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**EFFECTIVE FREQUENCY: THE RELATIONSHIP BETWEEN
FREQUENCY AND ADVERTISING EFFECTIVENESS**

by

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1. If anything the situation is worse.

* Media cost pressures have continued to increase.

- Clutter - Fragmentation

* Many have seized gratefully on the concept. Peter Turk's survey (1988) found that most media directors decided to use EF, at least for some clients, and all advised their clients to use it.

* So, the concept is popular. But it has not proved all that easy in practice. And, with greater awareness, there has also grown up a lot of criticism and debate.

Much of this criticism & debate rises from uncertainty of what EF means in detail. It sounds at first hearing very simple but when you start to try to make the terms in the expression practical and concrete, they tend to fade away on you.

2. I believe you cannot discuss EF usefully, unless you specify exactly what you are talking about in these three respects:

Frequency of what?

Frequency when?

What counts as an "effect"?

3. Frequency of what?

There has been a lot of argument about this. Most of it has concentrated on whether one is talking about "real exposures" or merely what the media deliver: "opportunities to see."

It is quite clear that we ought to suppose that only a proportion (perhaps quite a small proportion) of OTS are "really seen" on average. So, a model which says, e.g. that one must have at least 2 or 3 exposures will break down if what one measures is not "exposures" but OTS.

I think this argument is more academic than practical and something of a red herring, for the following reason: in practice, the only thing we can ever measure is real life is OTS.

With the possible exception of certain experiments in a laboratory, we can never directly access "exposures" because people cannot tell us what they actually see. The measurements actually used in media planning are audience measures (i.e. OTS). And if we find relationships between OTS audience measures and advertising effects, which can be modelled (and we have done so) then that is what we must use, and worries about how much "exposure" these OTS represent are pointless.

Another important question is whether we are looking at absolute numbers of OTS or "share of voice". There is good evidence (though not enough of it) that SOV is important, perhaps more important of the two.

Also, we are only just beginning to realize that there are other media besides TV, and they may behave differently in term of EF models.

4. Frequency when? It is meaningless to discuss EF without specifying a timing component.

There are at least three conceptually distinct elements in this:

1. What period we are looking at? One day, two days, a week, a month? And is it a calendar period, or the period before some event like the next purchase occasion (which is of course harder to analyze because it is a variable).
2. Are the stimuli spread over the time period, or bunched together?
3. How close are stimuli, clustered or not, to the effect we are measuring (purchase on the next occasion, etc.)?

5. What counts as an effect?

Sales probably won't do, for reasons we all know well (too many other variables). Consumer purchases - ideal, and what we should get from single source data, but only apply to FMCG products.

For many advertising areas, we are thrown back on intermediate measures whether we like it or not. It is argued for measures such as advertising awareness that at least they are a piece of netted out evidence that something as been happening. The recent Millward Brown evidence, reported this year in papers by Nigel Hollis, is interesting: by a series of processes to remove unwanted variations (e.g. indexation within categories) they are starting to relate ad awareness movements to short-term sales movements in a way which looks quite convincing. Very promising.

The key point is that we must know the limitations of the measure we are using, agree upon it, and not assume it is equivalent to some other measure.

And of course, there's the point on which everyone is agreed, that we have to assume "good advertising", which is capable (creatively) of doing the job intended. "Bad" advertising might increase awareness, but have a negative effect on probability of purchase.

Mike has reviewed the conclusion that was tentatively reached in 1979. I have been through quite a lot of the published discussion since then, as well as the (relatively few) bits and pieces of actual new work. Without going into the detail of all this, I would like to pick up on what we might now want to conclude in comparison with then. I fear it is no less tentative; if anything, perhaps more so.

The first conclusion in 1979 was that just one ad within a purchase cycle has relatively little effect. That is to say: there is a threshold. Alternatively, the response function is S-shaped, like this: (6a)

Rather than convex, like this. (6B)

(The S-shape can be considered as pushing forward the starting point of an ad's effectiveness).

