

CURRICULUM VITAE OF DR. ROBERT C. HOCKETT

Dr. Robert C. Hockett, Research Director of The Council for Tobacco Research - U.S.A., Inc., 110 East 19th Street, New York, New York 10022, was born in Fayette, Missouri on July 1, 1905.

A graduate of the Ohio State University, Dr. Hockett pursued graduate study in the same institution and received the Ph.D. degree in chemistry there in 1929. As a National Research Council Fellow in Chemistry, he was a guest scientist at the National Institute of Health, U.S. Public Health Service from 1929 to 1931 and then Associate Chemist on the Institute staff from 1931 to 1935.

In 1935 he joined the faculty of the Massachusetts Institute of Technology as Assistant Professor of Chemistry, becoming Associate Professor in 1941.

In 1941 he was granted a leave of absence from M.I.T. to serve as Scientific Director of the Sugar Research Foundation, Inc., which position he occupied until 1952. He has also been Visiting Professor at the University of Illinois and North Carolina.

From 1952 until 1954 he served as a consultant to industrial firms on problems relating to foods, nutrition, pharmaceuticals, fermentations and sponsored research.

In 1954 he joined the present Council for Tobacco Research's predecessor organization - the Tobacco Industry Research Committee - as an Associate Scientific Director.

Dr. Hockett is a Fellow of the American Academy of Arts and Sciences, the New York Academy of Sciences, the American Public Health Association, the Royal Society of Arts, and the American Institute of Chemistry. He holds membership in the American Chemical Society, in which he has served as an Alternate Councilor, member of the Nomenclature Committee, Vice-Chairman of the Division of Carbohydrate Chemistry in 1944, Chairman in 1945 and 1946, and Secretary-Treasurer from 1956 to 1960. He also holds membership in the American Society of Biological Chemists, American Association for the Advancement of Science, Friends of the World Health Organization, Royal Society of Health, and the Phi Beta Kappa Association.

He has served as a Lecturer in Switzerland for the American-Swiss Foundation for Scientific Exchange, member of the Food Industries' Advisory Committee to the Nutrition Foundation, Inc., Collaborator to the United States Department of Agriculture, member of the Advisory Committee for Advances in Carbohydrate Chemistry, as Associate to the State Department's Committee for Inter-American Scientific Publication and member of the Sugar Advisory Committee to the Administrator of the Production and Marketing Act, U.S. Department of Agriculture.

He is author of numerous research papers on the chemistry of carbohydrates, of articles and lectures on nutrition and public health, of many reviews and summaries on tobacco and health research and contributor to a book, Beet Sugar Economics.

Relationships Between Family Smoking Habits, Individual Differences in Personality, and the Smoking Behavior of College Students

By

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I am Charles D. Spielberger, Professor of Psychology and Director of the Center for Research in Community Psychology at the University of South Florida in Tampa. I obtained my Ph.D. in Psychology at the University of Iowa in 1956, and have been a member of the psychology faculty at Duke University, Vanderbilt University and Florida State University, and directed the Doctoral Program in Clinical Psychology at Florida State and the University of South Florida. I was also employed by the U.S. Public Health Service as a training specialist in psychology. I am certified in Clinical Psychology by the American Board of Psychologists and presently serve as Associate Editor for three major journals and on the editorial boards for a number of additional journals. I have contributed to the research literature on personality for more than 25 years, and have been interested in the association of personality and smoking behavior for the past five years.

Due to a long-standing commitment to host the Annual Meeting of the Society for Personality Assessment, in Tampa, Florida, March 11-13, 1982, in my capacity as official host for the meeting and member of the Society's National Board, I will be unable to appear in person before Congressman Waxman's Subcommittee to present the results of several recent studies in which I have been engaged, and which I believe are relevant to the Subcommittee's consideration of H.R. 4937. I have, therefore, prepared this statement for submission to the Subcommittee.

