is a validation study that will be placed on the priority list of the South African Advertising Research Foundation.

PUTTING IT ALL TOGETHER

Researchers are constantly blaming the fallability of human memory when the results they achieve in surveys do not appear to make sense. However whenever the writer has probed into this matter, it has been found, in the vast majority of cases, that the accuracy of informants' replies were not as suspect as claimed by some researchers.

In this research we 'rotated' our hypotheses in turn assuming that . . .

(**a**) the frequency replies were the most accurate; or,
(**b**) the recency results were the most reliable; or,
(**c**) the binomial model is the most reliable; or,
(**d**) our simulation logic is the most reliable.

After numerous such tests the writer developed a formula – the buyer probability formula which shows promise as a link between readership claims, origin claims and circulation. Here is a brief review of the formula and method.

STEP 1 Analyse the readership of specific publications by claimed frequency of reading groups.

STEP 2 Take all the claimed readers in the three to six out of six frequency groups and add them together.

STEP 3 Express the six out of six group as a percentage of the sum of the three to six out of six readers, calculated under STEP 2.

STEP 4 Read off the theoretical probability for the percentage calculated under STEP 3. This is done via the six out of six curve shown in **Figure 8**.

STEP 5 The number of readers recorded under each frequency of reading group is next multiplied *by the square of the mid-point probability of that group.*

This is the conditional probability that the writer described under Factor 6. *For example*: readers in the one out of six group are multiplied by .0278 (ie $.1667^2$); and the two out of six group are multiplied by .1111 (ie $.3333^2$); and the three out of six group are multiplied by .25 (ie $.5^2$); etc, etc.

The writer contends that this conditional probability *represents the number of readers that fall into the specific time period when a specific issue of the publication is actually on sale.*

STEP 6 We now take the 'buyer period' readers, from STEP 5, and multiply them by the *claimed SELF-BUYER percentages* recorded for each publication under each frequency group. For example if 17% of the three out of six group claimed to have bought their 'last issue' themselves then the 'buyer period' readers in the three out of six group, as calculated in STEP 6, would be multiplied by .17 (see **Table 6**).

After STEP 6 has been completed for each frequency group we have one step left to complete the calculation.

STEP 7 The concept of 'we' equals 'I', described under Factor 7 – 'maximum number of readers in the primary reader households' is now applied. The first requirement for this step is to calculate the number of possible adult readers for the publication for each racial group. The actual number of possible readers is calculated as described under Factor 7.

In **Table 6** we provide an example of the actual calculations for a well-known South African magazine. In

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TABLE 4
Sex profile of a publication and its maximum number of readers per copy

Only when a publication has a 50/50 male to female profile can it reach *all adults* in the households it enters.

As a single sex, male or female, starts dominating the sex profile the maximum number of readers in the household MUST drop from the maximum total till it reaches the single sex level if all the readers belong to one sex.

Maximum penetration		*Total readers*	*Reader profile*		*Maximum equals total in household*
Sex 1	*Sex 2*	*S1 + S2*			
S1 = 100	*S2 = 100*	*= T*	*S1 ÷ T*	*S2 ÷ T*	*= 100*
No of readers	*No of readers*	*No of readers*	*%*	*%*	*Index*
100	100	200	50.00	50.00	100
100	90	190	52.63	47.37	95
100	80	180	55.56	44.44	90
100	70	170	58.82	41.18	85
100	60	160	62.50	37.50	80
100	50	150	66.67	33.33	75
100	40	140	71.43	28.57	70
100	30	130	76.92	23.08	65
100	20	120	83.33	16.67	60
100	10	110	90.91	9.09	55
100	0	100	100.0	—	50

Note: the same sex profile of 66.7% male and 33.3% female would yield the following maximum number of readers per household for the other racial groups listed under point 3 above.

$$1 + \frac{33.33}{66.67} \times \frac{1}{2} = .75$$ and $.75 \times 3.8 = 2.85$ asians
or $.75 \times 3.5 = 2.63$ coloureds
or $.75 \times 2.3 = 1.73$ whites