6. This "conclusion" now looks increasingly dubious. Certainly, it is difficult to regard it as a generalization which will stand up.

First, there is substantial evidence that convex response curves are frequent. Simon and Arndt published an important review in 1980 which concluded that this was the normal shape, at least when awareness measures are used for effectiveness. More recently, John Jones has been finding the same thing with his purchase data analysis. There has been a lot more in the same direction.

Secondly, there is what I've called the disappearing S-curve.

7. In my 1970 paper, I produced this graph. It appeared in the 1979 book, and has been very influential in providing support for the "one is not enough" view, especially after Herb Krugman tied it in with his lab-based learning theory.

I believe that this S-shape has been quite widely misunderstood, and I want to take a little time to set the record straight, since I have the opportunity.

This analysis was done in order to prove, beyond reasonable doubt, that what we were observing were real ad, effects. It wasn't about Effective Frequency (an idea I had never heard of at the time).

The graph looks only at switching occasions: i.e. when a purchaser changed from one brand to another. The analysis shows the proportion of all changes into or out of a brand which were into the brand. These proportions were calculated for each brand in the category, A,B,C etc. and then combined over the whole category (Brand X). The chart adds 9 categories together.

The point of looking only at switches was the fact, which is true by definition, that every individual buyer has the same number of switches into any brand (O-X) as out of it (X-O). This is true whatever the brand usage or purchase frequency of that person may be. The pattern only breaks if you happen to break the sequence when an individual has one more switch in than switch out, or vice versa; but in a large sample you would expect these + or - 1's to cancel out.

I've put the figures in the chart. Note that they are around 50%. In the null hypothesis (if advertising has no effect) we would expect them to be 50% in each cell, a straight line. But, clearly, we do have an effect. Because of the equal balance of O-X and X-O within each individual this cannot be due to other variables which differentiate between individuals.

Overall, the 50-50 rule still applies, so the shift up at 2+ must be balanced by a shift down at 0 or 1. The reason why O seems higher than 1 is that the number of purchase intervals in the O cell is much greater than those to the right of the chart: the 50 is a rounding off. If we had shown numbers rather than percentages we would have got a more normal S-shape.

But there is also a real factor behind this S-shape. We added brands together. Thus, if someone switched from Brand B to Brand A, that occasion appears twice; as an O-X in respect of A, and X-O in respect of B. Most people who watch television are likely to see ads for both A and B. So, this chart is a support for the idea that when someone sees 2 or more ads for a brand they buy, that brand tends to "win" over a brand they only see O or 1 of.

What was not noticed in 1979 (mainly because that particular paper did not feature it) was that I also took out some other analyses, which might be regarded as more useful for media planners.

8. These two analyses are shown here: the proportion of buyers who change to a brand (having not bought it last time) and who stay with it (having bought it last time). You will note that the S-shape has just about disappeared.

If these two analyses are added together, you get this:

9. Which is precisely equivalent to the STAS analysis which John Jones will be speaking about. A convex curve, it would seem.

6. A third point is that there has perhaps been a tendency to misunderstand Krugman, by thinking that "learning something new" is what most advertising is about (if one reads all Krugman said in those papers it is quite clear he did not mean this). On the contrary, much (probably most) advertising is about reminding rather than learning, and reminding of what is familiar may need a lower level.

I am not trying to suggest that there are no thresholds or S-shapes. Other writers have come up with them. A recent example is Andrew Roberts, who has been analyzing case histories from the AGB Superpanel fused with BARB data (BARB is the British TV Audience Measurement Service). This is simulated, not true, single source data. He has been finding that there are thresholds. We don't know whether this is some artefact of the analysis or because the cases are new launches (one in particular is a brand re-launch).

It is a reasonable hypothesis, perhaps, that thresholds are more likely to occur when advertising what is new or unfamiliar, when there is something to be learned; than when the function is simple reinforcement. But we still have very little understanding of how the "Frequency Response" varies in real life between different kinds of brands and products.

10. So my very tentative conclusion, for TV at any rate, is that the expected response curve is probably convex. But not necessarily. It depends crucially on the status of the brand: its share, its history, its competitive edge.

