

## The effect of familiarity on preferences for surnames

Andrew M. Colman, Wladyslaw Sluckin and David J. Hargreaves

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A sample of 40 male and 40 female subjects rated either their familiarity with or their liking for 60 one-syllable and two-syllable surnames selected randomly from a local telephone directory. Linear and curvilinear regression analyses strongly corroborated the hypothesis of an inverted-U familiarity–favourability relationship. These results, together with those of earlier investigations using other classes of stimuli, are discussed in the light of a preference–feedback hypothesis according to which the naturally occurring frequency of exposure of certain stimuli is largely determined by the degree to which they are preferred. This hypothesis accounts for the monotonic familiarity–favourability relationship found for Christian names and the non-monotonic relationship found for letters of the alphabet, one-syllable words, and surnames, and for the cyclical vogues to which Christian names and other cultural objects appear to be subject.

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A large number of empirical investigations (reviewed by Harrison, 1977) have corroborated Zajonc's (1968) exposure hypothesis, which predicts a monotonic increase in liking for all classes of stimuli as a consequence of increased familiarity. A few investigators (e.g. Cantor, 1968; Cantor & Kubose, 1969) have, however, reported a decline in liking for very simple stimuli following increased familiarization. Still others have found non-monotonic inverted-U relationships, with maximum liking occurring at intermediate levels of familiarity (e.g. Sluckin *et al.*, 1973; Colman *et al.*, 1975; Sluckin *et al.*, 1980). The design and methodology of these latter investigations enabled extremely wide ranges of exposure/familiarity, from complete novelty to many thousands of exposures, to be sampled. Taken together, research findings in this area are consistent with the hypothesis that the inverted-U familiarity–liking relationship holds generally, with the peak occurring at extremely low exposure levels for simple stimuli, and at relatively high exposure levels for complex stimuli. This leads to the prediction that the inverted-U relationship will be clearly manifested only when fairly complex stimuli are sampled across a wide range of the novelty–familiarity continuum.

The results of a recent investigation into preferences for Christian names in England and Australia (Colman *et al.*, 1981) have raised new problems. First, since Christian names are complex stimuli and since an extremely wide range of novelty–familiarity was sampled, the considerations outlined above lead to the prediction of an inverted-U relationship, yet in both England and Australia, for both male and female Christian names, the findings pointed to a purely linear increase in liking with increased familiarity. Second, the design and methodology of the investigation of Christian names were formally identical to those of the Sluckin *et al.* (1980) study of familiarity and liking for one-syllable words, which produced unambiguous evidence for a non-monotonic inverted-U relationship. The explanation for this apparent conflict of evidence is not immediately obvious.

An hypothesis will be outlined presently in an attempt to solve these problems. It is provisionally assumed that all classes of stimuli are potentially subject to the inverted-U effect; that is to say, provided that people are exposed to the stimuli sufficiently often, their liking for them will follow a curve which rises at first and subsequently declines. In the case of certain stimuli, particularly those which are relatively complex and not very frequently exposed, the peak of the curve may never be reached because sufficiently high levels of familiarity are not attained; in these cases Zajonc's (1968) exposure effect applies as a special case. With very simple stimuli, the peak may occur at extremely low exposure levels; the Cantor (1968) effect may be assumed to provide an approximation to the inverted-U effect for such stimuli.

With the above considerations in mind, a distinction may be drawn between two classes of naturally occurring stimuli or cultural objects: (A) those whose frequency of exposure depends largely on voluntary choice, such as popular tunes or clothing fashions, and (B) those whose frequency of exposure is virtually beyond voluntary control, such as geometrical shapes or letters of the alphabet. (The existence of indeterminate cases presents problems of classification, but does not affect the argument.) This distinction permits the following prediction to be made: stimuli belonging to class B may become so familiar in a given culture that they pass well beyond the peak of the inverted U and decline in general popularity as a result; but those which belong to class A are prevented from attaining such high levels of familiarity because their frequency of exposure will tend to be reduced by voluntary choice as soon as they begin to show signs of declining popularity. What is being proposed is a cultural feedback mechanism which regulates the familiarity of stimuli belonging to class A and prevents them from declining in general popularity through over-exposure. The naturally occurring frequency of exposure of these stimuli is largely determined by the degree to which they are preferred: not only does exposure influence liking, but liking influences exposure. For the sake of brevity, the above speculation will be referred to as the *preference–feedback hypothesis*.

