

PROBLEMS AT THE INTRODUCTION OF CATI/FRY IN DENMARK

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1. INTRODUCTION

Dansk Media Komite was established in 1967 by representatives of the associations for dailies, magazines, advertisers and advertising agencies. The first edition of Dansk Media Index was published in 1969 and the informations given concerned the calendar year 1968. The results were given in a printed version, and the users might order special calculations at the contractor. Lateron we have got an on line service. This is mentioned because the introduction of FRY involves the introduction of real probabilities, which implies some understanding problems of a more complicated kind by media selection programmes than by reading in the printed version.

Dansk Media Komite has as a principle invited for tenders every fourth year. The invitations containing rather exact specifications were sent to the institutes in spring/summer and the decision were taken by the board upon recommendation from the Technical Subcommittee in October, so the final contract could be signed before Christmas, and then the contractor had a whole year before the field work should start.

In 1986 we in this way invited for tenders covering 1988-1991, and we asked on a tender according to the specifications mainly following the guidelines from the previous period, but we furthermore invited for proposals based on another technique.

The reason for asking for alternative solutions was that we were feeling, that it was only a question of time before we had to leave the face to face interviews for shifting to telephone interviews. We had made an experiment with telephone interviews and the recency model but got some results without any relation to those figures got by personal interviews. Both at the Montreal symposium and the Salzburg symposium I have heard abot the Media Scanner and First Time Reading Yesterday, and according to the results presented by Pym Cornish in Stockholm 1982 at the ESOMAR-seminar, we felt that perhaps a great change should take place from the beginning of 1988 or 1992.

From AIM - now owned by Nielsen - we got a proposal for an alternative solution by introducing CATI/FRY.

It is very essential for me to stress, that there are three different elements in CATI/FRY, and some of my colleagues in Club Dubois had the opinion, that it is very risky to change that much at the same time.

My personal point of view was - and I succeeded to persuade the board - that it is better to change all the things to be altered at the same time and then stick to the solution for many years, e.g. the rest of this century. At the same time I of course stressed to the board that

the decision was a decision of no return. The final decision was as a result postponed one year in which the old IPA-model was in use with the Danish discs etc.

However by this delay we run into another problem, namely that the number of Danish tv-channels was doubled (2 instead of 1) on the 1st of October 1988 and we started using the CATI/FRY system on the 1st of January 1989. We are sure that the time consumption of tv has grown since 1st of October 1988 and have the feeling that this implies smaller interest in printed media and lower audience figures.

Finally I personally must admit, that I support the point of view given by Rodny Harris, media director at Masius in London in the late sixties as he said: "A media research is not designed to find out the truth. It is a treaty between the interested parts." Consequently I maintained, that we had one truth before the introduction of the CATI/FRY solution and another one after.

2. CATI/FRY IN GENERAL

As mentioned above there are three different elements, and it is essential to distinguish between them for several reasons.

CA = Computer Assisted
TI = Telephone Interviewing and
FRY = First (time) Reading Yesterday

In Denmark and Norway it is the common opinion, that the contractor has the responsibility for the CATI/FRY-elements, whereas the syndicated research organization decides, whether the FRY- or the Recency-model shall be the basic one. (Of course the research organization has to accept the CATI/FRY-facilities to ensure, that it is done in a proper way from the organizations point of view.)

3. THE CA-ELEMENTS

Computer Assistance has two great advantages:

3.1 Randomisation between media groups and within media groups.

As some of you may know we used the Danish Discs in the personal interviews, whereby the starting point within a certain media group was chosen randomly, but the order was the same in all interviews.

It was aided recall and the respondent should mention the names of the titles read or looked in, for at least a couple of minutes. We know, that some titles missed some readers, because the interviewees did not know the pronunciation.

The media groups were always asked in the same order: Monthlies, fortnightlies, weeklies, week end- and sunday papers, dailies.

