World Views, Political Attitudes and Risk Perception*

Lennart Sjöberg**

Introduction

In 1982, Douglas and Wildavsky published a widely acclaimed book in which they suggested a link between risk perception and Cultural Theory concepts.[1] Proponents claim that it can explain individual differences in risk perception better than other approaches, such as personality and political attitudes.[2] The theory, with a basis in anthropology,[3] has been regarded as a serious alternative to the psychological, so-called psychometric approach,[4] for explaining perceived risk, although comparisons of the two approaches consistently demonstrate that the psychometric model is superior when it comes to explanatory power.[5] Yet, the Cultural Theory approach has seemed worthwhile since it claims to explain risk perception with variables which are semantically much more distinct from perceived risk than the psychometric scales, and perhaps due to its attractive face validity. It seems perfectly sensible, and the need for empirical study of its explanatory value is great.

Cultural Theory is a complex conceptual structure and much work on the theory has been concerned with theoretical analysis or has used

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1 Mary Douglas & Aaron Wildavsky, **Risk and Culture** (1982).

2 *See* Aaron Wildavsky & Karl Dake, *Theories of Risk Perception: Who Fears What and Why?* 119 (4) **Daedalus** 41 (1990).

3 *See* Asa Boholm, *Risk Perception and Social Anthropology: Critique of Cultural Theory,* 61 **Ethnos** 64 (1996).

4 *See* Baruch Fichoff et al., *How Safe is Safe Enough? A Psychometric Study of Attitudes Towards Technological Risks and Benefits,* 9 **Pol'y Sci.** 127 (1978).

5 *See* Lennart Sjöberg, *A Discussion of the Limitations of the Psychometric and Cultural Theory Approaches to Risk Perception,* 68 **Radiation Protection Dosimetry** 219 (1996).

qualitative approaches to observing the phenomena postulated. Here I deal only with the quantitative approach launched by Dake.[6] Dake devised scales in a questionnaire format for measuring the three major dimensions of egalitarianism, individualism and hierarchy, and also some more experimental items for measuring fatalism.[7] Wildavsky and Dake reported promising results with the scales in an American sample.[8] These scales have been adopted to various cultures; much European work has been done using a British version of the scales. The scales have been denoted scales of cultural biases or World View scales; I shall use both terms in the present paper.

Researchers in several countries now use the scales in attempts to carry out cross-cultural replications. The question then arises just how well the World View scales explain risk perception. Dake originally reported only bivariate correlations and excluded several hazards which did not correlate significantly with the world views. In a survey of later, mainly European, work the explanatory power of the world views, based on multiple regression analyses, was only about 5%.[9] Similar results were obtained in a recent British study.[10] In my view, 5% is a very low level of explanatory power and not very promising.

Some[11] argue that more reliable world view scales probably would show much stronger relationships to risk perception, but, taking reliability estimates of the current scales[12] into account, the corrected correlations will increase only from 5% to 7% explained variance.[13]

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6 Karl Dake, Technology on Trial: Orienting Dispositions Toward Environmental and Health Hazards, (unpublished Ph.D. thesis, University of California, Berkeley, 1990). *See also,* Karl Dake, *Orienting Dispositions in the Perception of Risk,* 22 **J. Cross-Cultural Psychol.** 61 (1991).

7 A definite fatalism scale for the U.S. version was not available for the present study; hence fatalism items were not included.

8 *See* Wildavsky & Dake, *supra* note 2.

9 *See* Lennart Sjöberg, *Explaining Risk Perception: An Empirical and Quantitative Evaluation of Cultural Theory, 2* **Risk Decision & Pol.** 113 (1997).

10 *See* Marris, Langford, and O'Riordan, *infra* note 11.

11 *See e.g.,* Claire Marris et al., Integrating Sociological and Psychological Approaches to Public Perceptions of Environmental Risks: Detailed Results from a Questionnaire Study, CSERGE Working Paper, Norwich University of East Anglia, Centre for Social and Economic Research into the Global Environment (1996).

12 Reliabilities were not reported by Dake, but for his American scales reliability estimates can be found in the present paper.

13 *See* Sjöberg, *supra* note 9.

Hence, the moderate reliability of the present scales is not a credible explanation of low correlations with risk perception.