The preference–feedback hypothesis, if it is valid, provides an explanation for the failure of Colman *et al.* (1981) to find any evidence for an inverted-U familiarity–liking relationship in their investigation of Christian names. Christian names clearly belong to class A and are therefore subject to feedback effects: if a Christian name begins to decline in popularity through over-exposure, parents are free to avoid choosing it when naming new-borns, with the result that its frequency of exposure and thus its familiarity in the culture will decrease. Other things being equal, the name's popularity may be expected to benefit from decreased familiarity, and it may therefore later return to fashion. At any given time, however, an investigation of familiarity and liking for Christian names, or for any other cultural objects which belong to class A, is likely to reveal an essentially monotonic relationship. Since exposure is subject to the preference–feedback effect, class A stimuli may be expected to display a cyclical waxing and waning of popularity; the existence of cyclical vogues in Christian names was discussed by Colman *et al.*, and has often been pointed out with regard to other class A cultural objects.

One-syllable words, such as those investigated by Sluckin *et al.* (1980), are excellent examples of class B stimuli: frequency of exposure to specific words among members of a given language group is virtually beyond the language users' voluntary control; there is only very limited scope for reducing the frequency of exposure of common words which may have lost some of their attractiveness through excessive familiarization. Stimuli belonging to this class are not subject to the preference–feedback effects which tend to obscure the inverted-U principle in the case of class A stimuli. The fact that clear evidence for an inverted-U familiarity–liking relationship for one-syllable words was found by Sluckin *et al.*, is thus adequately accounted for by the hypothesis. Letters of the alphabet also fall into this category, and appear to obey the inverted-U principle (Sluckin *et al.*, 1973).

A comparison of the properties of Christian names with those of surnames suggests a critical test of the preference–feedback hypothesis. Surnames share many characteristics in common with Christian names: they are fairly complex stimuli, they possess great variability and span a wide range of the novelty–familiarity continuum, they occur naturally in both speech and writing, they are used primarily for identifying people, and so forth. Unlike Christian names, however, surnames are stimuli belonging to class B: their frequency of exposure is almost wholly independent of voluntary choice, with the result that the frequency distribution of surnames remains remarkably stable over time within a

given cultural group. Some surnames are so common that, like common words, they have been heard or read many thousands of times by most adults. According to the preference–feedback hypothesis, therefore, a replication of the Colman *et al.* (1981) investigation using surnames in place of Christian names allows the possibility of the inverted-U familiarity–liking relationship manifesting itself. The investigation described below follows the design and methodology of Colman *et al.* in detail, apart from the substitution of surnames for the Christian names which were used as stimuli in the earlier investigation.

### Method

The design and methodology will be outlined only briefly, since full accounts are contained in Colman *et al.* (1981) and Sluckin *et al.* (1980). These accounts point out the advantages of between-subjects designs, and of the use of subjective measures of familiarity and liking. They also explain why it can be advantageous to use random samples of naturally occurring stimuli of varying degrees of familiarity rather than stimuli whose familiarity has been artificially manipulated in the course of the experiment. This procedure renders the probability of systematic confounding bias, such as that which might result from the presence of subjects' own names amongst the stimuli, relatively low.

The subjects were 40 males and 40 females, mostly undergraduates at the University of Leicester, randomly assigned to conditions involving the rating of either familiarity with or liking for surnames. Each subject was tested individually.

The 60 one-syllable and two-syllable surnames which were used as stimuli were selected by a quasi-random procedure (*vide* Colman *et al.*, 1981) from the 1978 edition of the *Leicester Area Telephone Directory*. Double-barrelled surnames were excluded.

Each name was rated by each subject on a five-point scale from 0 ('very infrequent' or 'dislike') to 4 ('very frequent' or 'like').

