THE NETHERLANDS LIVE WITH WATER -EXCITING, EFFICIENT, EFFECTIVE RESEARCH

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Introduction and problem

At the Venice Readership Research Symposium Steve Douglas gave us a hand-out about advertising accountability. Several lessons could be learned from this interesting copy. The main message was: advertising effect studies are difficult. And a simple pre/post measurement (the most chosen tool by researchers) is inadequate for two reasons: (1) an up-tick in attitudes or brand ratings may have had nothing to do with the advertising (2) the chicken or the egg problem arises if the 'campaign aware' group has more positive attitudes or brand ratings than the 'not-aware' group. It may be that positive attitudes toward the subject of the campaign or the brand increase advertising awareness. There was a cry for support for better designs at the end of the hand-out. At this symposium in Boston we want to present an efficient solution that avoids the classic pitfalls of advertising effect studies. Efficiency was realised by incorporating the study in the Dutch National Readership Survey.

The difficult part of measuring effectiveness

Studying print advertising effectiveness has an easy part and a difficult part. Measuring advertising awareness and advertising response is the easy part. Any advertising study can measure awareness either continuous where different groups of respondents are contacted on a daily basis or pre/post where different groups of respondents are contacted at two different points in time. The difficult part is to answer the question 'what was the effect of the campaign upon brand response variables like brand awareness, brand sympathy, brand usage?' And if there is an increase in positive direction: 'is this increase due solely to the advertising campaign?' Simple pre/post designs are not enough to answer these questions of the difficult part.

Let's give an illustration. About 10 years ago the Dutch government tried to stimulate safe sex by an extensive campaign. Attitudes were monitored on a continuous base and a slow rise in the desired direction could be detected. But suddenly there was a steep rise in the curve. In a short period at the end of 1991 the hot news was that Freddie Mercury of Queen, the tennis player Arthur Ashe and basketball player Magic Johnson were bearers of the HIV-virus. The attitude towards safe sex changed, the campaign had certainly laid the basis but it was clear that the success could only partly be ascribed to the campaign. In the words of the paper cited in the introduction: 'the up-tick in attitudes may have had nothing to do with the advertising'. Perhaps we can ascribe this phenomenon as the 'Freddie Mercury effect'. So far an illustration of the problems of measuring advertising effectiveness. Now over to a solution: it's what we call in the Netherlands the Silver Standard (Bronner, 1993; Bronner & Reuling, 2002).

In the next paragraph we first sketch two designs with in our eyes very serious drawbacks, and then we concentrate on our preferred solution.

The Silver Standard: a tool to measure effectiveness

The design most commonly used, takes the form of a post-campaign survey which seeks to establish the extent to which knowledge has been improved and attitudes have been changed. In practice this often means a comparison with a matched precampaign survey (pre/post design). Another commonly used research design entails carrying out only one measurement after the campaign and making a distinction between those citizens or consumers who have been exposed and those who have not been exposed (exposed/non-exposed model).

Both approaches have serious drawbacks, as we will show.

a) Dangers of the pre-post model:

before (t ₀)	after (t ₁)

A serious problem connected to this design (with t_0 being the measurement before the campaign and t_1 the measurement after the campaign) is that various alternative explanations for change cannot be ruled out; for example, a change in attitude towards safe sex may be caused by the death of a famous tennis player or pop star, and need not to be attributed to the campaign.

In a pre-post design where different groups of respondents are contacted at two different points in time (independent matched samples), it is simple to measure the difference between scores on the effect variables. If we find in the pre-measurement that 40% of respondents install energy saving devices and 60% in the post-measurement, we can conclude that behaviour has improved.

But the difficulty is to answer the question, "was the increase in the number of positive ratings solely due to the advertising campaign?" Perceptions and behaviour could have improved for a variety of reasons. The increase may have had nothing to do with the advertising.

b) Dangers of the exposed/non-exposed model:

	t ₁
exposed	
non-exposed	

In some cases the post-measurement is divided into two segments: exposed and non-exposed. Some researchers try to deduce effects by cross-tabulating these two groups with effect variables. But it is clear that selective exposure can cause differences. If young people are more exposed and in advance had more positive attitudes, the correlation between exposed and positive attitudes is spurious. One also needs the 'starting scores' of exposed and non-exposed citizens.

