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Furniture
Flammability
and the
Consumer

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UPHOLSTERED FURNITURE FLAMMABILITY
AND THE CONSUMER

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The analysis and conclusions of this study do not necessarily reflect the views of the Department.



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FOREWORD

This publication is a summary of a research report entitled "Upholstered Furniture: Effect of Consumer Information and Education on Cognition and Choice," which can be obtained through the Departmental Library of Consumer and Corporate Affairs Canada.

This research developed from the department's recognition of the importance of informing and educating consumers about a problem of increasing concern: the flammability of upholstered furniture. Fire statistics from three Canadian provinces have shown that upholstery fabric was the first material ignited in over 5 per cent of all fires, accounting for more than 10 per cent of all fire deaths and 3 per cent of all fire property losses -- more than any other material under examination by the Product Safety Branch of Consumer and Corporate Affairs Canada. The statistics suggest the importance and timeliness of a detailed examination of policy issues.

It is hoped that this summary of the final report will encourage further research and provide input to the policymaking process concerning the issue of upholstered furniture flammability.

A handwritten signature in black ink, appearing to read "T. Russell Robinson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

T. Russell Robinson
Assistant Deputy Minister
Policy Coordination

UPHOLSTERED FURNITURE: EFFECT OF
CONSUMER INFORMATION AND EDUCATION
ON COGNITION AND CHOICE

A Summary

This summary describes an experiment about consumer choice of upholstery fabric. The purpose of the study was to prepare and test the effect of several different approaches to providing consumers with information and educating them about the flammability of upholstered furniture.

The study measured the effect of these different approaches on: (1) consumers' awareness and understanding of fabric flammability and some related issues, and (2) consumers' evaluations of some sample pieces of upholstery fabric differing in ability to resist ignition and their choice from those samples.

The findings prompt the authors to recommend a mandatory flammability standard for upholstered furniture in Canada.

THE EXPERIMENT

Participants

Subjects were selected through cooperating service, church and community groups in the Winnipeg and Edmonton areas. To encourage participation and to increase the realism of choosing a fabric, individuals were offered the opportunity to win enough of the chosen fabric to re-upholster a sofa and/or chair.

A total of 448 households participated, of which 44 had two respondents, usually husband and wife, who participated jointly in choosing a fabric. The remaining participants were mostly married women, but included 47 single females and one single male. Comparison with population figures showed that the sample was quite representative of the population as a whole except that the lowest socioeconomic group was not well represented. Nevertheless, the subjects were reasonably representative of the population of interest (buyers of upholstered furniture) for this study.

Subjects were assigned to different educational treatment groups. Prior to the actual treatment, each person completed a quiz about fabric flammability and serviceability. Quiz results were used to categorize participants into three levels of knowledge and experience: high, medium and low. Those in the highest level were randomly divided into four subgroups, each corresponding to a different type of information later shown to them in the fabric-selection stage of the experiment. This same process of division was followed for both the medium and low knowledge levels.

Design of the Experiment

Four different approaches to consumer education and four different types of consumer information were used. Together these gave a total of 16 (4 x 4) different combinations or strategies for consumer education and information.

Having completed the quiz, participants then experienced one of the four consumer education (CE) approaches:

CE 1 -- control group: subjects received no educational experience, thus providing a benchmark against which the relative effect of the other three educational approaches could be measured

CE 2 -- subjects shown a 20-minute audiovisual program on upholstered furniture, emphasizing flammability and serviceability

CE 3 -- subjects given a 12-page pamphlet on upholstered furniture, with sections on flammability and serviceability

CE 4 -- subjects exposed to both the audiovisual presentation and the pamphlet.

One to two weeks later, during in-home appointments, participants were shown a fabric sample book containing 12 different fabric styles. These were all in a similar price range, had little or no pattern and came in a similar range of colours. Six fabrics were more formal in style and the other 6 were casual. In both formal and casual styles, the durability and flame retardance of the fabrics varied as follows: low durability, both flame retardant (FR) and non-flame-retardant (non-FR); medium durability, both FR and non-FR; and high durability, both FR and non-FR.

The amount and type of information provided on the fabric samples represented four different categories of consumer information (CI):

CI 1 -- basic label giving fiber content and brand information

CI 2 -- basic label plus a gold-foil hang-tag attached to the six flame retardant fabrics similar to the one used in the U.S. Upholstered Furniture Action Council's (UFAC) voluntary labelling scheme

CI 3 -- triangular red flammability warning hang-tag attached to the six non-flame-retardant fabrics based on the U.K. Upholstered Furniture (Safety) Regulations 1980

CI 4 -- UFAC hang-tag plus a label giving a durability performance rating based on the "Light," "Medium" or "Rigorous" categories in the National Standard of Canada CAN2-130.7-M80, "Consumer Informative Labelling of Upholstered Fabrics for Furniture."

