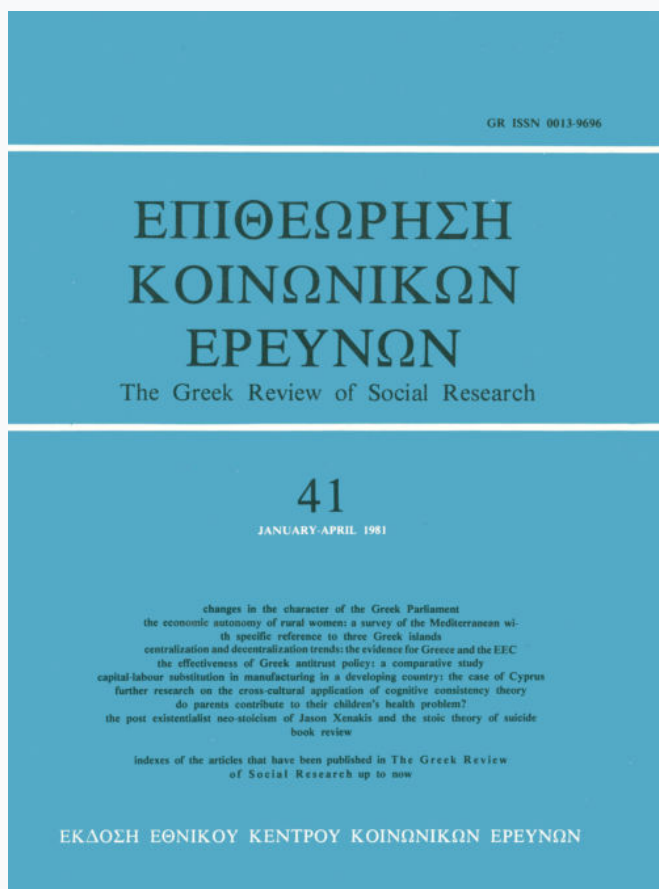


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## Further research on the cross-cultural application of cognitive consistency theory

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# further research on the cross-cultural application of cognitive consistency theory

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## ABSTRACT

An experiment was conducted to test the notion that cognitive consistency is not a universal attribute, but is contingent upon such variables as cultural group, age, sex of subject, and the issue under consideration. In a  $2 \times 2 \times 3 \times 3 \times 2$  factorial design, North American and Cypriot subjects were given questionnaires which measured attitudes on three issues before and after the introduction of a discrepant cognition. Subjects differed in evidencing cognitive consistency, or discrepancy-induced attitude change, with age and type of issue interacting with the cultural group. The sex of subjects also mediated the consistency effect, but yielded no significant interaction with the cultural group. The implications of the results for cognitive consistency theory were discussed. Findings replicate data presented in earlier studies with Greek and American populations reported in *The International Journal of Psychology*, *The Greek Review of Social Research*, and elsewhere by the same authors.

The cognitive consistency or balance principle posits that an individual behaves so as to maximize the structural balance within his cognitive system. The principle derives essentially from Heider's (1944, 1946) formulation that a person (P) tends to keep his sentiments regarding another person (O) in line with their mutual evaluation of an object, idea, or third person (X), forming the P-O-X triad.

As one writer (Zajonc, 1954) notes, Heider's balance concept «assumes that social perception obeys certain Gestaltlike structural principles, and that it is subject to Gestaltlike dynamics» (p. 339). The basic assumption is that cognitive units (e.g., a P-O-X triadic social structure) can be classified in «steady» or «unsteady» states, and that these cognitive units seek steady states. Steady states, further, are determined by the dynamic nature (positive or negative) of the elements of a cognitive unit. For example, one may view person P negatively and person O positively, expressing the dynamic character of P and O. When all elements of a unit are of the same sign, a steady state (or cognitive balance) is said to exist. Hence  $P^+$  and  $O^+$  are taken together without «cognitive strain» (i.e., in a balanced manner) and  $P^+$  and  $O^-$  are perceived as unbalanced. These relationships reflect the Gestalt notions of cohesive and restraining forces.

The aspect of a cognitive unit which the balance phenomenon deals with is attitude. Attitudes can be reflected in relationships, Heider proposes, of two kinds: sentiment and unit. A sentimental relationship is one in which person P likes or dislikes another person, O ( $PL^+ O$ ,  $PL^- O$ ), or in which P or O like or dislike a third person, some issue, or some object ( $PL^+ X$ ,  $PL^- X$ ;  $OL^+ X$ ,  $OL^- X$ ). A unit relationship is

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symbolized by U:  $PU + X$ ,  $OU - X$  (P has a dog, O does not have a dog). In transition from the earlier work on the perception of causality (1944), Heider changed some fundamental nomenclature, so that after the first statement of cognitive balance theory as such (1946), there arose confusion as to the distinction between sentiment and unit relationships. Subsequent theoretical and empirical elaborations make no real distinction between the two.