Others argue that correlations are inadequate as measurement of strength of relationship and use various other statistics such as regression coefficients and the comparison of extreme groups. Yet, regression coefficients are scale unit contingent, and extreme groups can always be selected so as to demonstrate an "effect" provided that they are chosen so as to be sufficiently extreme. If regressions are linear and homoscedastic, the Pearson coefficient, bivariate or multivariate, gives a fair measure of strength of relationship. In the present work I will use regression models to study the strength of the relationship between risk perception and other variables, which will be measured as bivariate or multivariate correlations.

Most of the work on cultural biases reported above used the British version of the scales. Serious doubts about the validity of the scales and/or the theory were raised based on the findings. The need for further study with the American scales in the U.S. was obvious. It is possible that the scales work better in their culture of origin and that some essential characteristics are lost in attempts at transferring them to other cultures.

For these reasons, I have performed a study in the U.S. using the original scales from Dake's dissertation. Several other scales were added to throw further light on how to explain individual differences in risk perception. Ratings of perceived risk were added since Dake's data were exclusively based on societal concerns. Concerns seem to be only partly related to risk perception. It is important to get information about the relationship between perceived risk and world views more directly, hence the inclusion of risk ratings in the present study. A major alternative to explaining perceived risk is that of trust,[14] hence trust ratings were added. Negative affectivity[15], or ratings of satisfaction with various everyday life events or facilities, seemed to be

14 Lennart Sjöeberg, Perceived Competence and Motivation in Industry and Government as Factors in Risk Perception, paper presented at The Bellingham International Conference on Social Trust in Risk Management, organized by the Department of Psychology, Western University of Washington, July 1996.

15 *See* T. A. Judge & C. L. Hulin, *Job Satisfaction as a Reflection of Disposition: A Multiple Source Cause Analysis,* 56 **Organizational Behav. & Hum. Decision Processes** 388 (1993).

an interesting further possibility to explore. It is reasonable to assume that negative affectivity is expressed through judgments of large risks. This dimension has not previously been discussed in the context of risk perception. I also added a section measuring risk perception in a format which has been used in several international comparison studies.[16] The main purpose of this section was to get some information about the level of perceived risk of the particular group of respondents.

A major alternative to the World View scales is that of political attitudes. Dake did consider such attitudes in his work and reported that his scales were superior in explaining perceived risk. However, he did not mention the major alternative offered in work by Rothman and Lichter on many different kinds of elite groups.[17]

Dake's operationalization of political ideology was as follows. He asked subjects to rate themselves in terms of a liberal/conservative dimension. To this he added ratings of support of 20 policies, eleven scored as liberal and nine as conservative (the Libcon scale). Of these 20 policies, fourteen were not explicitly concerned with business or economics. In the Rothman-Lichter scales, purporting to measure political ideology as well, only five of fourteen items were not business or economics oriented. Hence, the items used by Dake appear to be much more heterogenous than the Rothman-Lichter scales and to cover a much wider range of issues. Thus they may have been considerably less reliable when used to form a scale and it may be the case that items oriented towards policies concerning business and economics are more effective in predicting risk perception than more general items (although one of Dake's items in fact mentions nuclear policy explicitly and therefore contributes to some semantic overlap with the risk rating of nuclear power). It seemed important for these reasons to further investigate the role of various political attitudes in risk perception.

In summary, the purpose of the present paper was to study the relationship between U.S. World View scales and risk perception, and

16 *See e.g.*, Tibor Englander et al., *A Comparative Analysis of Risk Perception in Hungary and the United States,* 1 **Soc. Behav.** 55 (1986); Maryla Goszczynska et al., *Risk Perception in Poland: A Comparison with Three Other Countries,* 4 **J. Behavioral Decision Making** 179 (1991); Karl H. Teigen et al., *Societal Risks as Seen by a Norwegian Public,* 1 **J. Behavioral Decision Making** 111 (1988).

17 *See* Sennley Rothman & S.Robert Lichter, *Elite Ideology and Risk Perception in Nuclear Energy Policy,* 81 **Am. Pol. Sci. Rev.** 383 (1987).

also to investigate a number of alternative explanatory concepts. The study is partly a replication of Dake's basic work and is particularly motivated by the weak results his scales have achieved in several European studies.