By the introduction of CATI/FRY we have registered declining audience figures for all media groups and of course the majority of the titles, but some have had increasing readership figures. Maybe some of the decreases for the monthlies are caused by the fact, that this media group now only in a 1/4 of the interviews is asked as the first one.

3.2 Filter questions are used in the same way in all cases, as only one question is on the screen at a certain time and which one is sett-

led by the system according to the answers given earlier in the interview.

However the wording of a particular question may be based moreover on another information, foremost the place as it is indicated by the telephone number.

In fact we have been able to halve the average interviewing time to 12½ minutes, which is of importance to the number of interviews achieved.

3.3 Both the randomisation and the use of edp-facilities in connection with filter questions may be used in portable computers too, but by a centralised Computer Assistance you may benefit from the technique in one more way, namely the time scheduling.

It is possible to register a time for recalling and be rather sure that it takes place on the time agreed, whether the original interviewer is able to do it or not.

By a central monitoring you are able furthermore to avoid interviewer biases, if anything indicates, that this might happen.

Finally in this part I will point out, that the CA-technique makes is probable, that there are not two interviewees who have answered an identical questionnaire.

4. THE TI-ELEMENT

Quite honestly the main reason for changing the mean of contact was the economic one, and this has two important aspects.

4.1 The interview in itself is cheaper, as there are no travelling expenses and it is shorter too.

This implies furthermore, that the fatigue among the interviewers as well as among the informants is less, and we now feel, that this is of bigger benefit than we envisaged.

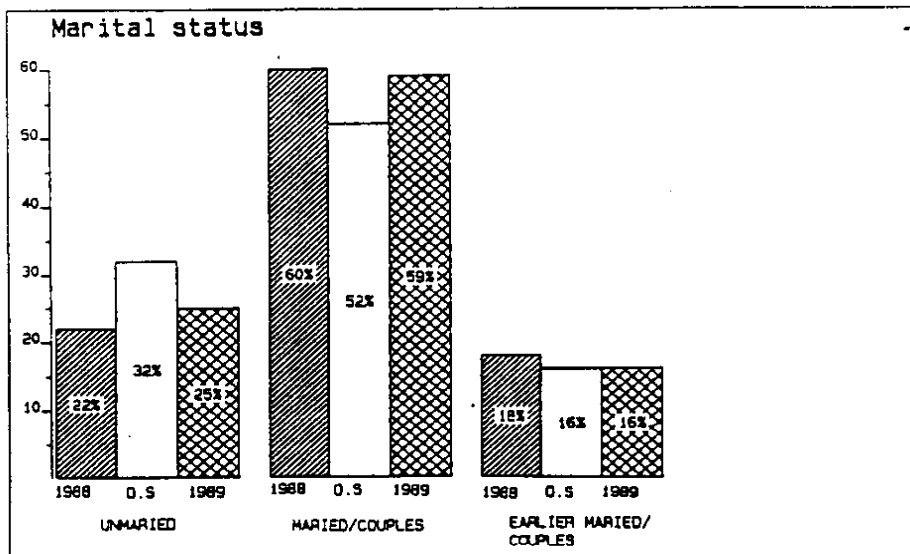
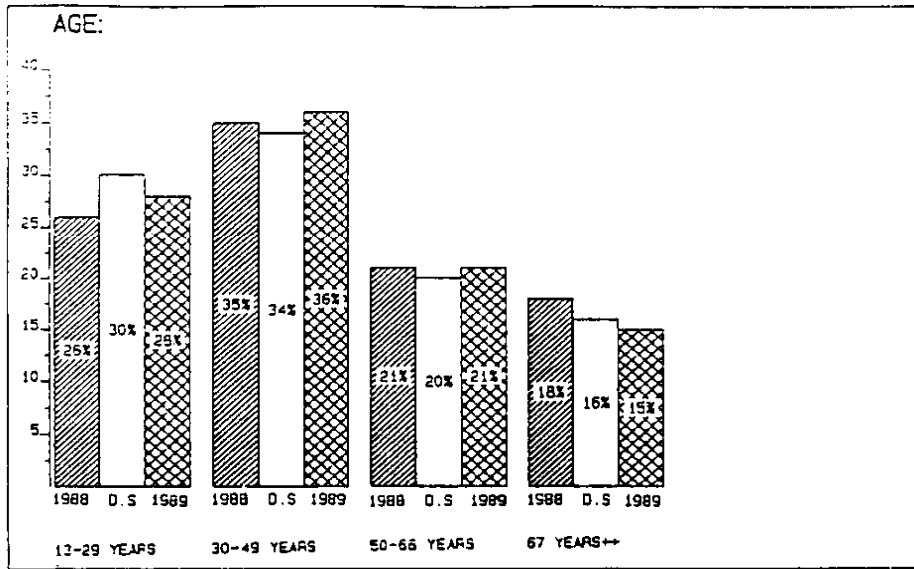
In 1969 Dansk Media Komite had the opportunity to compare the results for identical questions in two questionnaires, which differed in the total length. One version included some ordinary omnibus questions between the normal media questions and asking on demographics, whereas the other version only included the questioning of media contacts and demographics.