In terms of the P-O-X triadic relationships, balance theory makes a statement of the following order: When three relationships in a triad are positive or when two of the relationships are negative and one is positive, the triad is balanced.

Balanced

1)  $PL + O$ ,  $PL + X$ ,  $OL + X$

Joe likes Pete and both Joe and Pete like cars.

2)  $PL - O$ ,  $PL + X$ ,  $OL - X$  [ $PL - O$ ,  $PL - X$ ,  $OL + X$ ]

Joe does not like Pete; Joe likes cars; Pete does not like cars. [Joe and Pete are reversed in sentiments regarding cars].

Unbalanced

1)  $PL + O$ ,  $PL - X$ ,  $OL + X$ , [ $PL + O$ ,  $PL + X$ ,  $OL - X$ ]

Joe likes Pete; Joe does not like cars; Pete likes cars. [Joe and Pete are reversed in sentiments regarding cars].

In short, one tends to dislike those with whom he disagrees (or disagree with those whom he dislikes) and to like those with whom he agrees (or agree with those whom he likes).

We have used both the concepts of tendency and disposition (cognitive units *seeking* steady states) to describe the balance phenomenon. Heider more accurately conceived of balance in terms of cognitive preferences (1958, pp. 204-205). The closest parallels to balance preferences, Zajonc (1954) suggests, are the Gestalt forces towards «good forms» in object perception. The nature of this preference is unclear. There is no claim for a noxious state in the absence of cognitive balance, discounting any drive analog in its operation. Nonetheless, Heider clearly states that, at the very least, social perception is mediated by the consistency principle and that the principle is a more or less universal motivational attribute of social perception.

Subsequent extensions of Heider's work, Newcomb (1953), Cartwright and Harary (1956), Abelson and Rosenberg (1958), and others, have shifted the emphasis of cognitive balance to interpersonal and intrapersonal relationships viewed as cognitive dynamics in which the focus is primarily on change. And if Heider was in any sense unclear about the nature of balance preferences, this later emphasis on social dynamics gives definite ascendancy to the conceptualization of consistency as a motivational phenomenon.

*Supporting empirical evidence.* Most early empirical studies testing Heider's theory of an underlying disposition towards cognitive balance asked the subject to

play the role of an hypothetical person and supply the missing bond in a triadic unit. Jordan (1953), for example, asked subjects to imagine themselves as some person P who liked person O and maintained, along with O, some relationship to X. The Jordan study generally supported Heider's notion as measured by the experimental subjects' self-reported preference for balanced triadic structures. Horowitz, Lyons, and Perlmutter (1951) demonstrated that evaluation of some event was largely dependent on the relationship between an experimental subject and the originator of the event, following the predictions of balance theory. A study by Festinger and Hutte (1954) established that the balance effect held for both North American and Low Country subjects, leading Heider (1958) to conclude that the balance effect is «independent of cultural differences» (p. 209).

*Divergent empirical findings.* In 1957 Osgood, Suci, and Tannenbaum proposed that the preference for balanced states is characteristic of persons with low intelligence and little education. Scott (1963) contends that persons whom he characterized as less cognitively complex have a more pronounced need for cognitive consistency. Osgood (1960) found that the tolerance of cognitive inconsistency increased with intelligence and decreased with heightened emotion. What these studies suggest is that, while balance preferences may mediate social perception, they are by no means a universal perceptual disposition.

Several studies, moreover, seem to link age, sex, and cultural variables to the would-be balance disposition. Wolf (1961), González (1972), and González and Maxwell (1973) demonstrated that the tendency to balance attitudes is a function of age. González (1974) found sex differences in the balance effect in a single age group, and González and Davis (1974) found sex differences across three age groups for North American and Greek subjects. Khokhlov and González (1973) and González and Khokhlov (1974) report significant differences in the preference for balance among North American and Greek subjects, with significant differences by age and the type of cognitive unit presented.

The present study, which mapped the consistency effect across cultural, age, and sex differences, is meant as a review statement regarding the cluster of variables which these divergent empirical findings have established.