If the post-measurement shows that the 'exposed' group uses more energy saving devices than the 'non-exposed' group, can advertising receive the credits for this 'improvement'? Not necessarily! As is often observed, it may be that a positive attitude toward energy saving has increased advertising awareness. In other words, the exposed population may already have had better energy saving attitudes before the campaign than the unexposed.

In commercial advertising studies we see the same phenomenon: people with sympathy for brand X have a higher advertising awareness for that brand. So in a post-measurement the exposed have a higher brand X sympathy score than the non-exposed. It is obvious we can't ascribe this difference to the campaign. The exposed population already had sympathy for brand X long before the campaign started. Sometimes this is denoted as 'the chicken or the egg problem'. Which came first: brand sympathy or ad awareness?

c) *A solution: a combination of the two models*

What is the solution? When we combine the two designs (pre-post and exposed/non-exposed) we obtain a very powerful tool, as shown below. This scheme is the core of our Silver Standard model.

	before (t ₀)	after (t ₁)
exposed	b	а
non-exposed	d	с

For each effect-variable, the campaign effect score E = (a-b) - (c-d). The part (c-d) can be considered as an indicator about developments taking place in the world concerning this effect variable that are not due to the campaign. Thus the term (c-d) represents the changes that take place separately from the campaign. So we can separate campaign influence from other factors such as high media attention.

In the case of the "Freddie Mercury effect" the effect within the exposed group will be large (a-b = large number) but also the effect within not exposed will be large (c-d = large number) and by subtracting we can conclude that the campaign effect score is much lower

The main question in the scheme above is, how to establish in the pre-test whether someone is exposed to the campaign or not? The solution of the Silver Standard is the use of panels. Data are collected in two ways:

(a) Combined panel/ad hoc design.

A pre-measurement is carried out in sample X. After the campaign this sample is subjected to a limited re-interview, only to establish if they were exposed to the campaign or not. These exposure scores are added to the pre-measurement. An independent post measurement is carried out in sample Y in which both exposure as well as effect variables are measured.

(b) Panel design.

In a panel a pre-measurement is carried out and after the campaign a full re-interview with effect variables and exposure questions takes place.

Many clients consider option a) as too expensive and statistically complicated. A panel (option b) with full re-interviewing is easy to grasp and delivers adequate data for the Silver Standard scheme. So also for the case that will be presented in this paper we choose the panel approach.

Incorporating effect studies in the NRS

In The Netherlands in 2002 the SummoScanner was replaced by the NOM Print Monitor (Bassler & Tchaoussoglou 2001; Bronner, Tchaoussoglou, Ross, 2003). From CATI to CASI. From a full fresh sample to a mixed fresh sample/access pool design. At this moment the access pool encompasses 40,000 households and 100,000 individuals. Some main characteristics are:

- respondents are recruited in classical surveys and not via internet or websites;
- all members of a household are involved;
- access controls are used to prevent respondents from too frequent participation;
- respondents answer the questions on their own pc (CASI –Interviewer Absent) off-line;
- it fits within the philosophy of permission research (giving the respondents the choice of when to respond and respecting the respondents privacy).

(For more details, see Bronner, Tchaoussoglou, Ross, 2003, this volume).

This data-base is an ideal reservoir for effect research for several reasons.

- a) We know the socio-economic, demographic and behavioural characteristics of the respondents so the sample can be stratified according to population characteristics. Because of the very high response rates the division of the final sample will not deviate from the start sample.
- b) Because of the willingness to cooperate there is a high probability of gathering pre en post data by the same respondents.
- c) We can use the members of the access pool who participated in the NOM Print Monitor, so reading probabilities of newspapers and magazines in which the campaign appeared are already available. Confrontation with a campaign can be estimated in an indirect way by connecting an effect study to the NRS reading probabilities. The exposed/non-exposed variable can be based either on direct measured recognition scores of concrete ads or on indirect scores based on reading probabilities for media in which the ads were placed. Recognition scores may be biased by involvement in the subject, so indirect scores can be more valid. We will come back to this point later in the paper.