Also, we do not have the information on anything like sufficient scale to be able to generalize the shape of such a curve, or the rate of decline etc.

11. There are a number of other points on which I think the evidence is quite strong. Most of these were established in 1979 already, but the little that has happened since seems to confirm them.

OTS which are clustered or TV and/or close to a purchase (on whatever the desired measure is) show a more positive effect.

11a. My 20-year-old chart (which compared ads counted within 4 days before a purchase with ads in the whole interval) showed this, and nothing has happened to disabuse me of it. The closer a burst is in time, the steeper its effect will be. And here are the "change" and "repeat" measures (11 B) from the same data.

12. Share of voice (in category) is important. Not enough has been done on this, but what little there is has tended to confirm the relationship shown in this chart ---

12a. --- Which is a "share of voice" analysis of the "change" and "repeat" measures.

13. The only other new development since 1979 is that a number of studies about print have appeared. In 1979 it was all television.

In recent work, Millward Brown have observed that OTS build very slowly in magazines; it may be long past the issue date before the full exposure potential of that issue is released.

This means that "clustering" of OTS really does apply to print insertions, in the sense that you can generate it for TV. Millward Brown also say, or the other side, that print ads when they are noticed do their work at once (they have to). They claim that whereas on TV they are used to finding build up in awareness over several OTS, with print the maximum awareness level tends to occur after only 1 (but that 1 can happen much later). After that one, wearout in print is much more rapid. If one measured an individual over time, one would get a step - function.

Most of the studies (indeed, perhaps all of them) suggest that response curves are convex. The one that got most attention was Time-Seagram.

But I think there is an important difference we need to be aware of in the definition of what these studies are measuring. Whereas with TV you can create a cluster of OTS, even on the same day, with print you cannot do that. You are constrained by the issue date. Frequency in a magazine means the number of repeated opportunities you give a reader by placing your ad in more than one issue. I would feel happier to call this by a different name than frequency, to avoid confusion - perhaps "repeat-rate".

Time-Seagram, Family Circle, etc., were all measures of alternative repeat-rates (e.g. comparing insertions in every issue, every 2nd issue, every 4th issue etc.) Each reader has (presumably) one OTS per issue, whose timing is controlled by the issue date. The only way clustering beyond this can occur is if people read the same magazine issue several times, or via duplicate insertions in several titles. One would expect such repeat-rates to generate convex response curves which ratchet up another notch after each insertion as more people notice the ad. The curve rises faster (or slopes more steeply) with more insertions.

* This is what we find in Time-Seagram etc. (and also what we got from the Zielsk experiment, which compared different rates at which copy was mailed).

Only one study that I am aware of (Ziff-Davis) deliberately set out to reproduce a TV-style clustering via an experiment with print (and showed considerable effects from this).

I want to end with a story I was told only last week by Erik du Plessis, who runs a tracking service in South Africa. Some years ago, he tracked awareness of a tyre company who were spending at a very low level. Not surprisingly, advertising awareness bumped along the bottom for some time. He kept on measuring it, and suddenly one day the graph started going up, and went on going up. They weren't spending any more - what had happened?

"Oh", said they, "all we've done is change our media plan. We used to plan one exposure every period; now we target to get two exposures every second period!"

Does this undermine everything I've been saying? Not at all. You could put it this way; what you need is enough concentration (Frequency) to get the attention you need, taking into account what your brand is like, its familiarity, its competition etc. It may need a regular dose of 1 or a period dose of 2,3, or 4. There will never be more than a vague general rule. What we need is more information about how things specifically vary and a strategy for finding the right answer for each specific case.

What counts as an effect?

- ◆ Sales?
- ◆ Consumer purchases?
- ◆ Intermediate measures (awareness etc)?

One ad is not enough?

This conclusion now looks very dubious:-----

- ◆ The *convex* curve seems to be most common
(Simon & Arndt, Jones, et al)
- ◆ The disappearing S-shape
- ◆ Misunderstanding Krugman

HYPOTHESIS: thresholds most likely when something new to be *learned* - but much advertising is about continuation and reminding, **NOT** learning

New conclusions (or are they?)