## method

### Subjects

Thirty male and thirty female North American and Cypriot Greek subjects participated in the study, without financial remuneration for their work. In each culture three age subgroups of ten subjects each were formed among males and females: high school students, with an age range of 16 to 18 years; college students ranging in age from 18 to 23 years; and post-college subjects, with ages ranging from 24 to 29

years. American college students were recruited from an Ivy League school in the United States, and American high school and post-college subjects from a population in Southern California. Cypriot subjects were chosen from a population in Nicosia, the capital. Cypriot college students were recruited from a technical *frontistirion*, the only counterpart in Cyprus of the typical American college.

### Procedure

A questionnaire was written in English and Greek. Subjects were asked to indicate their sex and age and to consider three items which purported to test «attitudes towards various persons and issues». Subjects were assured that their responses would be kept anonymous.

The first item (Task 1), in a classical balance paradigm, asked the subject (P) to assess his relationship to an unspecified acquaintance (O). The subject was then presented with a hypothetical positive relationship to a third person, a friend (X) [PL + X]. His acquaintance (O) was noted as having made a negative response to the same third person (X) [OL - X]. In the testing question, the subject was asked to repeat or, if applicable, reassess his attitude towards his acquaintance (O) on the basis of the conflicting or discrepant situation.

The second item (Task 2) repeated the same paradigm, but the key person (O) was now the subject's father and the third person (X) the subject's friend.

The third item (Task 3) concerned the subject's country. Subjects were asked to indicate their feelings towards their country. They were then presented with the hypothetical event, that their country had just attacked an innocent nation. Subsequent attitudes were then tested as in other items.

The three items were scored on a 10-point bipolar adjectival scale with endpoints marked «dislike» (1) and «like» (10). Subjects recorded initial attitudes before the introduction of a discrepant cognition (BD), and then following that introduction while in the discrepant situation (ID). It was assumed that any change in the direction of lower assessment in the ID condition (i.e., significant BD-ID differences) would constitute attitude realignment in the face of discrepancy and thus support for the consistency principle.

A sample item read as follows:

A is someone you know. How do you feel about him? (scale)

A feels like this about B:  
(scale indicates 1 -- «dislike»)

You feel like this about B:  
(scale indicates 10 -- «like»)

If you like B and A does not, how do you feel now about A?  
(scale)

### results

Attitude scores before (BD) and in (ID) the discrepancy situation for both cultures were analyzed by the

sex of subjects and the age group for the three tasks. Mean attitude scores are presented in Table 1.

A  $2 \times 2 \times 3 \times 3 \times 2$  analysis of variance of attitude scores was performed for the factors culture, sex of subject, age, type of task, and discrepancy situation, with ten replications across subjects in each factorial grouping. A summary of the results of the analysis appears in Table 2.

The analysis of variance revealed significant effects for culture, sex of subject, age, type of task, and discrepancy situation. The various interactions yielded evidence that the type of task, age, and the discrepancy situation affected scores across the two cultures. The effect of the sex of the subject apparently transcended the cultural dimension, thus accounting for a nonsignificant two-way interaction for subject sex and culture. The effect of the sex of subjects in both cultures is also reflected in insignificant three and four way interactions where the culture and sex of subject factors were crossed.

For a detailed analysis of differences between factorial groupings along the dimensions of culture, age, and sex of subject, a multivariate measurement profile was used (Overall & Klett, 1972). This analytical approach is closely related to the prototype of profile clustering research, which identifies naturally occurring groups or model types. The essence of multivariate analysis is the reduction of multiple measures to a single weighted composite. In the present study, the

TABLE 1. Table of Means for Attitude Scores before (BD) and in (ID) Discrepancy

Culture, sex, and age group	Friend		Task Type Father		Country	
	BD	ID	BD	ID	BD	ID
<i>American</i>						
Male						
High school	9.70	5.90	10.00	7.00	10.00	6.80
College	9.60	6.20	10.00	9.10	10.00	4.40
Post-college	10.00	7.50	10.00	9.00	10.00	7.10
Female						
High school	9.70	7.20	9.70	8.90	10.00	7.70
College	9.70	7.40	10.00	9.30	10.00	7.20
Post-college	10.00	8.20	10.00	9.00	10.00	9.20
<i>Cypriot</i>						
Male						
High school	9.60	7.90	10.00	10.00	10.00	10.00
College	9.50	7.50	9.90	9.40	10.00	9.20
Post-college	9.50	6.70	9.90	9.90	9.70	9.40
Female						
High school	9.80	9.60	9.90	9.90	10.00	10.00
College	9.70	9.70	9.80	9.70	10.00	10.00
Post-college	9.60	9.60	10.00	9.80	10.00	10.00

Note: N = 10 subjects per left-hand column cell, with measures repeated across task type.