Method

In this investigation I included several scales, *viz*. the following:

(1) Dake's "Concerns about society today," 36 in all. They were judged on 1-7 category scales, from "No problem at all" to "A very extreme problem". They were all phrased as originally in Dake's work with one exception. The item "Threat of Soviet expansion" was changed to "Threat due to instability of the Russian Federation".

(2) The same 36 concerns, but now judged with regard to trust. The respondents were asked to state their degree of confidence in how well officials (federal, state or local) handle the problems, whether they were trustworthy and competent. Judgements were made on 7 category scales from "Handled extremely well" to "Handled extremely badly".

(3) 24 items for measuring the three cultural biases, 8 for each bias. They had the form of statements, and subjects were asked to rate to which extent they agreed or disagreed, on 7 category scales from "Strongly disagree" to "Strongly agree".

(4) Thirteen items, also in the form of statements and rated in the same manner as the cultural bias statements, measuring the Rothman-Lichter dimensions of political attitude. There were 8 items for measuring liberalism and 5 for alienation.

(5) Twenty items for measuring the Libcon scale of Constantini and Craik.[18] This scale consists of 20 policies and the subjects are instructed to state to which extent they agree or disagree with each of them, on a 4 category scale from "Not at all supportive" to "Support very much". After appropriate reversals of conservative policy items, a scale of liberalism is achieved, called the Libcon scale.

(6) A measure of negative affectivity.[19] 25 items were judged with regard to how satisfactory they were, on 7 category scales from "Extremely unsatisfactory" to "Extremely satisfactory". These were

[18] *See* Edmond Constantini & Kenneth H. Craik, *Personality and Politicians: California Party Leaders, 1960-1976,* 38 **J. Personality & Soc. Psychol.** 641 (1980).

[19] Judge & Hulin, *supra* note 15.

general items intended to measure a general tendency to be unsatisfied with various things in life.

(7) 51 risk items, sampling various technology and environment risks. They were judged on 21 step scales, going from 0 ("Non-existent risk") to 100 ("Extremely large risk"). These items have been used in a number of international comparison studies.

(8) Background data: gender, age, education, type of business or organization where the respondent was employed, one item measuring self-rated political orientation (liberal vs. conservative), ethnicity, and family income.

Subjects were 141 members of a church organization in Fresno, California. The subjects were each paid $10 for responding to the questionnaire, money which was donated to their church. Of these respondents, 50 were male and 91 female. Their average age was 51.7 years, 88% were Caucasians and 79% were college graduates. About 60% described their political opinion as liberal. Modal family income in 1994 was U.S. $42,000. The average rating of the 51 risks was 41.34, very close to the US value cited in previous comparative work (see above), which was 41.35. It should be noted that this is a high level of rated risk, considerably higher than observed in Scandinavia.

Results

Reliabilities (Cronbach's alpha) of the cultural bias scales were 0.603, 0.728 and 0.689 for hierarchy, individualistic and egalitarian scales, respectively. These values are better than what was obtained for the British version in several studies described in a previous report.[20] The Libcon scale[21] gave a reliability of 0.777, and the Rothman-Lichter scales 0.615 and 0.555 for liberalism and alienation. Negative affectivity was measured with an alpha of 0.762, average trust with 0.946. Average concern was also used and had an alpha value of 0.916.

Initially, cultural biases, average trust, and political attitudes (three scales) were correlated with societal concerns; see Table 1.

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20 *See* Sjöberg, *supra* note 9.

21 *See* Constantini & Craik, *supra* note 18.

