

Brand and Advertising Awareness: A Replication and Extension of a Known Empirical Generalisation

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Abstract

From analysis of over 39 categories Laurent, Kapferer and Roussel (1995) found that top of mind, spontaneous and aided brand awareness measures have the same underlying structure. The difference in scores appears due to the difficulty of the measure. We have successfully replicated this work and extended it to similarly structured advertising awareness measures. However, additional analyses then revealed that while there is a good category level fit, modelling a single brand over time is less successful. Indeed, Laurent et al.'s excellent cross-sectional fit appears due to substantially different levels of salience between larger and smaller brands. This suggests that while the different types of awareness tend to vary with a brand's overall level of salience, this does not mean that the different measures simply reflect a single underlying construct. Further, our finding challenges the previous authors' claim that knowing the score for one measure allows the estimation of the score for another measure. Instead, the model provides useful norms against which to compare actual scores.

Keywords: Brand awareness, Advertising awareness, Empirical generalisation

1. Introduction

Awareness measures are used extensively in research as a gauge of brand performance and marketing effectiveness. The most commonly used are those relating to brand and advertising awareness. Brand awareness is considered one of the key pillars of a brand's consumer-based brand equity (Aaker, 1991). Keller and Davey (2001) describe building brand awareness as the way of ensuring potential customers know the categories in which the brand competes. They see brand awareness as the foundation of their equity model, as all other brand objectives then build on it. Likewise, Rossiter and Percy (1991) claim that brand awareness is the essential first step in building a brand. Yet while many authors support the association between brand awareness and buyer behaviour (e.g., Assael and Day, 1968; Hoyer, 1984; Nedungadi, 1990; Macdonald and Sharp, 2000) they have disagreed over the specific measures that should be used.

There are three widely used measures of brand awareness: top of mind, spontaneous and aided. Top of mind, or the first brand recalled in response to the

product category cue, was one of the first brand awareness measures to receive attention, emerging as one of the best 'predictors' of choice in Axelrod's (1968) longitudinal study comparing different measures. Spontaneous awareness (i.e., unprompted recall of the brand name) and aided awareness (i.e., recognition of the brand name when prompted) are the other two commonly used measures.

Some researchers have argued that particular measures are more appropriate in different situations. For example, Rossiter and Percy (1991) argued that when options are present at the time of purchase (e.g., brands on a supermarket shelf) then aided awareness is relevant, when they are not, spontaneous awareness should be used. Likewise Lynch and Srull (1982) distinguish between memory based, stimulus based and mixed (both) situations where the ability to spontaneously recall or recognise something have differing importance. Dickson and Sawyer (1990) suggested top of mind awareness is more relevant when a choice between competing brands is made quickly; they argued this measure should be applied to low involvement impulse purchases such as most products in supermarket settings (see also Franzen, 1999).

However, despite these convincing theoretical distinctions between the different brand awareness measures, Laurent, Kapferer and Roussel (1995) reported empirical evidence that the three different brand awareness measures tap the same underlying construct, which they refer to as 'salience'. We infer 'salience' to mean the propensity of the brand to come to mind in purchase situations (Romaniuk and Sharp, 2004). Salience measures that vary in their capacity to elicit the brand name might yield different, yet highly correlated results. This is what Laurent et al.'s analysis seemed to show, i.e. that different brand awareness measures are systematically related, making the debate about the appropriateness of specific measures redundant. If all three awareness measures tap into the same underlying construct then building brand awareness is not a choice of spontaneous versus aided recall, but requires an overall improvement in the brand's salience. All three measures will reflect increases in salience; with the changes in actual scores for each measure simply dependent on the relative difficulty of the measure used.

Importantly, this relative difference between measure scores should be predictable for any measure, if the difficulty and score for any other measure is known. If this is true it has important implications and could potentially resolve much of the reported confusion marketing managers have regarding the concept of brand awareness and how it should be measured (Rossiter and Percy, 1987; Macdonald and Sharp, 2003).