For TV:--

- 1. There is probably, usually, a convex response curve (ie, 1 better than 0, 2 better than 1, etc, but at diminishing rates)**

- 2. We can't generalise how much better, or what the rate of decline is**

(although we can guess that higher frequencies may be needed for the new / small / unfamiliar)

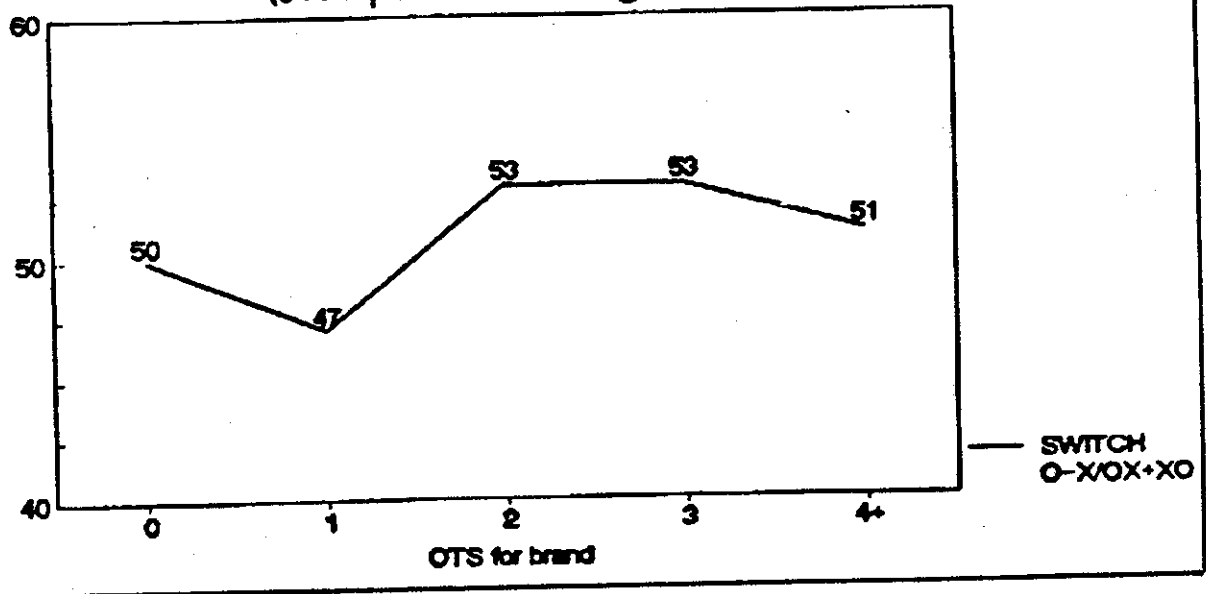
New conclusions (or are they?)

- 3. We have good evidence that effects are stronger when there is:--**
 - ◆ **clustering of OTS**
 - ◆ **propinquity of OTS to the purchase (etc)**
 - ◆ **high share of OTS for category**
 - ◆ **high brand share and status (double jeopardy)**