Table 1
Correlating Societal Concerns, Cultural Biases, Affect, Trust, and Political Attitudes

Concern	*Egalitarian*	*Individualistic*	*Hierarchy*	*Affect*	*Trust*	*Libcon scale*	*Alienation*	*Liberalism*
1. Decline in national wealth	-0.03	0.20	0.22	0.04	0.06	-0.18	-0.03	0.20
2. U.S. interference in foreign affairs	0.31	0.03	0.00	-0.16	0.38	0.10	0.37	0.02
3. Civil disobedience e.g. illegal political acts)	-0.18	0.42	0.34	0.01	0.05	-0.35	-0.04	0.37
4. The lack of a stable investment climate	0.04	0.24	0.26	-0.09	0.28	-0.24	0.01	0.29
5. Absence of strong national leadership	0.27	-0.04	0.08	-0.19	0.48	0.04	0.20	0.05
6. Threat due to instability of the Russian Federation	-0.06	0.19	0.28	-0.01	0.06	-0.17	-0.08	0.20
7. Economic inflation	0.18	0.09	0.09	-0.10	0.37	0.00	0.18	0.07
8. Environmental pollution	0.29	-0.17	-0.14	-0.15	0.28	0.27	0.14	-0.19
9. Middle East conflict	0.23	-0.15	-0.14	0.02	0.14	0.20	0.07	-0.04
10. Poverty and unemployment	0.57	-0.44	-0.35	-0.03	0.37	0.51	0.39	-0.44
11. Decline in moral values	0.06	0.13	0.24	0.02	0.23	-0.13	-0.04	0.13
12. Federal over-regulation	-0.13	0.40	0.21	0.05	0.27	-0.44	0.05	0.42
13. Dangers associated with nuclear energy (e.g. nuclear waste)	0.29	-0.23	-0.17	-0.08	0.34	0.28	0.13	-0.19
14. Loss of respect for authority	-0.05	0.32	0.31	-0.02	0.11	-0.28	-0.02	0.23
15. Misuse of scientific and expert knowledge	0.25	-0.10	-0.04	-0.15	0.36	0.13	0.09	-0.10
16. Excessive permissiveness in society	0.02	0.19	0.32	-0.14	0.30	-0.12	0.01	0.18
17. Decline in public confidence in most major institutions	0.34	0.01	0.15	-0.02	0.35	0.02	0.19	-0.01
18. Increased crime	-0.10	0.20	0.26	-0.05	0.12	-0.18	0.02	0.19

Table 1 (continued)

Concern	*Egalitarian*	*Individualistic*	*Hierarchy*	*Affect*	*Trust*	*Libcon scale*	*Alienation*	*Liberalism*
19. Worldwide overpopulation and starvation	0.28	-0.25	-0.16	-0.13	0.14	0.23	0.15	-0.21
20. National debt	0.10	-0.03	0.05	-0.02	0.22	-0.06	0.11	0.03
21. Foreign attack on the U.S.	-0.15	0.36	0.39	0.04	0.15	-0.32	-0.17	0.25
22. Corruption in the political process	0.24	-0.06	-0.05	-0.13	0.35	0.08	0.24	-0.13
23. Lack of law and order	0.03	0.26	0.22	-0.02	0.32	-0.20	0.04	0.16
24. Downfall of U.S. as a major world power	-0.06	0.25	0.32	-0.00	0.13	-0.30	-0.14	0.27
25. Breakdown in social/interpersonal harmony	0.25	-0.01	0.05	-0.14	0.49	0.10	0.18	-0.06
26. Decline in productivity and innovation	0.17	0.06	0.08	-0.13	0.34	0.00	-0.05	0.07
27. Rapid economic growth	0.22	0.03	0.01	-0.17	0.19	0.03	0.21	-0.07
28. Threat of nuclear war and annihilation	0.20	-0.05	-0.04	0.06	0.18	0.11	-0.10	-0.04
29. Concentration of power in “big" government and industry	0.42	-0.25	-0.13	-0.14	0.50	0.22	0.37	-0.22
30. Dangers associated with technology	0.36	-0.16	-0.19	-0.19	0.37	0.19	0.32	-0.20
31. Strikes and boycotts	-0.12	0.27	0.24	0.07	0.06	-0.22	-0.08	0.22
32. Racial injustice	0.59	-0.41	-0.36	-0.04	0.31	0.51	0.31	-0.41
33. Breakdown in cooperation and decision-making processes	0.30	-0.21	-0.15	0.00	0.44	0.13	0.18	-0.20
34. Energy shortages	0.19	-0.10	-0.03	-0.22	0.41	0.09	0.12	-0.18
35. Demonstrations and protests	-0.17	0.18	0.26	0.03	-0.04	-0.17	-0.23	0.19
36. Restriction of civil liberties	0.43	-0.33	-0.29	-0.11	0.47	0.32	0.38	-0.41

58.3% of the correlations between societal concerns and cultural biases were statistically significant. The affect scale was on the whole unrelated to concerns, while trust was the variable which had the most pervasive relationship with concerns. Political attitudes were related to concerns at about the same level (only somewhat lower) as the cultural biases. It is striking that the Rothman-Lichter scales, which did so well in their study for explaining perceived nuclear power risk, performed in a very mediocre manner in the present study.