Researchers have also debated whether to measure advertising awareness and, if so, whether to use recall (spontaneous) versus recognition (aided) measures (Thorson and Rothschild, 1983; Singh, Rothschild and Churchill, 1988; du Plessis, 1994; Dubow, 1994; Gibson, 1994; Ross, 1994). Advertising awareness measures parallel brand awareness measures, as they have top of mind, spontaneous and aided components. Therefore, if Laurent et al.'s empirical generalisation also holds for advertising awareness, this could mean that at least part of this recall versus recognition argument for advertising awareness is also unnecessary.

An analogy is the relationship between the heights and weights of children reported by Ehrenberg (1994). Taller children tend to be heavier, and Ehrenberg's law successfully models this height weight relationship between groups of children. However, while height and weight are related, they don't perfectly tap the same construct (e.g., age). While at any one point in time older

children tend to be both taller and heavier, knowing a child's height over time does not allow you to accurately predict their weight. This is because there is considerable weight variation between children of the same height. We surmise that this issue may affect the application of Laurent et al.'s empirical generalisation, hence our replication and extension of the original paper.

The first objective of this research is to replicate Laurent et al.'s research comparing different brand awareness measures. The second objective is to test an extension to advertising awareness measures. The third objective is to examine the relationship between the measures for specific brands over time. This last step is an important test of Laurent et al.'s claim that knowing one measure can allow the prediction of other awareness measures. We now discuss the background to the objectives, followed by our analyses and results.

2. Background and Methodology

2.1. The Underlying Structure of Brand Awareness Scores

Given the seemingly valid theoretical assertions of researchers such as Rossiter and Percy (1987; 1991) that awareness measures tap separate constructs, one might wonder why any relationship between the three measures might be expected. However we believe this relationship exists because all three measures require respondents to retrieve information from a common source; their memory (du Plessis 1994). Even Lynch and Srull (1982) acknowledge that while they present three categories of choice situations, in reality, there are no purely stimulus based situations, where nothing is retrieved from memory and only the information present in the situation is used. Consumers rely on their memory to some degree, even when all of the options are there in front of them. For example Dickson and Sawyer (1986) found that supermarket shoppers only took an average of 12 seconds from the time of reaching the category to make a choice. This implies that rather than process all the information in front of them, consumers use their memory to circumvent the evaluation process. If retrieving information from memory is a common factor for all three measures, and the memory structures that underpin the ability to retrieve information are also common, then the measures should only differ if the process of retrieval differs. This is not the case for the three measures under investigation, as it is always the brand name that is retrieved.

While brand name retrieval is typical in commercial brand awareness tracking, Rossiter and Percy (1991) note that brand awareness is not always about the brand name but can be about the colour, shape of the packaging or other associated distinctive brand features. Sensory and semantic memories might be processed very differently (as noted by du Plessis 1994). However, in this research the measures included are not so heterogenous – all three measures, used by both Laurent et al. and this replication, require semantic processing to retrieve a specific word (or words). The key difference is in the cognitive effort for retrieval from long-term memory, and this explains why all brands score less on some measures than on others.

The final reason why a relationship should be expected between the measures is simply based on logic. If there were no relationship, respondents must often mention a brand in response to a top of mind question but fail to mention it in response to an aided awareness question. This is not possible simply because of the typical procedure (also employed by Laurent et al.) to classify a brand that is top of mind also as being ‘spontaneously’ recalled. Likewise a brand that is ‘spontaneously’ recalled is considered to be an aided response. So there must be some association between the measures.¹

Laurent et al. compared the results from the three typical brand awareness measures of top of mind, spontaneous and aided awareness. Drawing an analogy with the Rasch model, Laurent et al. concluded that the awareness score for any brand was due to two factors. The first is the underlying salience of the brand – which is a constant for each brand. The second is the difficulty of the measure – which is linked to the measure and the nature of the cueing information provided. The law they suggest for brand awareness is that the awareness, P_{ij} , of brand i , evaluated by method j is given by:

$$P_{ij} = \frac{\xi_i}{\xi_i + \delta_j}$$

whereby:
 δ_j is the difficulty of the awareness measure j
 ξ_i is the salience of brand i in the category
 Both of these parameters are > 0 .