TABLE 2. Summary of the Analysis of Variance of Attitude Scores

Source	df	MS	F
Culture (A)	1	122.51	183.05***
Sex of Subject (B)	1	55.00	82.18***
Age (C)	2	5.09	7.60***
Task type (D)	2	43.40	64.87***
Discrepancy situation (E)	1	345.83	516.72***
A × B	1	.50	0.75
A × C	2	11.22	16.76***
B × C	2	.51	0.76
A × D	2	11.45	17.11***
B × D	2	8.30	12.40***
C × D	4	2.67	3.99**
A × E	1	148.51	221.89***
B × E	1	49.61	74.13***
C × E	2	3.47	5.59**
D × E	2	24.15	36.09***
A × B × C	2	1.09	1.63
A × B × D	2	7.26	10.85***
A × C × D	4	4.26	6.36***
B × C × D	4	1.38	2.06
A × B × E	1	1.90	2.84
A × C × E	2	5.72	8.54***
B × C × E	2	0.32	0.47
A × D × E	2	10.74	16.04***
B × D × E	2	4.93	7.36***
C × D × E	4	3.33	4.98***
A × B × C × D	4	0.81	1.21
A × B × C × E	2	0.97	1.45
A × B × D × E	2	6.79	10.15***
A × C × D × E	4	2.63	3.93**
B × C × D × E	4	1.99	2.98*
A × B × C × D × E	4	1.34	2.00

\* p < .05  
 \*\* p < .01  
 \*\*\* p < .001

multiple measures were BD and ID scores, taken as two discrete attitude points. Consequently, transformed scores for individuals within groups were analyzed in a univariate manner along a single dimension.

TABLE 3. Discriminant Analysis for Differences between Cultures by Type of Task

Factor	df	F
Task 1	2/117	15.23*
Task 2	2/117	17.18*
Task 3	2/117	55.56*
All tasks	6/113	25.56*

\* p < .001

sion. The within-group variance derived from matrix variations was used to compute a D<sup>2</sup> statistic. Under the assumption that the original BD and ID variables were part of a multivariate normal distribution within the population from which samples were drawn, the D<sup>2</sup> statistic was then interpreted within the F distribution.

The resulting discriminant function analyses for culture, sex of subject, and age were classified by each type of task and across all task types. Differences between cultures by task type are presented in Table 3. The results for differences between age groups by culture appear in Table 4.

On the basis of a nonsignificant interaction for culture and sex of subject factors in the original analysis of variance, the comparison for sex differences in attitude scores was collapsed across cultures in Table 5.

While no significant interaction for culture and the sex of subject was found, the comparison of BD and ID scores by sex and culture for specific tasks yielded some interesting data. These data are presented in Table 6 as changes from BD to ID scores expressed as a percentage of BD scores. The percentages, by sex of subject and type of task, are then compared in ratio form.

The discriminant analyses give a more exact ac-

TABLE 4. Discriminant Analysis for Differences between Age Groups by Culture

Culture and comparison factors	Task 1		Task 2		Task 3		Task 4	
	df	F	df	F	df	F	df	F
<i>American</i>								
High school and college	2/37	0.17	2/37	6.04**	2/37	3.38*	6/33	3.82**
High school and post-college	2/37	7.21***	2/37	4.41*	2/37	2.07	6/33	3.42**
College and post-college	2/37	5.81***	2/37	0.18	2/37	7.30***	6/33	4.10***
<i>Cypriot</i>								
High school and college	2/37	0.18	2/37	1.76	2/37	2.00	6/33	1.32
High school and post-college	2/37	0.77	2/37	0.48	2/37	1.50	6/33	0.90
College and post-college	2/37	0.36	2/37	1.02	2/37	1.05	6/33	1.09

\* p < .05  
 \*\* p < .01  
 \*\*\* p < .001

TABLE 5. *Discriminant Analysis for Differences between Sexes by Type of Task*

Factor	df	F
Task 1	2/117	17.90*
Task 2	2/117	2.69
Task 3	2/117	6.33*
All Tasks	6/113	7.10*

\*  $p < .001$

count of the effect of culture, age, and the sex of subjects on the consistency phenomenon. The data in Table 3 show significant differences between the two cultures on every task (issue) and across all tasks combined. Differences between age groups (Table 4) are specific to the American cultural group, with the college and high school age groups differing consistently from the post-college age group. The college age group, moreover, evidenced the greatest divergence from the other two age groups on all tasks and showed the greatest consistency effect in discrepancy-induced attitude change (cf. Table 1).