We found by a χ^2 -test, that there were differences - but not significant - concerning demographics, which in one version as an average was asked after 20 minutes and in the other version after 40 minutes (average). We found however significant differences concerning the reading of magazines and sunday papers, which were asked in the beginning of the interview in both cases.

Personally I feel, that a certain part of the increases in the readership figures for some some up market publications is due to this occurrence.

4.2 Another part of the increases concerned is due to the fact that recalling is much cheaper, so more recalls are done, and hereby we get better response rates in those groups, which normally cause troubles:

Young men in big cities, people active outside their homes, persons in small households etc.



1988 = Dansk Media Index 1988 (Recency method)
 1989 = Dansk Media Index 1989 (CATI/FRY method)
 DS = Central Bureau of Statistics

4.3 A disadvantage is the missing possibility of using visual aids. It is obvious, that e.g. in UK the peril of title confusion is rather great, whereas this is not a problem in Denmark nor Norway.

On the contrary we find that as far as a single title is concerned it is a benefit, that the title in question is pronounced by the interviewer. To some people, especially elder, is it not quite clear how it has to be articulated.

In Denmark we have felt the lack of visual aids at a single question, namely the asking about income, personal as well as household.

Combined with the personal interviews the interviewers showed the informants a list with a row of income intervals, all marked with a letter. The interviewers were asking about the income without mentioning any amount - only asking "Which letter may I use in your case?"

When we introduced the method described our refusal rate declined from 29% to 21% and the average income was increased with about 20%. Now as the contact by telephone has made it impossible to use the technique in question, our refusal rate has increased to the former level again and probably the average income has decreased in the same manner.

The first media question is a screening one, used for filtering, "Do you ever read?" or "Have you ever read?" and these phrases have been discussed and to some extent been tested in Denmark and Norway.

It is obvious, as it is described later on in this paper, that the audience figures produced by the FRY-method as a main rule have to be lower than those produced by the recency methods

4.4 Another step backwards are the poorer stratification possibilities. Previously Denmark was divided in round 160 strata making it possible to establish more valid estimates of the audience figures for the smaller local dailies. However I anticipate, that this step backwards is a temporary one even it will last some years before we get exact figures for the population, distribution informations etc. for telephone districts as we have it for parishes and postal areas.

4.5 Of much greater importance is the fact that we nowadays do not use cluster sampling - and that is a great advantage in all countries and even to a greater extent in a country, which consists of so many small islands as it is the case in Denmark.

This lack of clustering implies smaller fluctuations for small titles - those fluctuations which are so difficult to explain especially to the editors of the small titles in question, because these people do not understand statistical problems at all.