Laurent et al. found a curvilinear relationship between the different measures, which when transformed to take the difficulty into account, produced very similar scores for all three measures. They concluded that knowledge of the score for one measure allows the prediction of other results, “if over the years one has collected awareness

measures that were sometimes of aided awareness, sometimes of spontaneous awareness, one can, using the law we describe in this paper, estimate a complete series of, say, spontaneous awareness scores” (p. 177). This claim implies that measuring brand awareness is therefore relatively simple and that debates over the most appropriate measure for the situation are no longer needed. However, to directly test the veracity of this claim, the analysis needs to cover a single brand over time rather than across brands and measures at one point in time. This was our approach.

Hubbard and Armstrong (1994) have criticised much of the research undertaken in marketing for lacking replication, which they argue has impeded the development of marketing knowledge. A secondary benefit of replication is that it publicises the original finding, and thus draws attention to something that might otherwise be neglected. Citations of Laurent et al. are few, which suggests that academia has not paid much attention to something that has some very important and practical implications for research and marketing management. The results they report simplify the issue of brand awareness and a successful extension to advertising awareness could provide further clarification and simplification.

We initially replicated Laurent et al.’s research, but with some extension conditions including (a) different researchers, (b) a different country, and (c) looking specifically at data over time for an individual brand.

2.2 Advertising Awareness

In addition to the replication, we also extended the analysis to advertising awareness measures. Historically, awareness of a brand’s advertising has been considered an important first step in achieving effective advertising (Wells, 1964; Leavitt, Waddell and Wells, 1970). Awareness assesses both the reach and the cut-through of the advertising, in that it records the proportion of the market with long term memories of having noticed the brand advertising. This platform of prior exposure is then typically used as a screen for asking more detailed questions about advertising effectiveness, such as message take out or likeability (Dubow, 1994). While a traditional measure of advertising effectiveness at both the pre-testing and post-testing stages, advertising awareness has not been without its detractors. In the Advertising Research Foundation’s (ARF) Copy Testing Study (Haley and Baldinger, 1991), recall did not perform as well as likeability in discriminating between

successful and unsuccessful copy. Other criticisms have noted the narrow ambit of awareness measures and their inability to take into account other possible outcomes of exposure to the advertising, including unconscious processing (e.g. Haley, Richardson and Baldwin, 1984; Berger, 1991; Perfect and Heatherley, 1996; Heath and Howard-Spink, 2000; Heath, 2001). Following the release of the ARF study there was a reported increase in the use of likeability to pre-test advertising (Haley, 1994), but this was most likely an addition to the employed measures rather than a substitution. Millward Brown, one of the leading proponents of likeability as a pre-testing measure, still incorporate an awareness measure in their pre-testing model (see www.millwardbrown.com). Rossiter and Eagleson's (1994) re-analysis of the ARF results rejected only top of mind awareness as a pre-test measure. Despite this, they still advocated all nine measures (including the ones they rejected through their re-analyses) to be included in pre-testing to capture the hierarchy of different effects and provide insight into how different aspects of the advertisement performed.

Most commercial monitors used in post-testing also include advertising awareness measures in some form. Given the many possible ways in which awareness can be measured, researchers have debated the relative merits of the different advertising awareness measures particularly spontaneous and aided measures of recall (for an overview of the history of this debate, see du Plessis, 1994). At the heart of the debate is the contention that aided and spontaneous advertising measures tap into different mental processes. For example, showing someone an advertisement and asking if it is familiar requires visual processing (or right brain as per Krugman, 1977). In contrast, asking for which brands a person recalled seeing advertising requires processing from semantic memory (or left brain as per du Plessis, 1994).

Some researchers have claimed that spontaneous and aided awareness scores do co-vary and that they tap into a "common [memory] content domain" (Singh and Rothschild, 1983; Zinkhan et al., 1986; Singh et al., 1988). However there has been little research comparing the underlying structure of each measure. Du Plessis (1994) cites a low correlation as one source of evidence of the measures being different, but a low correlation is unsurprising if the relationship between the two measures is non-linear, as Laurent et al. show. If the same systematic relationship Laurent et al. documented for brand awareness measures holds for advertising

awareness measures this would do much to resolve the measurement debate.