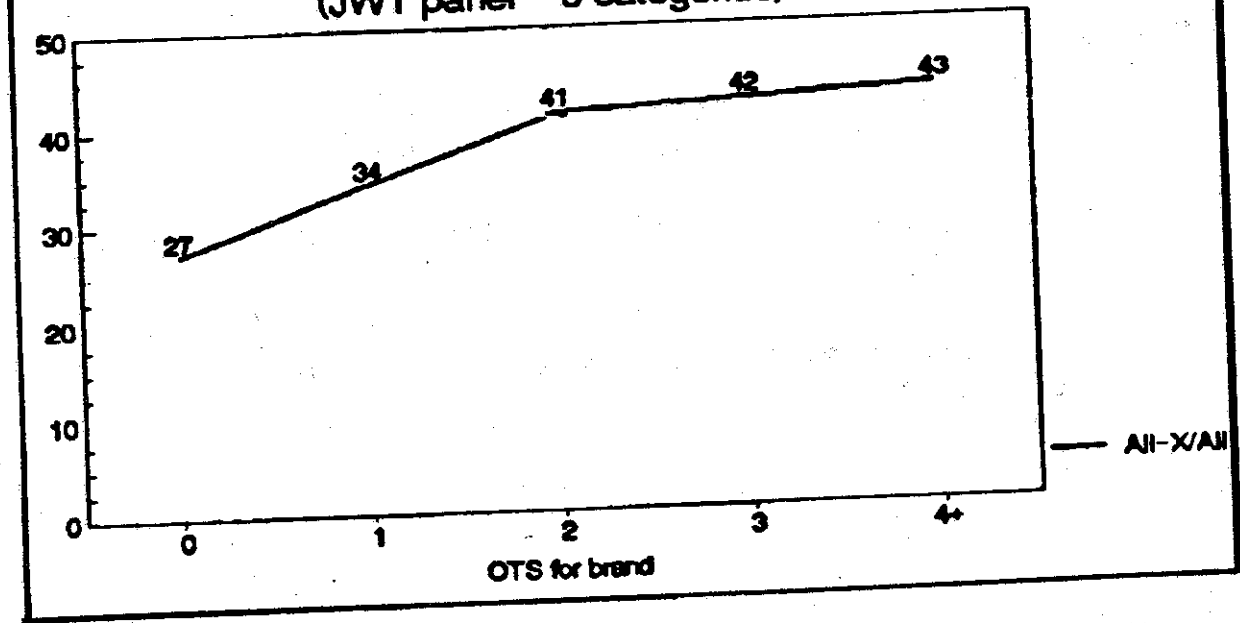
Is print different from TV

- ◆ Difficult to get highly clustered 'frequency' with print. OTS build very slowly (Millward Brown)
- ◆ Maximum effects from ONE 'exposure', then rapid wearout (Millward Brown)
- ◆ Most tests suggest convex response curves (Time - Seagram etc)
- ◆ BUT they mostly measure something different from TV "frequency" (repeat-rate? No clusters)

The disappearing S-shape (JWT panel - 9 categories)



STAS calculation (JWT panel - 9 categories)



`Effective Frequency' since 1979

- ◆ **Media cost pressures even greater**
- ◆ **Most media directors use / advise it**
(Turk, 1988)
- ◆ **Increasing criticism of the concept / uncertainty about what it means / debate**

What does 'frequency' mean?

- ◆ **Frequency *of what?***
- ◆ **Frequency *where?***
- ◆ ***What counts as an 'effect'?***

Frequency of what?

- ◆ OTS or 'exposures'?
- ◆ Numbers or share of voice?
- ◆ Differences between media?

Frequency when?

- ◆ *Timing of the stimulus?*
- ◆ *Clustering of stimuli?*
- ◆ *Propinquity to purchase (etc)?*

Fig. 1.

RESPONSE FUNCTION SHOWING DIMINISHING RETURNS

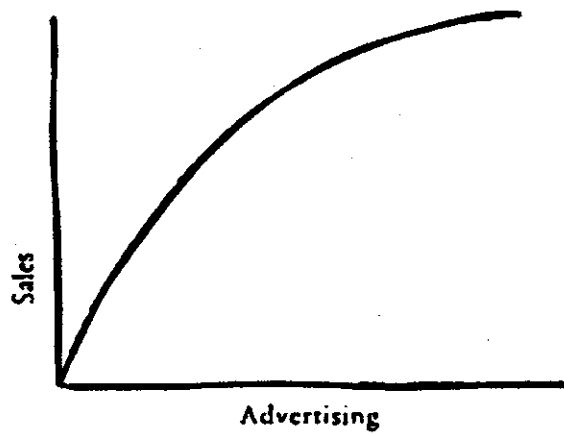


Fig. 2.

S-SHAPED RESPONSE FUNCTION