A further clarification of the picture is provided by Table 2, where correlations are given between the columns of Table 1, i.e. measures of how similar the profiles of explanatory power were. Table 2 shows that the three scales of cultural bias correlated in very similar ways with societal concerns. Furthermore, they were extremely close to the Libcon scale in the way they correlated (at the 0.95 level) with concerns.

Table 2
Correlations between Columns of Table 1.

	1	2	3	4	5	6	7	8
1. *Egalitarian*	1							
2. *Individualistic*	-0.93	1						
3. *Hierarchy*	-0.91	0.96	1					
4. *Affect*	-0.51	0.43	0.40	1				
5. *Trust*	0.72	-0.56	-0.55	-0.64	1			
6. *Libcon scale*	0.94	-0.98	-0.95	-0.45	0.55	1		
7. *Alienation*	0.86	-0.74	-0.78	-0.59	0.75	0.75	1	
8. *Liberalism*	-0.92	0.97	0.95	0.46	-0.58	-0.97	-0.76	1

Corresponding correlations[22] from Dake's and this study are plotted in Figures 1-3. These figures clearly show that the present results are well in line with Dake's. This is interesting, and it is noteworthy that it occurred in spite of a rather different sample and a time span of about 15 years.

[22] Dake only reported significant correlations and because of that the number of points in the plots are lower than the number of concerns studied.