The three advertising measures tested in this research are similar in structure to the brand awareness measures. They all tap semantic memory and as such our hypothesis is that they should be systematically related to each other. However, this would not necessarily be the hypothesis we would put forward should some of the visual advertising measure tests be incorporated into the study.

2.3 The Data Analysed

The findings are based on the analysis of tracking data collected over three years from 1999 to 2001. The data set consisted of the three brand and advertising awareness scores for Australian financial institutions each month. Our analysis focuses on the five largest brands in the market as these were the heaviest continuous advertisers, as well as all being national brands. The average monthly sample size was 89.

3. Results

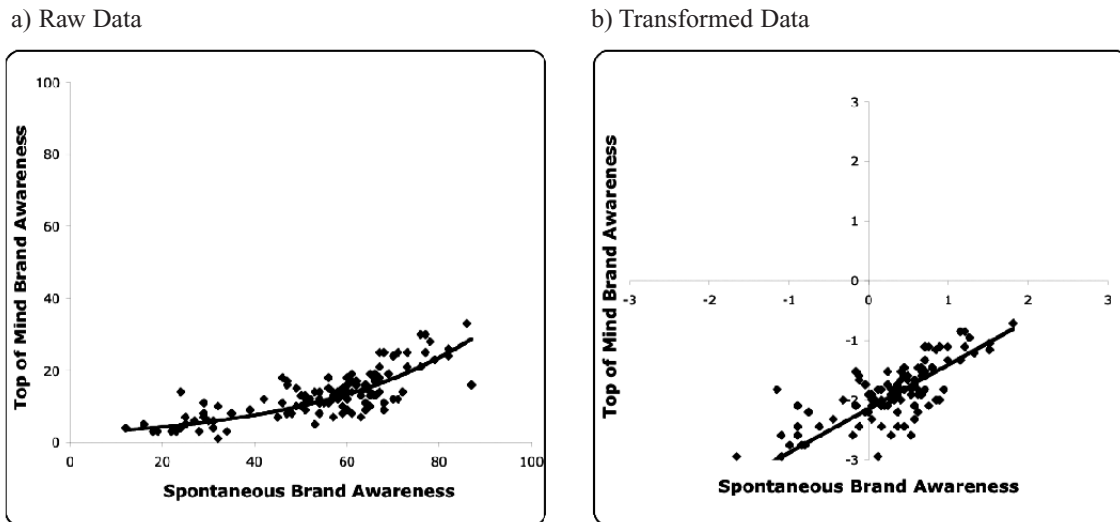
Laurent et al. used data collected over 39 industries, apparently with the data for each industry collected at a single point in time. This allowed generalisability across industries, based upon comparisons of different brands within the same market at one point in time. Our approach was to use data collected over time for the same brands in a single industry.² Our data collection occurred continuously; the data were then aggregated into monthly totals for each measure. This meant we had a similar number of observations within our single category as the previous authors had across categories. We refer readers to the original study for a detailed description of the mathematical transformation, however we will reiterate the key results for the linear regressions of the transformed data. Although 39 markets were analysed, only six are specifically detailed in the original paper.

Key findings of Laurent et al. were:

- 1) the quality of the fit was high – R^2 s above 0.80 and extremely significant Fs (they cite R^2 s ranging from 0.82 to 0.91 in the six examples provided);
- 2) the constant (the ratio of the difficulty of the measures) is strongly and significantly negative (all are around -2 , with t-statistics ranging from -23 to -60);
- 3) the coefficient of the line was close to 1 (figures ranging from 0.85 to 1.13 were provided).

These results are the benchmarks against which to compare our results.

Figure 1: Example of Raw and Transformed Relationship Between Brand Awareness Measures



3.1 Replication Using Brand Awareness Scores

First we examined the raw brand awareness data and found the curvilinear relationship between measures cited by Laurent et al. (Figure 1a). This was then transformed to a linear relationship by using a double logistic transformation (Figure 1b).