4.6 The exact wording of the single questions has a much bigger importance in the case of telephone interviewing than in the case of personal interviewing. In this connection there are both positive and negative aspects.

The positive are

- 1) the inclination among the interviewers to alter the exact wording a little bit is smaller, as the interviewer do not know the question to be raised before it turns up on the screen, and the answering possibilities in fact change all the time
- 2) it is possible for the management to listen to the interviewing process and very rapidly correct an interviewer if he/she is doing so-

mething wrong

The negative is

3) it is easier for the interviewers to be aware of any misunderstandings by the repondents in the case of personal interviewing than if the contact only is by telephone. It is obvious, that we both in Norway and Denmark have had some difficulties with the translation of "ever" into Norwegian, resp. Danish.

5. THE FRY-MODEL IN GENERAL

5.1 At the ESOMAR seminar in Madrid in 1988 the FRY model was described, but for safety's sake it is also given in fig. 5.4 and the numbers shown were some actual ones.

Fig. 5.1 Calculations for establishing readership figures

Frequency groups	1	2	3	4	5	6	7
	Ever readers	Readers yesterday	First time readers yesterday	First time readers yesterday x 7	Individual reading probability	Collective reading probability	Calculated number of readers
0:6	812	32	6	42	0,052	0,045	37
1:6	1.539	148	36	252	0,164	0,146	225
2:6	949	110	27	189	0,199	0,192	189
3:6	696	200	34	238	0,324	0,359	250
4:6	253	61	19	133	0,526	0,535	135
5:6	169	65	19	133	0,787	0,798	135
6:6	2.003	1.003	270	1.890	0.944	0,944	1.891
TOTAL	6.421	1.619	411	2.877			2.862

Sample size: 26.566

Coverage: $\frac{(\text{Col. 6} \times \text{col. 1})}{26.566} = \frac{2.862}{26.566} = 10,77\%$

5.2 One great advantage by the FRY-model is, that we primarily ask the informants on their readings yesterday. They shak not think e.g. 30 days back, and hereby we have seen, that the more expensive magazines get higher figures, as readings in public places are remembered. From an European point of view it is quite clear, that the growing interest in FRY is connected with the growing interest in the time budgetting technique.

5.3 The weakness of the model is that the reading and especially the first time reading varies very much according to the publishing dates for the various titles. Therefore is it necessary to have an equal number of interviews, and it is necessary to include some sort of probability for getting an interview with a person on a day, when it is right that he/she read the title in question yesterday. This implies, that a figure, which sometimes is rather uncertain, is multi-

plied with 7 in the case of weeklies and with 30 in the case of monthlies.

5.4 From a theoretical point of view the most essential step forward perhaps is the introduction of real probabilities in the interval $0 \leq p \leq 1$.

6. EVER READERS

The first media question (after those necessary to select the person to be interviewed) is a filter question "Do you ever read?" or "Have you ever read?", and there is quite a difference in between these two formulations.

As it is argued below the FRY-concept tends to place the readership figures on a lower level, and we feel this is correct, but it worried us, that the readership figures were steadily declining, and we found that this mainly was due to reductions in the numbers of ever readers, even the wording was not changed.

Here the introduction of the second Danish tv-channel has to be mentioned, as it has caused a growing consumption of tv, measured by time. We do not know however, whether this fact has implied a decline in the contact with the printed media, illustrated by declining audiences and/or fewer titles read, lower frequency, time spent etc.

6.1 The screening question is used as a filter question, and the numbers found by this question are furthermore used in the calculations of reading probabilities.

As far as the filter function is concerned the question of reading yesterday is only given to those respondents answering in a positive manner on the "ever-question". Therefore declining numbers of ever readers as a consequence has declining numbers of interviewees saying they were reading the day before the interview - and of course also declining number first time readers.