Figure 1 — Egalitarianism

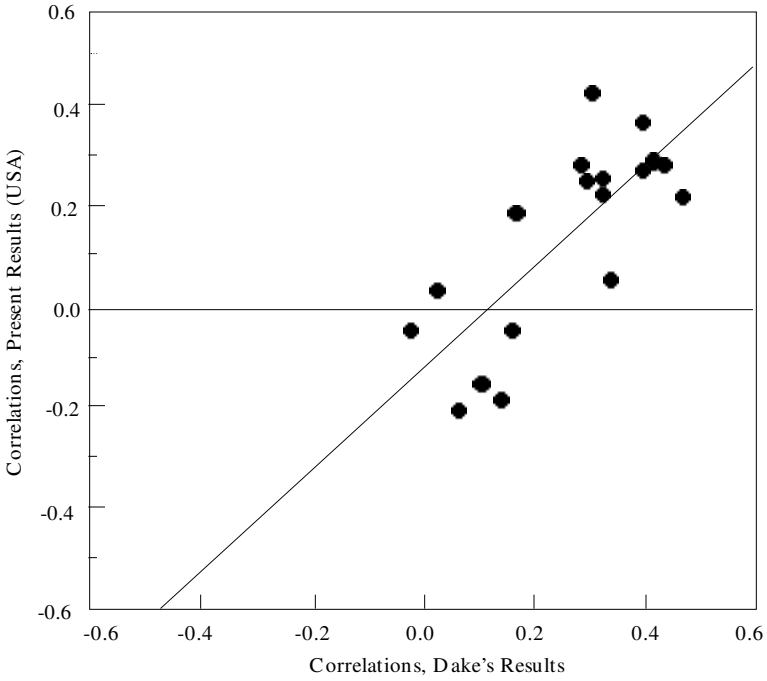


Figure 2 — Individualism

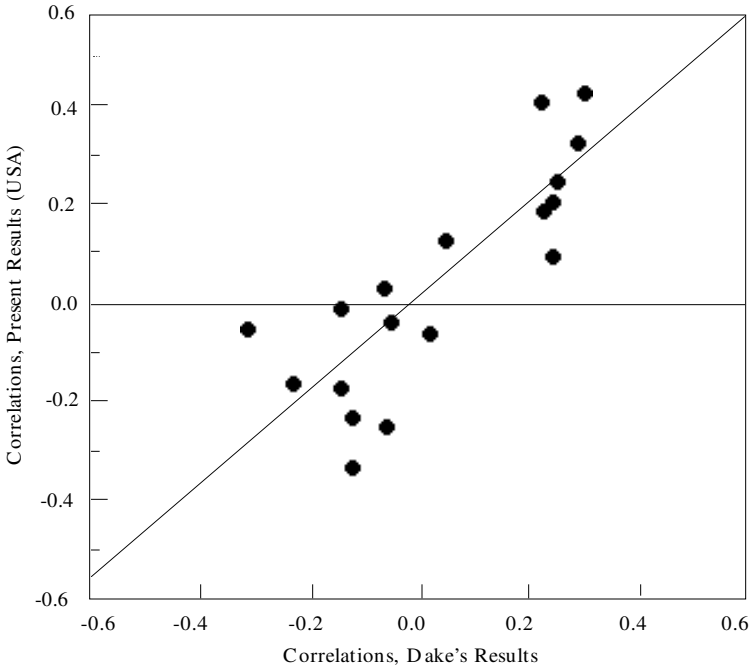
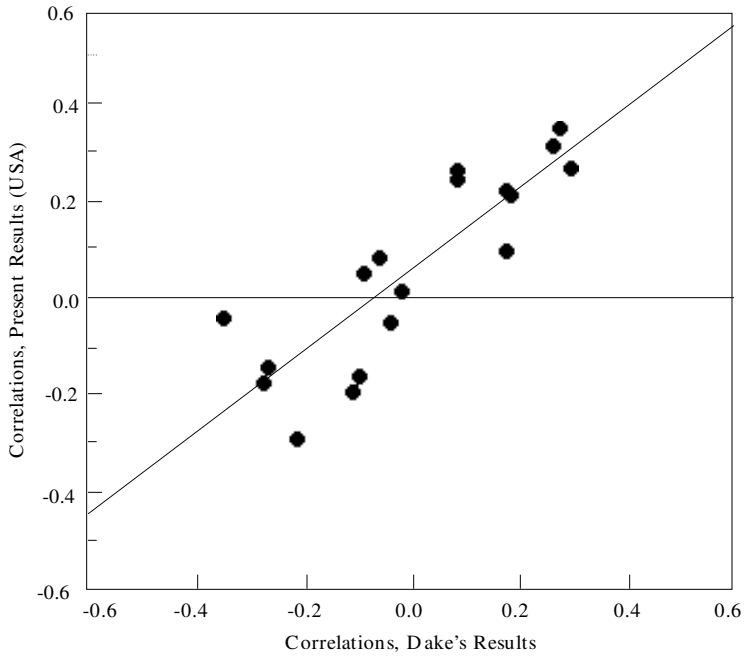


Figure 3 — Hierarchy



The affectivity ratings were rather weakly correlated with attitudes and risks. However, there was an interesting pattern. Risk, concern and trust tended to be correlated with all affect ratings, yielding some support to the notion that perceived risk is partly an expression of negative affect. Attitude and cultural bias scales, on the other hand, gave the familiar mirror image pattern: egalitarians functioned in a manner opposite to that of individualists and hierarchists. In particular, egalitarians tended to be more socially adjusted while hierarchists were positive to the "system", not to people. These trends were, as noted above, weak, but may be of some interest in future work.

The next stage of analysis called for linear multiple regression analysis of each of the 36 concerns and the 51 risk ratings. Note that Dake only analyzed concerns, not risk ratings. The general strategy of these analyses was as follows:

(1) Dake's scales as explanatory variables.
(2) The four political attitude measures as explanatory variables.
(3) General trust (risk ratings) or general trust+specific trust (concerns) as explanatory variables.

(4) Risk sensitivity, concern sensitivity, negative affect and trust as explanatory variables (The first two variables were mean ratings of risks and concerns, from which the respective dependent variable had been deleted).
(5) Same as (4), but with Dake's three dimensions added.

The mean proportion of explained variance under the 5 stages is given in Table 3.