The transformed figures were then analysed using linear regression. Table 1 shows the quality of the fit is good. R²s of 0.66 (top of mind versus spontaneous) and 0.89 (spontaneous versus aided) indicate a successful replication. Our figure of 0.66 is lower than the figures reported by Laurent et al., but their six examples were all spontaneous versus aided measure regressions. Given the responses for top of mind are restricted by the fact that only one brand can be top of mind, whereas multiple responses are possible for spontaneous and aided measures, a weaker relationship between top of mind and spontaneous measures might perhaps be expected (Laurent et al. themselves do not report these figures). The coefficient of the line (B) is close to 1 in both cases

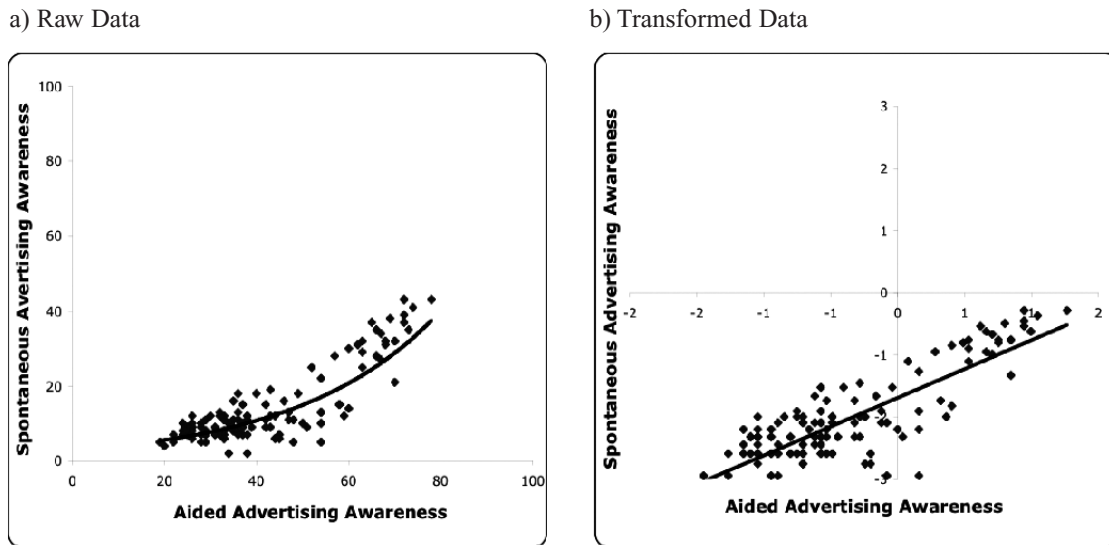
(0.74 and 1.28), and the constant (A) is negative across all measures (around -2 for both analyses).

Laurent et al. developed an estimate of the difficulty of the spontaneous awareness measure as compared to the aided awareness measure. Compared to an aided awareness measure set to one, the values range from 7.02 through 16.64 for their six reported data sets. The two difficulty values obtained in our study are 8.49 and 15.23. These match those of Laurent et al. well and suggest that respondents in France and Australia found the relative difficulties of using the brand awareness measures about the same. These results, while being limited, match commonsense assumptions that top of mind measures are more difficult than spontaneous measures and in turn spontaneous measures are more difficult than aided measures. This suggests that this difficulty may be something inherent in retrieval from human memory, rather than a situation, cultural or even category-based phenomenon.

Table 1: Category Level Brand Awareness Transformed Regression Results

Brand Awareness:	A	B	R²
Top of Mind v Spontaneous	-2.1	0.74	0.66
Spontaneous v Aided	-2.7	1.28	0.89

Figure 2: Example of Raw and Transformed Relationships Between Advertising Awareness Measures



3.2 Extension to Advertising Awareness Scores

The first step was to determine if a similar curvilinear relationship existed in the advertising awareness data. Figure 2 shows the plot of the spontaneous advertising awareness and the aided advertising awareness measures. We conducted the same transformation as for brand awareness, which linearized the data.