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Over the past four years, I have conducted research on the relationships between family smoking habits, selected personality traits and the smoking behavior of college students. More than 1500 students have been interviewed or tested in this research. A Smoking Behavior Questionnaire (SBQ) was developed to elicit specific information about students' smoking behavior and the smoking habits of their families, and standardized personality inventories were administered to most of the participants in these studies.

The major findings that have emerged in this research are summarized in this paper. My research results are generally consistent with the increasing evidence that peer-group pressures are the single most important influence in the initiation of smoking. In this regard, it is noteworthy that the results of a related study which I am presently completing indicates that media advertising is consistently ranked near the bottom of a listing of ten factors which might be thought to influence college students to start smoking. This finding is strengthened because it was true for both females and males. (Please see Table 1, page 8.)

The second area of research reported on below provides evidence that smokers and non-smokers differ in personality, and thereby supports the hypothesis that constitutional-genetic factors contribute to the maintenance of smoking behavior.

My research results are set forth below in two sections. Relationships between family smoking habits and the initiation and maintenance of smoking behavior are reviewed in the first section. Next, relationships between important personality traits and smoking behavior are examined. Manuscripts for two papers that provide more detailed information about the research findings are

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included as an Appendix to this report. Both papers have been accepted for publication in scientific journals.

#### Family Smoking Habits and Student Smoking Behavior

For both males and females, students whose older brothers or sisters smoked were more likely to be smokers than those whose older siblings did not smoke. Older sisters appeared to have greater impact on the smoking behavior of their younger sisters than their younger brothers, whereas older brothers seem to have a similar influence on the smoking behavior of younger siblings of both sexes. These results are generally consistent with mounting evidence that peer group pressures are perhaps the single most important influence in the initiation of smoking.

A positive association was also found between the smoking behavior of college students and the smoking habits of their parents. If one or both parents smoked, their sons and daughters were more likely to be smokers than if neither parent smoked. These findings were generally consistent with results reported in eight previous investigations.

When the combined effects of the smoking habits of parents and older siblings were evaluated, older siblings appeared to have a stronger influence on the smoking behavior of younger siblings than their parents. Students whose older siblings were smokers were more likely to take up smoking than those whose older siblings were non-smokers, and parental smoking habits seemed to have no added influence on the smoking behavior of these students. Students with no older siblings, or whose older siblings were non-smokers, were less likely to be smokers themselves, but these students were more likely to take up smoking if one or both parents smoked than if neither parent smoked.

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No differences were found in the smoking habits of the parents of current, occasional and ex-smokers, nor in the smoking habits of their older siblings. Thus, there was little evidence that family smoking habits influenced the maintenance of smoking behavior after the students had begun to smoke. Taken as a whole, the results indicate that family members influence students to take up smoking, but have little or no impact on the maintenance of smoking behavior.

The finding that the smoking behavior of students was more strongly associated with the smoking habits of older siblings than with parental smoking habits suggests that peer groups and other environmental influences are more important than constitutional-genetic factors in the initiation of smoking. However, the data on the relationship between personality and smoking that are discussed in the following section provide evidence that Smokers and Non-Smokers differ in personality, and thus support Eysenck's (1960) hypothesis that constitutional-genetic factors contribute to the maintenance of smoking behavior.

#### Personality and Smoking Behavior

Students classified as "Smokers" (Current, Occasional and Ex-Smokers) had significantly higher mean scores than Non-Smokers on the Extraversion, Neuroticism and Psychoticism scales of the Eysenck Personality Questionnaire (EPQ), and significantly lower scores on the EPQ Lie Scale. Although the observed differences between Smokers and Non-Smokers were similar for both sexes, women scored higher than men on the EPQ Neuroticism and Lie scales,

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and lower on Psychoticism. The differences between Smokers and Non-Smokers on all of the EPQ measures were also stronger for the female students than for the males.

Female Smokers had higher scores than Non-Smokers on the Trait Anxiety scale of the State-Trait Personality Inventory (STPI), whereas male Smokers had slightly lower anxiety scores than Non-Smokers on this scale. No significant differences were found between Smokers and Non-Smokers on the STPI Trait Curiosity and Trait Anger scales.