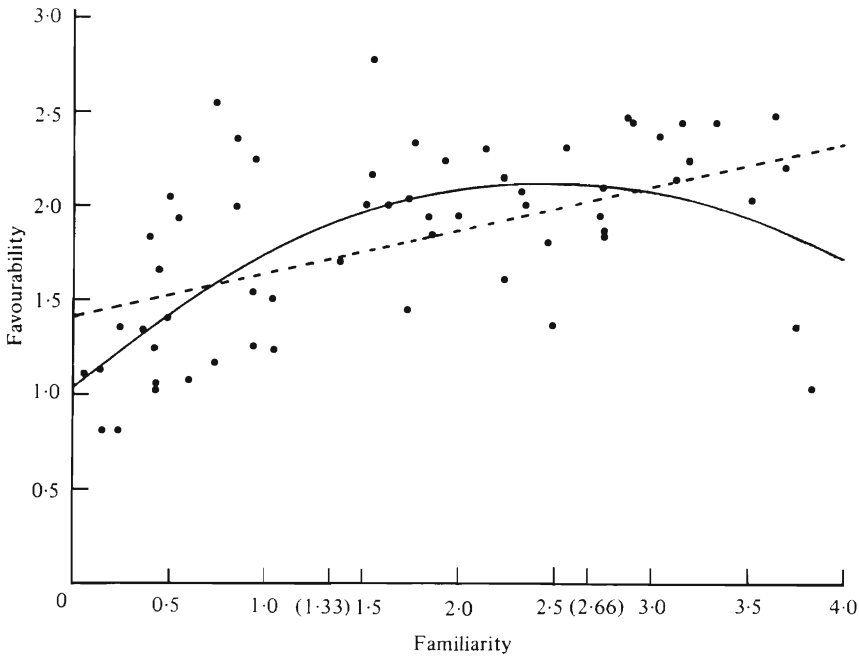
### Results

The mean familiarity and favourability ratings of the 60 surnames were 1.75 (SD = 1.15) and 1.82 (SD = 0.54) respectively.

The mean familiarity and favourability ratings of the five most familiar names were as follows (familiarity ratings are given first): *Smith* (3.85, 1.03); *Brown* (3.75, 1.33); *Davis* (3.70, 2.20); *Taylor* (3.63, 2.47); and *Evans* (3.53, 2.03). Those of the five least familiar names were *Bamkin* (0.07, 1.10); *Bodle* (0.15, 1.13); *Nall* (0.17, 0.80); *Codling* (0.23, 0.80); and *Vesty* (0.25, 1.35). The corresponding mean ratings of the five most liked names were: *Shelley* (1.57, 2.77); *Cassell* (0.77, 2.53); *Burton* (2.87, 2.47); *Taylor* (3.63, 2.47); and *Saunders* (2.90, 2.45). The mean familiarity and favourability ratings of the five least liked names were: *Codling* (0.23, 0.80); *Nall* (0.17, 0.80); *Smith* (3.85, 1.03); *Triggs* (0.43, 1.03); and *Fitzhugh* (0.43, 1.05). A scatter diagram illustrating the relationship between the two variables is shown in Fig 1.

Inspection of Fig. 1 suggests the existence of an underlying non-monotonic relationship. The 11 most unfamiliar surnames, and the two most familiar surnames, all received mean favourability ratings which were well below the overall mean favourability of 1.82. Conversely, the 15 least liked surnames all fell within the lower or upper thirds of the familiarity scale. And, of the 21 surnames which fell in the middle third of the familiarity scale, all but six were rated above the mean in favourability. The statistical analyses described below were performed in order to discover how much significance can be attached to the apparently non-monotonic trend in the data, and to make a detailed comparison with the equivalent results obtained for Christian names in England by Colman *et al.* (1981).

Linear regression analysis yielded a least square regression line defined by  $FAV = 1.42 + 0.23 FAM$ , with a coefficient of determination of  $R_{FAV.FAM}^2 = 0.263$ ; the equivalent



**Figure 1.** Mean familiarity and favourability ratings (ranges 0 – 4) of 60 randomly selected surnames, showing least square linear regression line (FAV on FAM) and least square parabola. —, least square parabola; ----, least square line.

coefficients for the boys’ and girls’ Christian names in the English sample studied by Colman *et al.* were 0.680 and 0.452 respectively. The significance of these linear components of the variance was tested by computing

$$F(k, n - k - 1) = \frac{R_{\text{FAV.FAM}}^2/k}{(1 - R_{\text{FAV.FAM}}^2)/(n - k - 1)},$$

where  $n$  = number of names, and  $k$  = degrees of freedom for  $R_{\text{FAV.FAM}}^2$ ; the results are summarized in Table 1.

Quadratic regression analysis yielded the least square parabola defined by  $\text{FAV} = 1.04 + 0.88 \text{ FAM} + 0.18 \text{ FAM}^2$ , with a coefficient of determination of  $R_{\text{FAV.FAM.FAM}^2}^2 = 0.415$ ; the equivalent figures for the boys’ and girls’ Christian names were 0.698 and 0.465 respectively. The significance of the incremental variance accounted for by the quadratic component over and above the linear component already computed was tested, as in Sluckin *et al.* (1980), by calculating

$$F(k_1 - k_2, n - k_1 - 1) = \frac{(R_{\text{FAV.FAM.FAM}^2}^2 - R_{\text{FAV.FAM}}^2)/(k_1 - k_2)}{(1 - R_{\text{FAV.FAM.FAM}^2}^2)/(n - k_1 - 1)},$$

where  $k_1$  and  $k_2$  = degrees of freedom for  $R_{\text{FAV.FAM.FAM}^2}^2$  and  $R_{\text{FAV.FAM}}^2$  respectively; these results are also summarized in Table 1. The least square parabola and the least square regression line are shown in Fig. 1.