A case study

So where are we? Let's summarize:

- > advertising effect studies are very important, especially in relation to advertising accountability;
- most existing designs are unsatisfactory;
- the Silver Standard (effect is post-score minus pre-score of the exposed group minus post minus pre of the non-exposed) is an attractive alternative;
- > data can be collected in a panel approach with full re-interviewing;
- by incorporating such a panel design in the NRS access pool, we can offer an adequate effect study against an affordable price;
- there is no need to gather recognition data, the exposed/non-exposed scores can be estimated based on the reading probabilities;
- > so in theory an effective and efficient approach is available.

Let us test and illustrate all our ideas on the basis of a concrete campaign. Most commercial advertisers want to keep their effect results secret, or at least anonymous. Therefore a governmental campaign was chosen: 'The Netherlands live with water'.

In the next paragraphs we present some details about the campaign.

The Netherlands live with water

The Netherlands have a long tradition in coping with water. As much as 24% of the country lies below the sea level and the rest is not much above it. For centuries land has been successfully claimed from sea and rivers by our ancestors. Dutch people take it more or less for granted, that you can live six meters below sea level and still feel perfectly safe, being protected by dikes and ingenious drainage systems.

Still, at the back of our minds, we do know that water can be a dangerous enemy. In 1953 a flood disaster in the province of Zeeland, took the life of 1835 inhabitants. It inspired the world famous Delta Works, closing four great sea-arms in the southwest of the Netherlands by dams. And soon the Delta Works included all shores and river banks by building new dikes and by restoring, rebuilding and re-enforcing old dikes and dunes.

But to cite Bob Dylan, 'the times they are a-changin'.

Come gather 'round people Wherever you roam And admit that the waters Around you have grown And accept it that soon You'll be drenched to the bone.

Climate changes, sea level rises, it rains heavier and harder and more melt water comes down from the mountains through our lowlands. We are now facing the fact that soon, i.e. in about 50 years, our traditional policy of building more, higher and stronger dikes won't be adequate enough to guarantee the safety of the citizens.

In the long run we can't beat the water by just containing it. We shall have to give more room to the water. This will for instance mean designating special overflow areas for times of flooding.

The campaign

What is the connection between this water problem in Holland and measuring the effects of ad-campaigns? The Ministry of Transport, Public Works and Water Management started in 2003 an information campaign that will run for several years. The aims of the campaign are:

- > to increase the awareness of the water problem, stimulating a sense of urgency without frightening the people;
- to communicate that a new approach and policy for water management is needed and also the reasons why;
- to increase knowledge of what this new policy ('giving more room to water') means and what the consequences will be;
- to get acceptance of the idea that far-reaching measures are needed now to keep Holland safe in the future, even if these measures have unpleasant personal consequences.

The aims of governmental campaigns in general are rather different from commercial campaigns. However, the communication techniques employed, are very much the same. Advertising agencies develop a communication concept and produce television and radio commercials, outdoor billboards, print ads et cetera. Media agencies perform the planning and buying, using the same television panel and national readership survey. And also a lot of communication research is involved, from explorative studies among target groups, to concept-, pre- and post tests.

The systematic evaluation of the effectiveness of governmental campaigns is very well developed. Since 1999 all governmental information campaigns are monitored in a continuous tracking research. A database with consistent and comparable data of more than 100 campaigns provide very useful insights in the factors that explain why some campaigns are successful and others are not.

In the next section some background information is given about the set up and application of this standard tracking research. Next we will give more details of the experiment linking the tracking research with the National Readership Survey and how this can improve the evaluation of campaign results.

Standard tracking research

Every year about 30 governmental campaigns are tracked in a continuous survey carried out by TNS NIPO. Since the beginning of 2003 the data collection method changed from 100% CAPI into a mixed method, using for 75% of the sample the access pool of TNS NIPO and for 25% non pc-owners still CAPI. Very much comparable to NOM indeed.

For each campaign the following design is applied.

In the pre-and post-measurement the relevant effect variables are measured in terms of knowledge, attitudes and behaviour. This makes it possible to evaluate whether the targets of the campaign (in terms of knowledge, attitudes and behaviour) that are set beforehand, are really met.