Formula for calculating maximum readers per household

$$1 + \frac{\text{Sex 2}}{\text{Sex 1}} \times \frac{1}{2} \times \text{average adults per household}$$

For example: for a black publication with 2/3 males and 1/3 females:

$$1 + \frac{33.33}{66.67} \times \frac{1}{2} \times 3.3 = 2.47$$

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TABLE 5
Origin of the 'last' copy read

This table is taken from an M & M panel survey based on 2000 informants and shows the average patterns for six well known South African magazines

	Frequency group						
Claimed origin	*less 1 0/6 %*	*1/6 %*	*2/6 %*	*3/6 %*	*4/6 %*	*5/6 %*	*6/6 %*
1 Bought it self	11	21	28	39	44	58	75
2 Bought by other family member	18	21	25	29	28	23	16
3 Obtained from a friend	26	28	27	22	18	13	6
4 Read it elsewhere	45	30	20	10	10	6	3
Total in group	100%	100%	100%	100%	100%	100%	100%

FIGURE 8
The theoretical links between average readership and profile proportions in the 5 & 6 out of 6 frequency groups

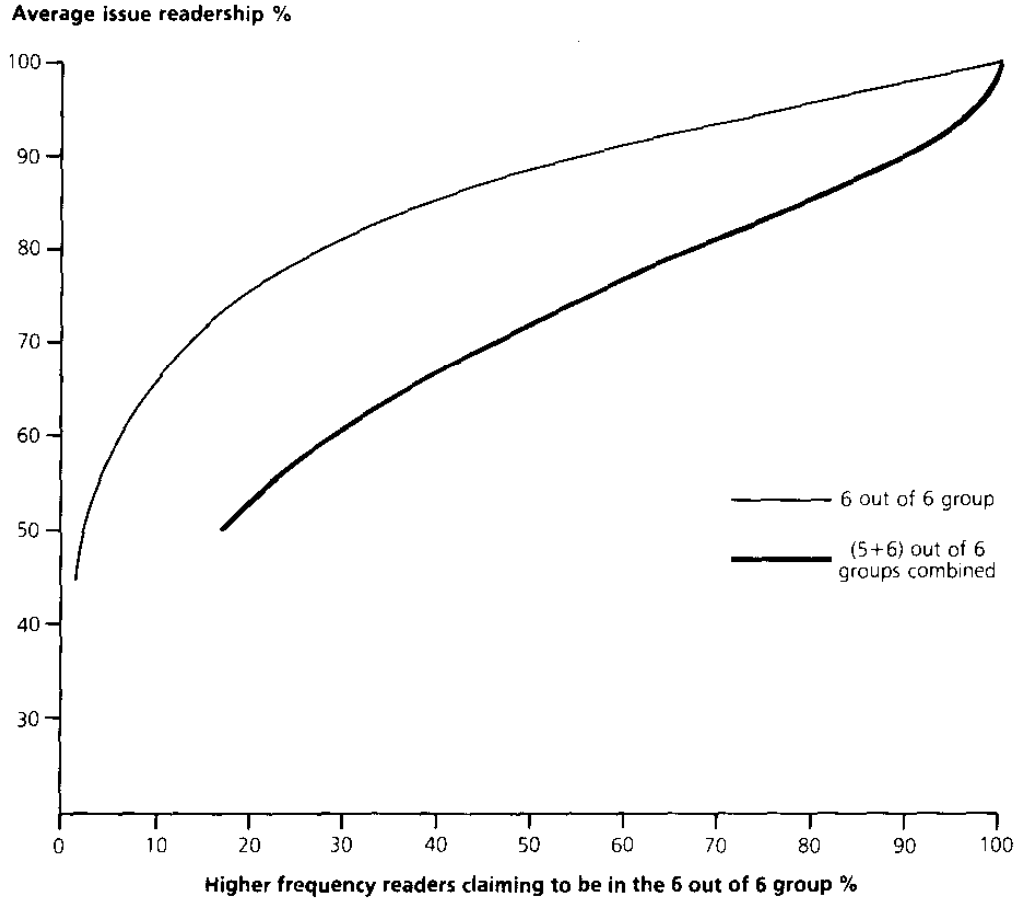

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TABLE 6
'Deduced' or calculated 'circulation' from informant claims (AMPS '79) – publication *Sarie*