Finally, a piecewise linear regression analysis was performed on the data as follows. The familiarity continuum was divided into three equal segments, from 0.00 to 1.33, from 1.34 to 2.66, and from 2.67 to 4.00. For the lower third, the least square linear regression line is given by  $\text{FAV} = 1.02 + 0.82 \text{ FAM}$ , and the product-moment correlation coefficient in this region is  $r = 0.526$ . For the middle third,  $\text{FAV} = 2.34 - 0.18 \text{ FAM}$ ,  $r = -0.154$ . Finally, for the upper third,  $\text{FAV} = 3.46 - 0.43 \text{ FAM}$ ,  $r = -0.380$ .

**Table 1.** Linear and curvilinear regression analyses: Familiarity and favourability of surnames, boys' Christian names, and girls' Christian names

	$R^2_{F.AV.FAM}$	$R^2_{F.AV.FAM,FAM^2}$	Linear component			Incremental quadratic component		
			F	d.f.	P	F	d.f.	P
Surnames ( $n = 60$ )	0.263	0.415	20.80	1.58	< 0.001	14.84	1.57	< 0.001
Boys' Christian names, England ( $n = 100$ ) <sup>a</sup>	0.680	0.698	208.25	1.98	< 0.001	5.78	1.97	< 0.05
Girls' Christian names, England ( $n = 100$ ) <sup>a</sup>	0.452	0.465	80.83	1.98	< 0.001	2.36	1.97	n.s.

<sup>a</sup> See Colman *et al.* (1981).

## Discussion

The results confirm the prediction of a non-monotonic inverted-U relationship between familiarity and liking for surnames. The most unfamiliar and the most familiar surnames were among those which were least liked by the subjects. Conversely, the least liked names tended to fall towards the ends of the familiarity continuum. The large majority of names which fell into the middle third of the familiarity scale received above-average ratings on favourability.

Regression analysis showed that the linear component of the variance in the familiarity–favourability relationship was significant at the 0.001 level for surnames, as well as for boys' and girls' Christian names. The incremental variance accounted for by the quadratic component acting over and above this linear component, however, whilst significant at the same level for surnames, only marginally reached significance at the 0.05 level for boys' Christian names, and failed to reach significance for girls' Christian names. Further inspection of Table 1 reveals that the incremental quadratic components of the variance for Christian names, although marginally significant in one case, are extremely small compared with the linear components: the ratios of quadratic to linear variance are approximately 1/36 and 1/34 respectively. In the case of surnames, on the other hand, a very large and highly significant proportion of the variance is accounted for by the incremental quadratic component. It is worth bearing in mind that the results for surnames are based on a sample of  $n = 60$ , while those for each set of Christian names are based on a sample of  $n = 100$ . It is reasonable to conclude that a very much larger proportion of variance is accounted for by the quadratic trend in the case of surnames than in the case of Christian names.

The nature of the non-linear trend for surnames is further illuminated by the piecewise linear regression analysis. The linear component of the trend in the lower third of the familiarity scale is strongly positive, with a slope of 0.82; in the middle third a slightly negative linear trend with a slope of  $-0.18$  exists; and in the upper third the linear trend is strongly negative, with a slope of  $-0.43$ . Taken together, these results strongly corroborate the hypothesis that the underlying familiarity–favourability relationship for surnames is non-monotonic and takes the form of an inverted U.

These findings regarding surnames replicate those of Sluckin *et al.* (1980) on one-syllable words, and differ substantively from those of Colman *et al.* (1981) on Christian names, in spite of the fact that the design and methodology of all three studies is formally identical. This apparent contradiction seems to be satisfactorily accounted for by the preference–feedback hypothesis outlined above. The frequency of exposure of surnames and of words is virtually beyond the control of people under normal circumstances; continued exposure is therefore to be expected even after such stimuli have passed the peak of the hypothesized inverted-U familiarity–favourability curve. Christian names, on the other hand, are subject to the feedback effect in so far as their frequency of exposure is largely dependent upon voluntary choice; they are prevented from passing much beyond the peak of the inverted U by a curtailment of usage which results directly from their declining popularity. The cyclical vogues in Christian names, and also in popular tunes, clothing fashions, and other cultural objects which are subject to this effect, are also explicable in terms of the hypothesized preference–feedback effect.

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Requests for reprints should be addressed to Dr A. M. Colman, Aesthetics Research Group, Department of Psychology, University of Leicester, Leicester LE1 7RH, England.  
 Professor W. Sluckin and Dr D. J. Hargreaves are also at that address.