During the campaign the development of reach, impact, appreciation and comprehension of the campaign is monitored. For measuring the actual reach of the campaign, the recognition method is used, reproducing to the respondents on their pc, the radio and television commercials and the print ads. For measuring impact, spontaneous and aided recall is used. The appreciation is measured in terms of likeability, which comprises several sub-dimensions such as credible, informative, clear, funny, irritating et cetera. Comprehension is measured with open questions.

This information gives a good picture of the strengths and weaknesses of the communication concept. Especially since for all these aspects benchmarks are developed from the database of more than 100 campaigns. The benchmarks reflect the average standard a campaign has to fulfil, given certain characteristics such as the level of media spending.

The aim and design of the experiment

The three parties that set out to conduct the experiment that is presented here, hope to benefit from it in the following ways:

- For RVD (Central Office of Information) the experiment is interesting, since it offers a way of further improvement of the tracking instrument. Especially the promise of further insights in the contribution of the different media to the overall effects and the controlling of other external influences are important aspects.
- For NOM it is important to show the additional possibilities the new Print Monitor offers in terms of going beyond the traditional measurement of average issue readership. Offering an attractive and efficient approach of effect research linked to the readership survey would be especially appealing for the advertising members of NOM.
- And TNS NIPO is of course, as it should be, always interested in offering better and more research.

The design of this experiment is shortly described below.

Respondents that participated in the pre-measurement for 'Netherlands live with water' were re-interviewed directly after the campaign. The questionnaire in this post-measurement was a combination of the regular between-measurement (especially recall and recognition scores) and post-measurement (effect measures in terms of knowledge, attitudes and behaviour).

Only respondents from the access pool were selected both from the adult sample as well as a separate sample of youth in the age of 13-17. In case the respondent had not yet taken part in the NOM Print Monitor, this questionnaire was also administered in the meantime. In total a sample of n=255 with full data (pre- and post-measurement and NOM) was available for analyses.

The data from the Print Monitor were used to calculate individual campaign exposure probabilities. For radio and television these are based on the overall level of viewing and listening hours. This seems acceptable, since this campaign is aimed at the general public, which is also reflected in the media planning. For print the summation of reading probabilities is used of the titles involved. Print ads were placed in the national dailies and in the free papers distributed in public transport.

General tracking results

Before presenting the specific analyses and results of the experiment with the Silver Standard design in the NOM Print Monitor, first some general findings from the regular tracking research will be given.



In the figure below the media-coverage during the campaign period is presented combined with the recall and recognition scores of the campaign over the weeks.

The total media budget for this campaign was € 1,300,000, divided as follows: TV 50%, print 25%, outdoor 20 %, radio 5%.

What we can see in the figure above, is that this campaign almost immediately had a very high recognition score, which stayed on this high level during the total campaign. However, the recall levels only met the benchmark directly after the burst in the first week and stayed well behind in the rest of the period.

The TV commercial uses a well known presenter of weather forecasts as a spokesman and it contains humorous elements to draw the attention of the public. We had early indications from our online reporting system, that although the impact of the campaign was impressive, the message of the campaign was not coming through well enough. For the Ministry this was reason to do some extra print advertising.

The evaluation of the results at the end confirmed some shortcomings of the TV commercial and gave worthwhile lessons for the next commercial in the second half of 2003.

The overall effects in terms of agenda setting, interest and awareness are at first sight not very impressive, being often rather constant or sometimes even downward. External influences might have played a role here. For instance, just before the campaign started, the 50th year after the flood disaster was commemorated, bringing about a lot of attention for this subject in the media. Or, as commercial advertisers would phrase it: a lot of free publicity.

Analyses Silver Standard experiment

The main questions that we want to address and analyse in this paper are the following:

- Can the Silver Standard method demonstrate the additional value of print advertising in a multi-media-setting on the overall campaign effects?
- How useful are media probabilities derived from NOM as indicator for exposure to the campaign compared to recognition?

This last question deserves some further elaboration. As stated earlier, the Silver Standard design measures campaign exposure in the pre-measurement by way of a panel design. The use of media probabilities can be seen as an alternative way of measuring campaign exposure in the pre-measurement, since these probabilities can be applied without asking any questions about the specific campaign itself.