	Heading details	*Frequency of reading group* 0/6	1/6	2/6	3/6	4/6	5/6	6/6	*Total*
A	Number of readers per frequency group as claimed ('000s)	296	414	339	260	177	76	615	2177
B	3 to 6/6 frequency profile sum for calculating 6/6 probability)	Total (3–6/6) = 1128; % 6/6 = 55; Theor prob see chart .905							
C	Squared probabilities	—	.0278	.1111	.2500	.4444	.6944	.8190	
D	Buying period audience (A × C) ('000s)	—	12	38	65	79	53	504	751
E	Percentage claimed 'self' buyers (From AMPS '79)	—	1.7%	10.7%	17.4%	22.3%	35.3%	54.0%	
F	Number of 'self' buyers (D × E) ('000s)	—	*	4	11	18	19	272	324
G	Deduced 'circulation' (F ÷ average size reader household – see below for calculations)								162
								Actual circulation:	168

Calculation of average reader household size

	Heading details	*Whites*	*Coloureds*	*Asians*	*Blacks*	*Total*
A	Average household size	2.3	3.5	3.8	3.3	3.1
B	Percentage 'main' sex among the readers	63%	70%	57%	59%	
C	Average reader household size (read from table)	1.83	2.50	3.34	2.80	2.00
D	Average issue readers (from AMPS) ('000s)	878	125	8	97	1108
E	Average size reader household (from C & D)					2.00

Figure 10 we show the correlation between the actual ABC circulations and the circulations as 'deduced' by the buying period probability formula.

POSTSCRIPT

This paper had to be prepared against a strict deadline and although we have put many hours of 'overtime' into it there are certain aspects of the findings we would still like to investigate. Here are a few.

Firstly, with a few magazines the formula yields deduced circulations appreciably lower than the ABC. With a few of them we believe we know the reasons but with others we do not.

(**a**) with the *Reader's Digest*, gift subscriptions were probably not recorded under our key heading of bought self or subscribe to it.

(**b**) the black publication *Bona* is the most popular vernacular magazine and is subscribed to by schools for pupil reading. With an adult only survey we would not pick up these buyer readers in AMPS.

(**c**) the Diners Club magazine, *Signature* came up with a very low deduced circulation – we believe a possible reason for this is that executives get their Diners Club cards from their company and they did not claim buying it or subscribing to it.

Secondly, with publications that have many pick-ups or reading days we believe that the frequent pick-ups lead to inflated frequency of reading claims. For example with the magazine *Family Radio & TV* we have eight times as many informants placing themselves in the six out of six frequency group as in the five out of six group. If in these cases *we combine the five and six out of six groups* and calculate their combined profile probability *from the combined curve of 5 + 6 in* **Figure 8** the accuracy of the deduced circulation is improved appreciably (actual 146,000. With 6/6 199,000. With 5+6/6 156,000).