The regression results, shown in Table 2, have R²s of 0.73 and 0.65. While these are not quite as high as those reported by Laurent et al., they are indicative of a good fit. The coefficient of the lines (B) is close to one and within the 0.85 - 1.13 range provided in the earlier study. The constant is negative, albeit lower for the ratio of top of mind versus spontaneous advertising awareness (-0.9) than was evident for brand awareness in our replication (2.1) and in Laurent et al. (around -2). This may be due to there being fewer brands recalled for spontaneous advertising awareness measures than for the equivalent brand awareness measure. As a result, all the advertising awareness measures look more similar to each other, thereby reducing the calculated difference in difficulty.

3.3 Brand Level Analysis

Laurent et al. suggest brand managers can use their finding to estimate the score for one measure from the score for another measure. For example, understanding this relationship, the brand manager can calculate the aided awareness score if the spontaneous awareness score is known. To directly test this claim we analysed each of the five brands in the category individually. This analysis was conducted for brand and advertising awareness measures separately using the same approach as for the category. The raw data for each brand was transformed and then a linear regression performed on the transformed data.

Whilst the brand level results for the constant follow a similar pattern to the product category results, the fit of the regression line is much lower, as shown by the R² values in Table 3. Likewise the slope of the lines (B) for brand awareness measures are substantially less than one and more diverse across brands. Generally the fit is better for Brand A (the largest brand) than it is for other brands in the market. An inspection of the scatterplots

Table 2: Category Level Advertising Awareness Transformed Regression Results

Advertising Awareness:	A	B	R ²
Top of Mind v Spontaneous	-0.90	1.10	0.73
Spontaneous v Aided	-1.70	0.93	0.65

Table 3: Brand Level Brand and Advertising Awareness

a) Brand Level Brand Awareness

Brand	Top of Mind v Spontaneous Awareness			Spontaneous v Aided Awareness		
	A	B	R ²	A	B	R ²
A	-1.96	0.72	0.54	-0.18	0.46	0.60
B	-2.10	0.24	0.04	-0.63	0.37	0.36
C	-2.02	0.42	0.21	-0.96	0.47	0.06
D	-2.01	0.26	0.05	-0.40	0.22	0.18
E	-2.45	0.47	0.08	-1.23	0.23	0.02
Average	-2.14	0.42	0.20	-0.68	0.35	0.24

b) Brand Level Advertising Awareness

Brand	Top of Mind v Spontaneous Awareness			Spontaneous v Aided Awareness		
	A	B	R ²	A	B	R ²
A	-1.08	0.73	0.41	-1.25	0.76	0.68
B	-0.65	1.25	0.45	-1.66	0.80	0.40
C	-2.35	0.49	0.12	-1.68	0.80	0.38
D	-0.49	1.30	0.40	-1.77	0.71	0.31
E	-0.98	0.96	0.58	-2.30	1.21	0.52
Average	-1.11	0.95	0.40	-1.73	0.90	0.46

across brands shows that all brands tend to vary considerably on one measure and less so on the other measure (similar to Ehrenberg’s (1994) findings about heights and weights of children). Which measure has the greatest variance depends on brand penetration. Larger brands vary more on more difficult measures, and smaller brands vary more on less difficult measures. Therefore, if we compare top of mind awareness with spontaneous results, the large brand varies more in top of mind, relative to variance in spontaneous awareness. In contrast, a small brand varies less for top of mind awareness, relative to the spontaneous measure. This was consistent for both brand and advertising awareness measures.

These results suggest that much of the fit obtained by Laurent et al. may be due to variance between brands, rather than a close relationship between the measures. Therefore while their model fits at the category level, it is less able to provide brand level estimations.

4. Discussion

Laurent et al. show how performance of a brand on an awareness question is the result of two opposing factors: (1) the brand’s salience in the consumer’s mind, which increases its probability of being named, and (2) the difficulty of the measure, which decreases the probability.