Table 3
Average explained variance of concerns and risks

	Dake scales	Political attitudes	Trust,	Trust, affect, sensitivity	Trust affect, sensitivity & Dake scales
Societal concerns	0.093	0.071	0.231	0.357	0.395
Risk ratings	0.034	0.027	0.026	0.479	0.487

The added share of explained variance for the Dake scales in the last step of the analyses was only 0.038 for societal concerns and even less, 0.008, for risk ratings.

Discussion

A methodological comment is in order. The group of subjects had a higher than average education. However, education is only weakly correlated with risk perception, and hence not a seriously biasing factor. A more serious problem is the high proportion of female respondents since it is well known that women tend to give higher risk ratings than men. Hence, the levels of perceived risk in the present data are probably biased upwards. However, there is no reason to believe that correlations are biased in a serious and systematic manner. The fact that respondents were active in a church organization does not cause suspicion that they may have been deviating from the general U.S. population in some important manners; it would have been otherwise in many European nations.

The following conclusions are drawn from the present results:

(1) The present sample successfully replicated the pattern of correlations between societal concerns and cultural biases as reported by Dake.

(2) Cultural biases explained only a minor share of risk ratings, but a somewhat larger share of concerns. The latter share was larger than what could be expected on the basis of previous results but still rather minor. The added explanatory power due to the Dake scales was very marginal, a few percent at the most.
(3) Political attitudes were somewhat worse as explanatory variables than cultural biases, but not much. In particular, they could not explain the perceived risk of nuclear power; the proportion of explained variance was only 0.049 for concern over this hazard.
(4) The Dake scales and political attitudes had very similar explanatory power across the 36 concerns. The two sets of explained variance correlated 0.895. Thus, whatever small explanatory power they had was largely in common. The Dake scales clearly belong to the general realm of political attitudes, where they are a variation on familiar themes.
(5) Trust was important as an explanatory construct for societal concerns.
(6) The most important explanatory variables for both risk perception and societal concerns were connected with scale use or sensitivity to risks and societal problems in general. The high levels of explained variance (about 40%) also show that the dependent variables could be explained, and that the present data had enough individual variation to justify meaningful analysis.

The concerns best explained by the Dake scales were not technology related. They were:

(1) poverty and unemployment,
(2) racial injustice,
(3) restrictions of civil liberties,
(4) civil disobedience,
(5) power concentration in "big" government and industry.

The few technology risk items among the societal concerns were explained at the average level. The World View scales therefore do not seem particularly well suited for the task of explaining technology and environment concerns and perceived risks. This is an important finding because Cultural Theory has been particularly interesting to some practitioners for the reason that it can allegedly explain risk perception of technology and environment related issues.

In my view the most likely explanation of the present results and those reviewed in my previous work[23] is that Cultural Theory simply

[23] Sjöberg, *supra* note 9.

is wrong. Cultural biases are not major factors in risk perception, but make a very minor contribution to its explanation. Variability within the general public in a country is probably due to factors other than cultural biases, perhaps trust[24] and recreancy[25] to some extent. The fact that some people seem to function according to the theory[26], stressed by Marris et al., is possibly interesting, but virtually all data show very clearly that inter-individual differences in risk perception must be explained in other ways.

Part of the differences between researchers may be due to different ways of using and interpreting statistics. I have relied on average proportion of explained variance while Marris et al. preferred to stress maximum explained variance. Of course, the maximum value across a set of, say, 36 societal concerns could be quite high in spite of an overall mediocre performance of the explanatory variables. In my view it is more informative to stress the average in order not to give a misleading picture of the power of the scales in explaining risk perception. In addition, significance testing continues to be a major source of establishing empirical findings[27] in this field as in so many others. Yet, it is obvious that significance tells very little about how well a set of variables can explain a phenomenon. Some researchers seem to believe that non-significance implies a zero correlation (Dake did not even report his non-significant correlations), and that statistical significance equals substantial importance. Both beliefs are erroneous.

An example of the varying attitudes to statistical evidence is provided by the paper by Peters and Slovic.[28] They used some Dake items and some additional ones to measure cultural biases. Peters and Slovic investigated correlations between the scales and various risk

24 Sjöberg, *supra* note 14.

25 *See* William R. Freudenburg & S.K. Pastor, *Public Response to Technological Risks: Toward a Sociological Perspective,* 33 **The Soc. Q.** 389 (1992).