The decision as to which publications should be

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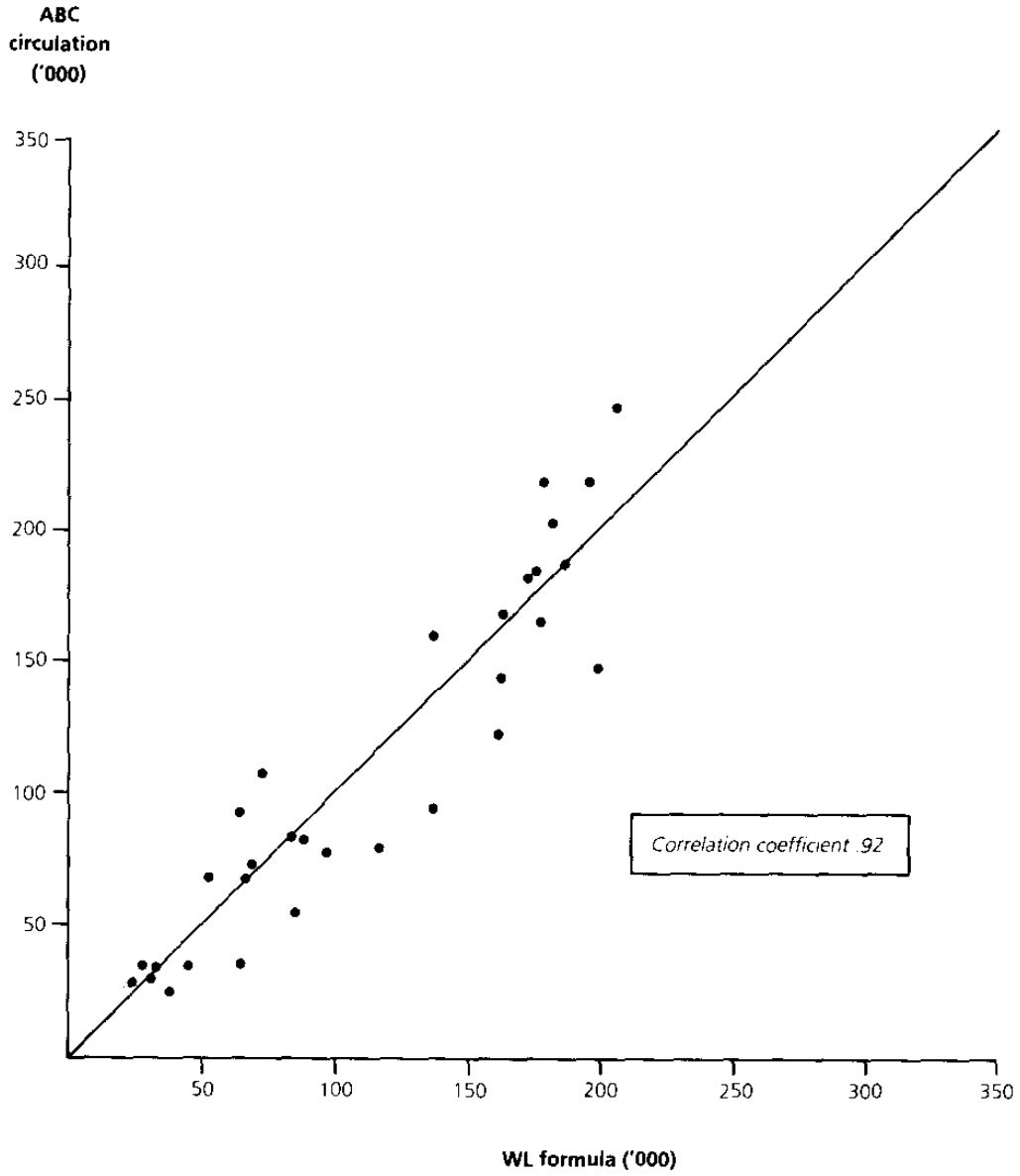
calculated via the combined 5 + 6/6 and the six out of six only methods is however subjective and is not therefore completely satisfactory. **Figure 10** *shows the deviations between ABC figures and our final deduced figures. With a total adult population of 15,828,000 and a sample of 16,000 informants these deviations seem reasonable.*

Thirdly, the testing of buying probability formula in other countries may throw further light on the subject.

FIGURE 9
Correlation between the official ABC circulation and the buying period probability method: Magazines



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CONCLUSIONS

Time does not permit a detailed review of our findings to date but with a correlation of .92 between ABC figures and our deduced circulations for magazines and .98 for newspapers the writer believes "there is something in the Buying Probability formula." (See **Figures 9** and **10**.)

Further work will have to be done on the 'Other' publications to establish why they deviate from the official ABC figures.

Further work will have to be done on the 'correct' probabilities at the lower end of the frequency scale.

FIGURE 10
Correlation between the official ABC circulations and the buying period probability method: Newspapers