Our results offer further support for these findings, and extend the generalisation from brand awareness measures to advertising awareness measures. Different awareness measures are systematically related, and whether the measures are for brand or advertising awareness, they show similar structural relationships. This strongly supports Laurent et al.’s conclusion that different awareness measures differ in terms of ‘difficulty’ (for retrieval from respondents’ memories) in the same structural way across categories.

However, Laurent et al.'s conclusion that different awareness measures are all tapping a single construct – the brand's salience – seems much more contentious. They relied on the close fit of the model to the overall data across brands to state that one can estimate missing values in a sequence of numbers. They suggest that a brand manager who had sometimes collected aided awareness for a brand and sometimes spontaneous awareness, could, using this empirical generalisation, estimate a complete set of scores for either measure. However, our brand level analyses show that this would produce very different estimates than might have been obtained if the missing data had really been collected.

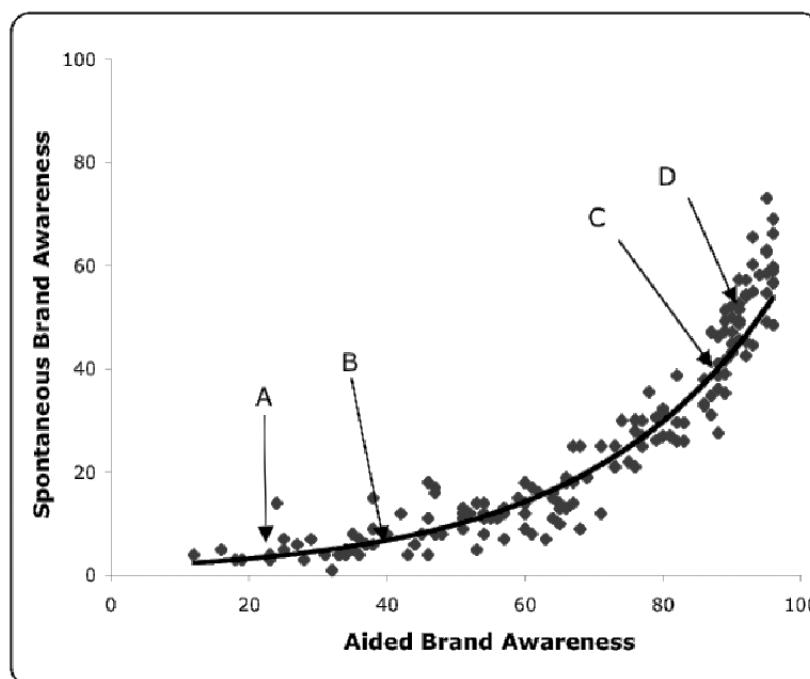
Brands vary substantially in salience and this is what gives the close fit of the model (R^2 generally around 0.9 for Laurent et al). Low salience brands score low on any awareness measure, and high salience brands score high. The nature of the relationship between the two awareness measures is J shaped and since the transformed model accounts for this shape the R^2 is high. However, because of the J-shape of the curve (see Figure 3), two low salience brands with identical spontaneous awareness scores (brands A and B below) can have markedly different aided awareness scores. In addition, two high salience brands (C and D), which will always have

similarly high aided awareness scores, can have markedly different spontaneous awareness scores.

Laurent et al.'s assertion that this law would allow managers to simply collect one awareness measure for their brand and estimate the scores for the other measures do not hold. Instead, the value of the law is that it provides a benchmark so that different awareness scores can be compared with one another, making it easier to identify any deviations.

As mentioned previously, we see parallels with Ehrenberg's empirical generalisation concerning the heights and weights of children (Ehrenberg 1994). Taller children tend to be heavier, and Ehrenberg's law successfully models this height-weight relationship between groups of children. The law acts as a benchmark, allowing children to be identified who are heavy or light for their particular height. Some children might be always overweight as they grow, while others might be overweight while very young and then underweight after a growth spurt. Similarly, and counter to Laurent et al.'s conclusion, the law of awareness does not imply a "mandatory path a brand has to follow from its introduction to leading position in the category...going through all the steps in the curve". If the fit of the model

Figure 3: J Curve in Brand Awareness Scores



were this perfect then different measures of awareness would be redundant, and indeed the empirical generalisation itself would be of little practical application (there is little point in a benchmark that always fits).