6.2 On the other side the number of ever readers is on every step of the frequency scale used as divisor in the calculation of reading probabilities. However as the numerator is smaller than the denominator alterations in the former are more important than in the latter.

6.3 As the numbers of ever readers were declining a great deal of work has been done to investigate the effect of the screening question. According to the dictionaries "ever" is "nogensinde" as well in Norwegian as in Danish, but I don't know how exact it is understood in English/American, but both in Denmark and Norway it may be understood in different ways and this means that we may have different numbers.

Above the question is given in present as well as present participle and this difference alone means something to most people, and it looks that is there is the least variation combined with the present participle form.

In Norway Gallup (the contractor) took initiative to make a comparison between various wordings, and the results for some titles are shown in fig. 6.3.1. In Denmark it was Dansk Media Komite who took the initiative, and here the Technical Subcommittee decided how to do. The Danish results are shown fig. 6.3.2.

Fig. 6.3.1 Test of General Filter in various readership surveys

Reach in %	1	2	3	4	5
Dailies					
Arbeiderbladet	15.8	23.8	27.8	21.8	14.6
Aftenposten, aften	23.8	31.5	37.2	28.6	20.1
Aftenposten, morgen	...	40.7	48.8	41.4	34.3
Dagbladet	...	64.4	75.6	66.9	54.7
VG	...	83.1	86.0	81.4	69.5
Weeklies					
Allers	...	58.2	55.8	45.7	22.4
Hjemmet	...	64.5	70.4	58.4	34.3
Norsk Ukeblad	...	57.9	61.7	48.6	27.6
Se og Hør	...	64.4	68.7	63.1	38.9

1 = Does it happen, aided in Oslo, unaided outside

2 = Does it happen, aided for all titles

3 = Have you read within the last 12 months, aided for all titles

4 = Have you read within the last 2 months, aided for all titles

5 = Have you read within the last 14 days, aided for all titles

Source: Internal working paper from Gallup, Norway, to the Technical Subcommittee of Norsk Mediesentral.

As the heading indicates the Norwegian investigation was done by comparing various media surveys. The Danish test was carried out on 5 telephone omnibus surveys, and all titles were mentioned in a random order. The results are compared for each title.

Fig. 6.3.2 Test of formulation of filter question

	Number of observations			Significant differences	
	Qn>Q1	Qn=Q1	Qn<Q1	>	<
Q 1 against Q 2	25	24	4	11	-
Q 1 against Q 3	1	23	29	-	11
Q 1 against Q 4	51	2	-	43	-
Q 1 against Q 5	1	4	48	-	43

Q 1 = Do you ever read ...?

Q 2 = Have you within the last year read or looked in ...?

Q 3 = Where did you last read or looked through ...?

Q 4 = Have you ever read or looked through ...?

Q 5 = Have you read or looked through ... within ... (publishing interval)?

Source: Test carried out by an omnibus survey by AIM Research for Dansk Media Komite. September 1990.

There is a special reason for no. 1 in the Norwegian test, and that is not interesting in the actual case. Besides that the most interesting observation in the Norwegian test is that a wording with a distinct time limit, 12 months, gives higher scores than the vague with "ever" etc.

In the same way there is in the Danish test a special argument for asking the normal recency question too, and it has nothing to do with the actual problem.

In both countries we have chosen the wording giving the biggest number of readers in the filter question. In Norway we have chosen version 3 and in Denmark version 4.

7. DECLINING NUMBERS OF EVER READERS

Many hypothesis were given to explain the steadily falling numbers of ever readers:

7.1 One was falling quality among the interviewers, the idea was the wellknown, discussed under heading "Horizontal vs. vertical interviewing". The idea was that the experienced interviewers should omit some of the titles mentioned in the filter question, but it was not true.

As a consequence of the CA-technique it was possible to register the interviewing time for each interview, and the averages for the nine waves carried out in 1989 are shown in fig. 7.1.1.