On first sight, the recognition scores seem the better of the two, since recognition is a direct and robust measure of campaign exposure, while media probabilities are likely to be a proxy of campaign exposure.

Nevertheless there are several arguments that might speak in the advantage of using media probabilities.

- 1. By using media probabilities we measure campaign exposure without any reference to the campaign it self. For recall, but also for recognition it is often argued that the measurement is biased by interest in the subject.
- 2. Recognition measures exposure in terms of yes or no. For print this might be a reasonable thing to do, but for a multi media campaign with many exposures, campaign recognition is not discriminating anymore. When, as in this case, almost everyone has seen the campaign, it is the number of confrontations that matters. This can be better measured with media probabilities.
- 3. Last but not least using media probabilities is a far more efficient way (i.e. less costly) of measuring exposure compared to recognition. Besides a panel design is not needed, for the probabilities can also be applied to two independent samples, which has also advantages (no problems with possible panel bias).

These points will be the focus of the analyses presented in the next section. We will illustrate our case, based on three variables, representing main communication targets of this campaign:

- a) Problem awareness
- *There is more often a flooding because of extreme rainfall* b) Sense of urgency
- Government should act now to prevent future problems
- c) Acceptance of new policy We should give more room to water, because reinforcing dikes won't be adequate enough in the future for guaranteeing safety.

Results Silver Standard experiment

In the tables below the results are shown, focusing for the three main variables upon the effects of print. In each table both ways of measuring print campaign exposure are compared: actual recognition of the print ads versus the summed reading probabilities of the newspapers the ad campaign was placed in (media probabilities). Respondents were divided in two groups: a reading probability of 1.0 or more (high) versus a reading probability of less than 1.0 (low).

The first table deals with the problem awareness, measured on a 7 point scale.

print recognition	before (t_0)	after (t ₁)	print media probabilities	before (t_0)	after (t ₁)	
exposed (n=87)	5.31	5.29	high (n=78)	4.96	5.23	
non-exposed (n=168)	4.99	4.84	low (n=177)	5.16	4.89	

More often a flooding due to extreme rainfall (disagree-agree, avg. 7 point scale)

Silver Standard Score: +.13

Silver Standard Score: +.54

In the total sample, problem awareness shows a slight declining tendency from 5.10 to 5.00. However for those exposed to newspaper advertising this declining tendency is stopped (in the case of recognition), or (in the case of media probabilities) we even see a rise. The Silver Standard scores indicate a clear positive effect of print advertising. This is a good example of how this type of analysis enlightens results that on first sight might seem very disappointing. Whatever the cause of the overall declining tendency, at least the print campaign seems to have done something to countervail this.

In the next table the results are given for the sense of urgency.

Government should act now to prevent future problems (disagree-agree, avg. 7 point scale)

print recognition	before (t ₀)	after (t ₁)	print media probabilities	before (t ₀)	after (t ₁)	
Exposed (n=87)	5.23	5.24	high (n=78)	5.09	5.19	
non-exposed (n=168)	5.00	4.95	low (n=177)	5.07	4.98	

Silver Standard Score: +.06

Silver Standard Score: +.19

Here is an example of hardly any overall change. Nevertheless in the case of high print exposure probabilities, a slight positive effect can be seen, whereas the low print probabilities show a declining tendency.

The last table deals with the main philosophy of the new policy approach: giving more room to water. Here we detect an overall positive tendency during the campaign period (from 4.67 to 4.92). Based on recognition, this however can not be attributed to the print campaign, whereas the analysis based on print probabilities shows a stronger rise for those with high print exposure probability versus those with low print exposure probability, indicating a positive effect of print advertising.

We should give more room to water (disagree-agree, avg. 7 point scale)

print recognition	before (t ₀)	after (t ₁)	print media probabilities	before (t ₀)	after (t ₁)
exposed (n=87)	4.88	5.07	high (n=78)	4.62	5.10
non-exposed (n=168)	4.57	4.84	low (n=177)	4.70	4.84

Silver Standard Score: -.08

Silver Standard Score: +.34

This table forms an example of a seemingly strong effect, which should be contributed (partly) to other factors than the print campaign.