The durability labels in CI 4 were included to determine how consumer awareness and use of flammability labels would be affected by the provision of other information of importance to the consumer.

After they had selected one of the 12 fabrics, participants gave reasons for their fabric choice, once again completed the quiz and provided background information about themselves.

Information Obtained

A number of measures were derived which were thought likely to be affected by the education and information strategies. These are called dependent variables and are italicized for clarity. The first of these is *knowledge gain*. This was obtained by subtracting scores on the quiz completed at the beginning of the study from scores on the same quiz at the end. Of special interest were changes in knowledge with respect to flammability and serviceability of upholstery fabric.

Just before participants were exposed to the 12 sample fabrics, they were asked what characteristics or attributes they would consider in selecting upholstered furniture. Their answers allowed determination of the *number of important attributes* mentioned. This process was repeated as participants looked through the fabrics and made their choice.

The actual *fabric chosen* was recorded. In addition, two measures of *choice efficiency* were determined for the fabric chosen: whether or not it was flame retardant and whether it was sufficiently durable for its intended use. Each participant rated the likelihood they would buy each of the 12 fabrics in an actual purchase situation on a one (least likely) to ten (most likely to buy) scale. This gave a *likelihood-to-buy* measure.

Also collected were a number of other pieces of information (independent variables) considered likely to affect the dependent variables. Finally, participants completed a brief questionnaire measuring age, education, occupation, income and lifestyle.¹

Analysis

The data were analysed to determine the frequency with which each answer was given. Where appropriate, an average was calculated for each answer as well as the question's response variance. Propositions about the relationships between the dependent variables and the different

1. Lifestyle is a measure based on a person's attitudes, interests and opinions and has been shown to influence consumer preferences and choices.

consumer education and information approaches were tested using standard statistical techniques: analysis of variance, analysis of covariance, and Chi-square.

RESULTS AND DISCUSSION

Most participants increased their knowledge of upholstered furniture during the study except for those in the control group (CE 1), who had no special educational experience. Knowledge gain was greater for flammability than serviceability, reflecting a lower level of knowledge of flammability at the start of the experiment.

Flame retardance was mentioned as important by only 16 per cent of participants, prior to the fabric-selection process. As they were looking through the fabrics and making a choice, only 13 per cent mentioned it. The fabric attributes of greatest importance were durability, colour and aesthetics. The latter two were mentioned even though the fabrics were of similar construction, colour range and aesthetic appeal within both the casual and formal categories.

Similarly, durability and aesthetic attributes were offered most frequently as reasons for subjects' actual choices. Flame retardance was given as a reason by only 6 per cent of subjects.

Although half of the available fabrics were flame retardant, only 56 per cent of subjects chose a flame retardant fabric. This is rather discouraging. About 75 per cent of participants had seen an audiovisual presentation and/or pamphlet pointing out the hazard of flammability. About 75 per cent had seen labels on the fabric sets, either warning of the flammability of some of the fabrics or indicating that some were flame retardant. Only about 6 per cent of the total sample of consumers saw neither the audiovisual presentation nor the pamphlet and viewed the fabric set with no flammability labels. Yet rather than a substantial majority choosing a flame retardant fabric, only 56 per cent did, little different from what one would expect to occur purely by chance if there had been *no* education or information treatment. In addition, flame retardance was not more important to smokers than to nonsmokers.

On the other hand, only one-third of the fabrics were of high durability; yet 50 per cent of participants chose one of these. Only 23 per cent chose a low-durability fabric. Thus the nature of the fabric chosen reinforces the conclusion that durability was a more important property than flame retardance.

Effect of Age, Education, Occupation, Income and Lifestyle

Education level was significantly related to knowledge gain and the number of fabric attributes mentioned. Those with less than senior high school education had knowledge gain scores much lower than other

groups and mentioned fewer attributes, while those with university degrees mentioned more attributes.

Age showed a negative relationship with both aspects of knowledge gain. That is, as age of participants increased, the amount of knowledge gained decreased. Age was positively associated with the number of attributes mentioned. In general the older the person, the more attributes mentioned. Both age and occupation showed a relationship with the level of suitability of the selected fabric for its intended use. To elaborate, respondents over 65 (and those in the "retired" occupational category) tended to select fabrics of higher durability than they needed more often than did younger subjects. Full-time homemakers were more apt to choose fabrics which were less than adequate for intended use. These findings can be explained in part by the fact that many older, retired subjects needed only medium-durability fabrics, while young homemakers usually needed high-durability fabrics.

No meaningful relationships were found between either income or lifestyle and the dependent variables measured.

Where there were differences among the four consumer education (CE) groups in one of the independent variables which had been shown to be associated with a dependent variable, this was taken into account in subsequent analysis.