Fig. 7.1.1 Average Interviewing Time for the 9 waves in 1989

	Average interviewing time			Number of interviewers
	Total min.	Old min.	New min.	
1. wave, Jan. 2 - Jan. 29	11.2	11.9	12.5	14
2. -- , Jan. 30 - Feb. 26	13.4	14.8	15.3	15
3. -- , Apr. 3 - Apr. 30.	12.3	13.4	13.7	15
4. -- , May, 1 - May 28.	11.4	11.9	12.3	12
5. -- , May, 29 - June 25	10.7	11.1	11.0	11
6. -- , Aug. 14 - Sep. 10	11.3	11.7	13.1	13
7. -- , Sep. 11 - Oct. 8	11.6	11.8	12.3	12
8. -- , Oct. 23 - Nov. 19	11.4	10.8	12.2	10
9. -- , Nov. 20 - Dec. 17	10.9	10.8	12.0	11

Source: Internal working paper from AIM Research to Dansk Media Komite
The numbers of ever readers were compared too as it is done in fig. 7.1.2.

Fig. 7.1.2 Average numbers of ever readers among various types of interviewers

	"Quick Old"	"Slow Old"	"Quick New"	Slow New"
Average number of ever readers	6.7	6.3	6.9	6.6

Source: Internal working paper from AIM Research to Dansk Media Komite

7.2 In many years we have seen, that the audience figures generally have been smaller in the 2nd half years than in the 1st, but the differences were never significant, but they became significant in 1989.

The new element was the the word "ever", as described above, point 6.

One idea was that in the beginning of the year people are thinking of their intentions, whereas they in the autumn to a greater extent think of what they are in reality doing.

This hypotheses was dropped, as the numbers of ever readers continually were declining in the beginning of 1990.

7.3 An explanation might be, that the reading probabilities used in the calculations for the 1st half year were more uncertain than those for the whole year, which were used for the 2nd half year too. In this connection it has to be stressed that we in Denmark have had a point of view, which is different from the Dutch one.

In the Netherlands the groupings of titles for calculations of reading probabilities have not been discussed very much. In Denmark we have however discussed the groupings very much, and especially we have the point of view, that we - if there were observations enough - should avoid the groupings and do the calculations of reading probabilities on an individual basis.

That implies, that in the 1st half year the reading probabilities for all titles were calculated in groups, whereas it for the 2nd half year was possible to calculate the reading probabilities for some titles individually.

For the sake of completeness it has to be mentioned, that the readership figures for the 2nd half year 1989 are calculated on the basis of FRY-readers in the 2nd half year, but as reading probabilities are used those found for the whole year 1989. This is done because the basis for calculations of reading probabilities are bigger and because there might be some differences between spring and autumn.

7.4 Traditionally we have avoided periods of holiday when we planned the fieldwork, and that means that we omitted longer periods in the 2nd half year than in the 1st one.

Combined with this fact an idea came up, namely that we hereby are losing more low frequent readers in the autumn than in the spring, and this has of course to be seen in the numbers of ever readers.

As the Dutch Media Scanner is running all the year round I asked Costa Tchaoussoglou from SUMMO in Amsterdam about numbers of ever readers in July and first week in August which is the heavy season for summer holidays in Denmark. The Dutch figures were however very stable throughout the whole period. A small test carried out by AIM Research in Denmark showed however that the idea of rather many low frequent readers in July/beginning was right. An explanation may be, that the informants in question when they are interviewed in October forget that they a rainy day in the summer time read a certain weekly.

Consequently the field work in the autumn 1990 was started a week earlier than usual, and we have got some increases in the numbers of ever readers.

Johnny Petersen from Gallup, Norway, has stressed very much, that the interviewers regularly have to be instructed about the importance of the filter question, and that I told my contact at AIM Research, Hanne Treu, so she tried the same in Denmark. This of course has helped in Denmark. This of course has helped in increasing the numbers of ever readers.