The above results raise two questions:

- 1. How do these results for print compare to the effects of the other media employed in this campaign and can we see multi media effects?
- 2. Print exposure measured by recognition gives different results compared to print exposure probabilities. Is there an explanation for this and is one measure to be preferred above the other?

Multi media effects

One obvious counter argument for ascribing above effects to print, might be that the group with high print exposure, is also more exposed to the other media channels. Analyses show that this is not the case for RTV^1 . In the case of television there is even a lower exposure probability for those with a high print probability.

We did the same Silver Standard analyses for television also. After all television was the most important channel in this campaign, taking half of the budget and delivering 967 GRP's. Since the recognition of the TV commercial is so high, using the media probabilities is the only possible way of evaluating the effect of the television campaign. Given an average of more than nine exposures per person, it seems fair to define the medium and high level TV viewers as high exposure and the lowest third as low exposure.

For none of the three main indicators a positive effect of the television campaign could be detected. Defining, as an alternative, only the heaviest TV viewers as high exposure didn't make any difference. This seems a confirmation of other indications that the TV commercial did not communicate the main message well enough. However a caveat should be made, for we have to admit, that campaign exposure probabilities for TV and radio are less robust measured in NOM, compared to the print exposure probabilities.

Silver	Standard	scores f	or	nrint	TV	and	combination	TV	and	nrint
Suver	Siunuuru	SCOLES J	01	p_{i} m_{i}	11	unu	comonunon	11	unu	p_{imi}

<i>y 1</i>	Print	Television	Print + Television+
Problem awareness	+.54	01	+.57
Sense of urgency	+.19	05	+.14
Policy acceptance	+.34	07	+.28

The Silver Standard method is also suitable for detecting multi-media effects. This is done by comparing those with both high TV and high print probabilities with those with low print and low TV probabilities. In this case, as can be seen in the last column of the table above, there are no multiplier effects.

¹ For outdoor this can't be checked, since no exposure probabilities are available yet

Recognition or probabilities

The outcomes for print show rather different results, depending on whether one takes recognition as a measure for campaign exposure or print media probabilities. The question can be asked: which one is better?

Comparing the Silver Standard scores for recognition with probabilities, it is striking that the probability measure shows the stronger effects for print. Of course in itself this can't be a decisive argument. But it is a somewhat unexpected result, since we argued that recognition could be seen as a more robust measure for print campaign exposure. Another phenomenon, which may have stayed unnoticed in these tables, is the fact that those who recognise the ad, have beforehand higher problem awareness, sense of urgency and policy acceptance. For those with high print probabilities it tends to be the reverse. This can be interpreted in two ways: it may mean that only the already more problem aware reader did see the ads in their paper and others did not pay any attention. It may also mean that more problem aware or interested people tend to claim more often that they saw the campaign without this really being the case.

Without taking a definite stand on this issue, we can conclude from this experiment that using probabilities has important advantages compared to recognition. First media probabilities establish exposure independent of the campaign itself and so avoid possible biases in these types of measurement. Second probabilities give more analyzing possibilities, compared to the limited concept of recognition. In a multi-media landscape exposed versed non-exposed as measured with recognition, is not the key issue. The level of exposures and the mix of different media are far more important. As we saw these can better be grasped in the analysis with the help of probabilities. Last but not least there are the practical advantages: media probabilities are more efficient and easier to apply in effect research; it brings good effect research within the reach of many advertisers.

Conclusion

The experiment described in this paper was set out to test and introduce a model for better and more efficient effect research. We believe that using the Silver Standard model in connection with the NOM Print Monitor offers a major step forward in this field.

The core idea of the Silver Standard is that a split in the post measurement into level of campaign exposure is only justified if the same split can also be made in the pre-measurement. In this way we can discriminate between real campaign effects and other factors. We argued that the use of media probabilities derived from the NOM Print Monitor for measuring level of exposure (pre and post) is a good and efficient approach.

Thecase 'The Netherlands live with water' shows that this approach delivers useful insights in real campaign effects, whereas the simple pre-post design gives less convincing results. Especially the possibilities to more or less isolate the contribution of different media, seem very promising and are worth further exploring.

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