Our brand level findings throw considerable doubt on Laurent et al.'s conclusion that different measures of brand awareness simply measure one underlying construct – the brand's salience. While certainly highly salient brands score high on any awareness measure, and low salience brands score low, they do not relate perfectly to one another. Just as Ehrenberg's generalisation shows that height and weight vary together with maturity it would be wrong to consider height and weight as the same construct or simply as reflections of maturity.

As Rossiter and Percy (1987) point out, recognition (aided awareness) requires making the link from brand name to category need, whereas recall (spontaneous awareness) requires making the link the other way round. Recall may always be harder, but there is no reason to believe that the two are always systematically related because, as Rossiter and Percy argue, managers can concentrate their efforts on one or the other. The logical proposition is that brands that are largely brought into consideration by recall (e.g., services) should seek to build a link between category-need and brand name. Whereas those brought to mind by recognition (e.g., groceries) should seek to build a link between the brand name and category-need. While this is a product category level argument the point is that one type of retrieval can be focussed on. And it is conceivable that even within a category some brands will depend more on spontaneous retrieval than others (e.g., hire car companies with no airport presence). So, unfortunately, the potential to simplify both brand and advertising awareness concepts and the measures that underlie them that we posited in the initial discussion is not an outcome of this replication and extension. However, it does suggest there is considerably more work that needs to be done in this area and we think that Laurent et al.'s research has opened up a new and useful approach to the examination of different measures purportedly from the same construct.

In order to use Laurent et al.'s awareness law as a benchmark it is very important to know where the brand or advertising lies on the awareness continuum. Low salience brands can show considerable variation in their

aided awareness scores, while their spontaneous awareness scores are very stable (and low). In contrast, high salience brands can show considerable variation in their spontaneous awareness scores while their aided awareness scores are very stable (and high). And brands in between the two inflection points of the awareness curve can show variation, survey to survey, on both measures.

Laurent et al. argue that managers should use the measure which is most likely to show movement from survey to survey, i.e., aided awareness for minor brands and spontaneous awareness for leading brands. A contrary argument is that managers should not use the score that varies most as this is the least reliable, probably being affected by sampling error or tiny changes in sales growth or decline (an issue worthy of further research). But rather it is changes in the more stable statistic that should grab management attention, because this is unusual. The law is useful in showing which measure this is for any brand.

In conclusion, our results support and extend Laurent et al.'s finding of a generalised law concerning the relationship between awareness scores. Yet, in doing so, we come to quite different conclusions concerning the managerial implications and application of this law. This is another benefit of replication research, where new researchers can bring a fresh interpretation to results.

A limitation of this research is that it was only conducted in one market, therefore more longitudinal replications are encouraged, particularly given that the original study spanned 39 markets (albeit with only the results for six explicitly reported). Another limitation is that the measures were collected in a hierarchy form, with the same person responding to all three measures, as is typically undertaken in brand and advertising tracking. We would recommend that, if possible, future studies employ a split sample approach to avoid any potential contamination from prior questions. Future research could also look at extending this research to see if the same relationship is evident for advertising awareness measures which require remembering the advertisement, rather than remembering the brand as having advertised.

Endnotes

¹This is quite different from the scenario where people are asked to spontaneously recall brands and are then shown pictures of unbranded packaging and asked to identify which ones they knew. In this latter scenario different processing might result in totally unrelated results.

²Serial correlation (correlation of a variable with itself over time or autocorrelation) violates the assumption of independence between the successive values (Berenson and Levine, 1989). Serial correlation was not an issue for the original Laurent et al. paper as the data used consisted of a number of industries at a single point in time. Our data, though affected by serial correlations, were not analysed as a time series. We were not looking at changes over time, simply the relationship between successive pairs of awareness measures. This means the serial correlations are not of importance in this analysis.

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