7.5 The reader of this paper may wonder why we have been so keen to get bigger numbers of ever readers and ask if this is only to get bigger readership figures.

The interest in getting greater numbers of ever readers shall be looked upon in that way, that we want to get as accurate estimates of the reading possibilities as possible, and for this purpose we want as big figures as possible.

Furthermore it has to be stressed, that an increase in the number of ever readers not necessarily means a greater audience figure. It may be and that looks moreover rather probable, that the ever readers we "gain" are low frequent, so it may cause a declining readership figure.

8. READING PROBABILITIES

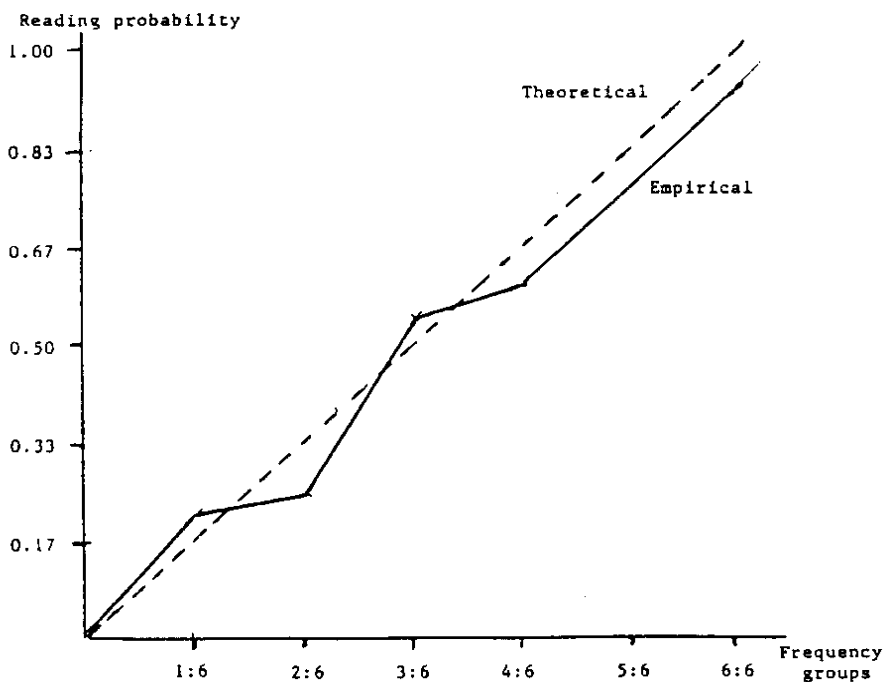
The introduction of reading probabilities is a real step forward thinking of the eternal problem as far as media research is concerned.

The media researcher is registering the past on distinct time, and the media planners are using the figures concerned for the future.

The probabilities take into account, that the informants have some habits, which are not registered as 100% sure events.

Hereby the FRY model is lowering the majority of the audience figures as many interviewees claim to read every issue of magazine or newspaper, but in fact they miss an issue from time to another, due to strike, holiday etc.

Fig. 8.1 Frequency Groups combined with Reading Probabilities



In fig. 8.1 it is seen, that the reality is, and that the FRY model is better to estimate the actual readership, as it deducts more than it adds, compared with the traditional opinion.

The number of ever readers is essential to the calculation of the readership figures, and that are the reading possibilities too.

As it may be seen in 5.1 the reading probability is calculated for each of the seven steps on the frequency scale (also 0:6), and some basic research has to be done to state some minima claims to the numbers of observations on each of the seven steps. In the Netherlands there is same minimum on all steps before calculations of reading probabilities may take place, whereas I personally has maintained, that the claims must be bigger to 5:6 and 6:6 than 1:6 and 2:6, because the former steps are of greater importance to the final readership figure, and in Denmark this problem is under study at moment by the help of a professor in statistics at the High School of Business Education in Århus, Peter S. Mortensen. It looks like that 5:6 is the most sensible step, and consequently needs the biggest number of observations.