26 Marris, Langford & O'Riordan, *supra* note 11.

27 *See* Frank L. Schmidt, *Statistical Significance Testing and Cumulative Knowledge in Psychology: Implications for Training of Researchers,* 1 **Psychol. Methods** 115 (1996).

28 *See* E. Peters, & Paul Slovic, *The Role of Affect and World Views as Orienting Dispositions in the Perception and Acceptance of Nuclear Power,* 26 **J. Applied Soc. Psychol.** 1427 (1996) (Results are from a large-sample survey study with a rather low response rate. The authors do not state if the respondents were biased with regard to education and income.).

judgments and found a number of, mostly very weak, but often statistically significant correlations, which they describe in the text in a somewhat optimistic manner. For example, the correlations between the egalitarian subscale and technology concerns were -0.22, -0.10, -0.01 and 0.02, a not very impressive set of correlations. Nonetheless the authors wrote "these data confirm the hypothesis that the Egalitarian factor will be strongly related to concerns about technology." Other examples of optimistic bias in interpretations could be given.[29]

Let us look at how much variance in risk perception was explained by the World Views. For concerns, the mean share of variance accounted for by the fatalist/hierarchy, individualist and egalitarian subscales were 0.037, 0.020 and 0.036, respectively. With the scales in the same order, the corresponding values for health risks were 0.005, 0.005 and 0.022. It is surprising that Peters and Slovic describe these trivial results as "strong" relationships.

Marris et al. argue that the overall pattern of relationships support Cultural Theory and they do not seem troubled by the low correlations explaining only some 5% of the variance. But such low correlations can easily arise due to confounding with other variables they did not check for by computing partial correlations, such as gender or educational level. A theory worth its salt must explain a sizable proportion of the phenomenon it purports to explain.

Is there any hope at all to explain risk perception with general value dimensions? Usually general value dimensions have been unable to explain more than a tiny fraction of risk perception. The most ambitious attempt so far to devise culturally comparable value dimensions is due to Schwartz.[30] Indeed, I have found that the Schwartz scales functioned somewhat better than other value scales in accounting for perceived risk, but they still explained only a small fraction of the data.[31]

We have conducted a major study of risk perception of household waste in which we included Schwartz's complete scale, with a

29 Sjöberg, *supra* note 9.

30 *See* S. H. Schwartz, *Universal in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries* 25 **Advances in Experimental Soc. Psychol.** 1 (1992).

31 Sjöberg, *supra* note 9.

representative sample of the Swedish population, on the basis of a review of the literature on household waste and human behavior[32] carried out by our co-workers. Results show that the Schwartz dimensions are only weakly related to risk perception,[33] in good agreement with results reported here.

A major exception to the assertion that general value dimensions do not explain risk is given in the work by Rothman and Lichter.[34] They were able to explain more than 40% of the variance of perceived risk of nuclear power plant operation on the basis of two ideological dimensions which they termed liberalism and alienation, in data from several elite groups, excluding nuclear scientists. These elite groups varied widely, from military to liberal media leaders and it is likely that they, on the whole, varied much more than the general public in terms of perceived risk. The present results, however, do not support the Rothman-Lichter approach of political attitudes to the explanation of risk perception. The reason for the discrepancy may be that their measure of risk perception was quite different from the one used here and possibly more semantically close to political attitudes.

In conclusion, it has been found that the World View scales account for only a very minor share of the variance of risk perception. Other approaches are clearly called for, and have been found, in one case, to account for some 60% of the variance of perceived risk.[35]



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32 Gina Pinsky & Lotte Andersson, *Motivational Factors in Waste-Related Behavior. A Review,* AFR-Report 24, (Swedish Waste Research Council 1993).

33 Lotte Andersson, *Motivating Environmentally Responsible Behavior. An Empirical Study,* AFR-Report, 50 (Swedish Waste Research Council 1994).

34 *See* Rothman & Lichter, *supra* note 17.

35 Lennart Sjöberg & Britt-Marie Drottz-Sjöberg, *Risk Perception of Nuclear Waste: Experts and the Public,* RHIZIKON: Risk Research Report, 16. Center for Risk Research, Stockholm School of Economics (1994); *See also,* Sjöberg, *supra* note 5.