Effect of Consumer Education and Information on Participants' Knowledge and Awareness

Participants in the three sets of groups who had an educational experience (CE 2, 3 and 4) increased their quiz scores for both flammability and serviceability knowledge more than the control group (CE 1) did. The audiovisual presentation had a much greater effect than the pamphlet in increasing knowledge of fabric flammability. This difference was noticeable but less marked for increases in knowledge of fabric serviceability.

These results underline the effectiveness of the slide-tape sequence. For many participants, it presented new ideas and information on flame retardance and flammability in an interesting and involving way. The combination of the pamphlet and the audiovisual presentation did not have any greater effect than the presentation alone.

The educational treatments had no apparent effect on the number of attributes mentioned by participants before they chose a fabric. During the process of selecting a fabric, however, when different participants saw different labels, those consumers who saw the fabric sets with the British flammability label, mentioned fewer important attributes but were more apt to mention flame retardance or flammability. Those who saw the durability labels also mentioned fewer attributes.

Perhaps this was because these labels focused their attention on one or two attributes -- flammability and durability -- possibly to the exclusion of others.

Effect of Consumer Education and Information on Fabric Choice

Results of tests to measure the effects of consumer education and consumer information on the likelihood-to-buy ratings suggested that those who saw the fabric set with the British flammability warning label were *least* likely to buy the non-flame-retardant fabrics. Those who saw the fabric set with the durability labels were most likely to buy high-durability fabrics. In this last case, the durability label seemed to overshadow any effect of the UFAC label (denoting flame retardance), which was also attached. Thus the UFAC label apparently did not reduce the likelihood of buying those high-durability fabrics which were non-flame-retardant.

There were significant differences in choice of a flame retardant fabric between those who saw the fabrics with the British label and those who did not. Sixty-five per cent of the former group chose a flame retardant fabric, compared to only 53 per cent of the latter. This suggests an effect of consumer information on the importance consumers attached to flame retardance. A relationship was also found between the importance attributed to the fabric property of flame retardance and a participant's choice of a flame retardant fabric.

A significant association was also found between the type of consumer information received and the suitability of the fabric chosen. Those who saw the fabric set with the durability label chose a fabric adequate for their needs more often than those who saw other fabric sets. This effect was stronger among those who saw the audiovisual presentation than for those in the control group or those who received just a pamphlet.

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Conclusions from the study and implications for policy can be summarized as follows:

1. For most subjects, flammability or flame retardance was not an attribute which determined choice of upholstery fabric or upholstered furniture, even when a label with this information was provided. Nor was flame retardance more important to smokers than to nonsmokers. Thus we cannot assume that consumers would select a flame retardant over a non-flame-retardant product. If consumer safety is to be improved, and the number of upholstered furniture fires reduced, the ideal would be to make all furniture in the market safe. Consequently, it is recommended that a regulation involving a mandatory flammability standard for uphol-

stered furniture would be most effective in achieving this aim. If the standard were voluntary, almost complete compliance by manufacturers would be necessary to achieve a similar degree of effectiveness.

2. The British warning label was more effective than the UFAC label in changing both attitude toward flame retardance and behaviour regarding choice of a flame retardant fabric. Thus if a completely mandatory standard is not feasible, a regulation similar to the U.K. Upholstered Furniture (Safety) Regulations 1980 (in place prior to December 1982), requiring that noncomplying furniture bear a warning label, is recommended. This is preferable to a program similar to that of UFAC where only furniture complying with a voluntary flame retardance standard is labelled, while furniture which does not meet the standard bears no warning.
3. The education treatments used in this study had little effect on choice behaviour. All the treatments, however, increased participants' knowledge of furniture flammability. The audiovisual presentation was much more effective than the pamphlet in increasing both flammability knowledge and awareness of both the British and UFAC labels. This finding, along with the greater effect of the British label over the UFAC label, illustrates the relative impact of visual stimuli over textual material for educating consumers and conveying information to them.
4. Immediate effects cannot be expected from any consumer education program; however, as all the educational treatments affected knowledge gain, repeated efforts might eventually affect attitude (importance of flame retardance) and thus behaviour. Flame retardance must be considered more important before consumers will choose it voluntarily; such an attitude change can only be brought about by repetition and reinforcement. This implies a long-term commitment to consumer education programs.
5. If a consumer education program is being contemplated to accompany either a mandatory or a voluntary standard, funds for such a program, at least initially, would be most effectively directed toward a series of short television sequences on the subject. These could be repeated several times in the next few years.
6. Although a mandatory standard might be more costly to implement than a voluntary one, these costs should be weighed against those of any long-term educational program, as discussed above, which would be necessary to improve the effectiveness of any voluntary standard.