9. GENERALLY

The shift from one model for measuring audiences to another one purely is the responsibility of the syndicated body. It is essential to stress this, as the media owners are paying more than 90% of expenditure and it was envisaged, that totally the readership figures would decline by the introduction of the FRY model.

The consequence of this attitude is that when we shifted from the IPA² model to the FRY-model we changed from one truth to another truth. The big step - and the majority feels forward - was taken by the decision

The shift from one model for measuring audiences to another one purely is the responsibility of the syndicated body. It is essential to stress this, as the media owners are paying more than 90% of the expenditure and it was envisaged, that totally the readership figures would decline by the introduction of the FRY model.

It has been decided, that there is no way back to the IPA model despite the actual problems - the aim is to improve the practical implementation of the FRY-model.

The reason is that the FRY model both in theory and practice has very essential advantages compared to the recency models, and then we have to remedy the practical implementation - but you know, Rome was not built in a single day.

10. REFERENCES

1. Appel, Marion C.: "Recent Developments in Summo Scanner Media Research in the Netherlands". Paper given at the EMRO-meeting, Stockholm June 1989.
2. Appel, Marion and Tchaoussoglou, Costa: "A Suitable Case for Treatment: Adjustments to questions concerning Radio & TV-magazines in SummoScanner 1989. Paper given at the EMRO-meeting. Berlin 1990.
3. Bennike, S.: "A divorce after twenty years or Why and How Denmark is leaving the Belson Model". Paper given at ESOMAR seminar: "Media and Media Research: How far can we go?" (Madrid). Amsterdam 1988.
4. Bennike, Sigurd: "Findes der en sandhed ? og kan den findes i en markedsanalyse ?" Markedsføring 2/1989.
5. Bennike, Sigurd, Olsen, Hanne Treu og Ortmann, Simon: "Reading probabilities: How and Why". Paper given at the ESOMAR seminar: "The Quality of Media Information: How to Make a Better Use of Media in a Time of Rapid Change" (Copenhagen). Amsterdam 1990.
6. Boon, A. den: "Leeskansmodellen". Het Media Instituut. Amsterdam 1988.
7. Cornish, Pym: "The London Experiment - An Alternative Recent Reading Method with Partial Validation". Paper given at the ESOMAR seminar: "Improving Media Research" (Stockholm). Amsterdam 1982.
8. Hond, Maurice de: Media-Scanner - Planning. New Technology for Media Planning". Paper given at ESOMAR seminar: Media Research - Does it Really Affect Media Planning" (Lisbon) Amsterdam 1984.
9. Hond, Maurice de and Huzen, Walther: "New Approach to Readership Surveys - the Media Scanner". Paper given at the second Readership Research Symposium (Montreal). Amsterdam 1984.
10. Mortensen, Peter S.: "Estimation af læsertal for trykte og elektroniske medier". Institut for informationsbehandling. Århus 1990.
11. Niekerk, P.W. van: "Reliability of the Yesterday First Time Read method". Paper given at the fourth International Symposium (Barcelona). London 1989.
12. Olsen, Hanne Treu and Bennike, Sigurd: "The First Experiences with The First Time Read Yesterday Method". Paper given at the EMRO-meeting, Stockholm 1989.
13. Pedersen, Johnny: "FRY versus Recency: Readership in Norway". Paper given at the ESOMAR seminar: "The Quality of Media Information: How to Make Better Use of Media in a Time of Rapid Change" (Copenhagen). Amsterdam 1990.
14. Walstra, Bouke: "Validating the first-time-read-yesterday method". Journal of the Market Research Society. Vol. 28, No.2, April 1986.
15. Westerhoven, Emile van: "How the media scanner got its feet on the ground - some unique qualitative applications". Paper given at the third Readership Research Symposium (Salzburg). Amsterdam 1987.