In evaluating the relationship between personality traits and the maintenance of smoking behavior, Ex-Smokers were found to have significantly higher STPI Curiosity scores than Current or Occasional Smokers, and female Current Smokers had lower EPQ Neuroticism scores and lower STPI Trait Anxiety scores than female Occasional and Ex-Smokers. The finding that female Current Smokers scored lower in both neuroticism and anxiety than female Occasional and Ex-Smokers was surprising, and suggested that smoking may serve primarily as a tension reducer for females who are generally higher in neuroticism than males.

Given the fact that Ex-Smokers had significantly higher Trait Curiosity scores than Current or Occasional Smokers, we may speculate that curiosity motivates Ex-Smokers to take up smoking, but this motive would be unlikely to stimulate them to continue to smoke. The finding must be replicated, however, in order to have confidence in this speculative interpretation.

While the finding that Smokers scored higher than Non-Smokers on all of the EPQ personality dimensions was consistent with results previously reported

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by other investigators, this was the first study to demonstrate a significant relationship between the EPQ measures and smoking behavior with an American sample. An article describing the relations between personality and smoking behavior has been accepted for publication in the Journal of Personality Assessment. A preprint of this article is included in the Appendix.

Taken as a whole, the findings of our research provide additional support for Smith's (1970) and Matarazzo and Matarazzo's (1965) conclusions that smokers are more extraverted, neurotic and tense, and have stronger antisocial tendencies than non-smokers. The results also suggest that females, who are higher in neuroticism and trait anxiety than males, may take up smoking in order to reduce tension (Eysenck, 1980). The finding that female Current Smokers scored lower on neuroticism and trait anxiety than Occasional and Ex-Smokers further suggested that smoking may be an effective tension reducer for females who smoke regularly.

### Conclusion

The research on family smoking habits reviewed above is consistent with existing evidence that peer pressures are the single most important influence in the initiation of smoking. The research on personality and smoking suggests that constitutional-genetic factors associated with personality differences contribute to the maintenance of smoking behavior.

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Charles D. Spielberger

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#### References

1. Eysenck, H. J. The causes and effects of smoking. London: Temple Smith, 1980.
2. Matarazzo, J.D. and Matarazzo, R.G. Smoking. In: D. L. Sills et al. (Eds.), International Encyclopedia of the Social Sciences. New York: MacMillan, 1965.
3. Smith, G. H. Personality and smoking: A review of the empirical literature. In: W. A. Bunt (Ed.), Learning mechanisms and smoking. Chicago: Aldine, 1970.

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Table 1

Rank Order, Means and Standard Deviations of Factors Reported by  
Male and Female College Students to Influence Them to Begin Smoking

Reason for Beginning to Smoke	Females (N=294)		Males (N=130)	
	Rank	$\bar{X}$ SD	Rank	$\bar{X}$ SD
See if I would enjoy it	1	2.61 0.95	1	2.52 0.92
Most friends smoke	2	2.52 1.14	3	2.41 1.16
Try something new	3	2.44 0.97	4	2.32 0.92
Thought it was satisfying because other people smoke	4	2.37 0.98	2	2.48 0.98
Made me feel more relaxed in social situations	5	2.14 1.05	5	2.02 1.08
Parents seemed to enjoy smoking	6	1.58 0.89	7	1.53 0.85
Did not want to refuse friends	7	1.51 0.89	6	1.55 0.87
Older siblings enjoyed smoking	8	1.48 0.83	9	1.46 0.83
Media advertisements	9	1.46 0.73	8	1.48 0.74
Parents disapproved - show independence	10	1.32 0.73	10	1.31 0.69

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## APPENDIX

## Scientific Papers

1. Spielberger, C.D., Jacobs, G.A., Crane, R.S. & Russell, S.F.  
On the relation between family smoking habits and the smoking  
behavior of college students. International Review of Applied  
Psychology, In press, 1982.
2. Spielberger, C.D. & Jacobs, G.A. Personality and smoking behavior.  
Journal of Personality Assessment, In press, 1982.