Differences between sexes were apparent in two of the three tasks, Tasks 1 and 3, and across all items combined (see Table 5). Data in Table 6 clearly identify Task 1 in the Cypriot culture as the determining source of significant differences between the sexes, accounting for the nonsignificant interaction for culture and sex of subject in the analysis of variance. The lack of such differences on Tasks 2 and 3 among Cypriot subjects should prompt some reservation in interpreting the strength of that nonsignificant interaction.

### discussion

The present results constitute a replication and expansion of earlier studies of the effect of sex (González, 1974; González & Davis, 1974), age (González,

1972; González & Maxwell, 1973), and cultural (Khokhlov & González, 1973; González & Khokhlov, 1974) variables on the consistency phenomenon across several issues. As in those previous studies, it found much less evidence of the consistency effect among Greek subjects and a pronounced mediation of the effect by the sex of subjects, the issue under consideration, and the age of subjects among Americans. Moreover, the pattern of the effect of these variables is consistent across the various studies, despite the use of different paradigms (P-O-X geometric graphs, syllogism-like statements, several scaling techniques) to test the balance notion.

These composite results suggest two avenues of general theoretical interpretation. The first, which is by far the more benign in its treatment of the consistency principle, stresses the qualifying nature of these findings. Certainly, in regard to the balance phenomenon, the suggestion is that its theoretical structure should emphasize the age, sex, and cultural variables which contribute to the saliency of cognitions as they interact in the classical P-O-X triad. Following such a suggestion, one might view the failure to find a balance effect among Cypriot subjects in the study reported as a mere artifact of an array of cognitions (i.e., a set of tasks) which inadequately tap the consistency principle in Cypriot culture. That is to say, while the matrix of cognitions used did not elicit balance responses, there exists the possibility that, in other matrices of interacting cognitions, the balance phenomenon would be operative. By the same token, age and sex variables within a single culture may interact with a given set of cognitions such that balance (or consistency) is attenuated or absent.

The limitations of such an avenue of interpretation are obvious. If, indeed, the consistency principle is a function of the appropriate interaction of sex and age variables with an ideal matrix of cognitions at some time  $T$  out of the set of temporal circumstances  $T_n$ , is it parsimonious to refer to the principle as a universal «cognitive preference»? Moreover, at least in a cross-

TABLE 6. *Comparison of Changes from BD to ID as Percentages of BD*

Type of task and function		American		Cypriot		Both cultures	
		Male	Female	Male	Female	Male	Female
Task 1	%	-33.07	-22.45	-22.76	-.72	-27.98	-11.59
	ratio	1 to .68		1 to .03		1 to .41	
Task 2	%	-16.30	-8.38	-1.70	-1.00	-9.03	-4.74
	ratio	1 to .51		*		1 to .52	
Task 3	%	-39.00	-19.70	-3.74	-0.0	-21.41	-9.8
	ratio	1 to .51		*		1 to .46	

\* Insufficient difference for ratio expression.

cultural sense, can one seriously defend a phenomenon which bases its functionality, not on observed data, but on the eventuality of its presence under some ideal conditions?

A course of interpretation less kind to the consistency principle asserts that cognitive balance may not be a universal trait and that, contrary to Freedman (1968), individuals may not always seek logical, simplistic, and consistent *Weltansichten*. In terms of the assumptions of modern social psychology (from consistency to attribution and person perception theories in general), this is a revolutionary and perhaps hasty statement. But the findings here do lend it some support. Not only do Americans fail to evidence consistency effects at all times, but the effects are virtually absent in Greek subjects. Perhaps the latter are able to accept and assimilate ambiguity and imbalance in their sentimental relationships without pejorative consequences and without violating some ostensible preferential perceptual mechanism disposing the individual towards cognitive consistency.

As for the American evidence for consistency, it is interesting to note that most of the studies in social psychology in North America draw on an experimental pool of undergraduate college or university students and, as a rule, from among psychology majors.

In the specific case of cognitive balance studies, the American undergraduate student, as an experimental subject, may tend excessively to align his attitudes and beliefs and balance his cognitions on the basis of supportive assumptions gleaned his notions of «man the consistent organism». Tedeschi, Schlenker, and Bonoma (1971) point out that researchers in social science often ignore the extent to which *they* may be manipulated by the students whom they test. A student may, therefore, show cognitive consistency in his response patterns as a means to satisfy the experimenter's supposed understanding of traditional decision patterns. Support of this alternative explanation is presented by the data here, where support for the balance effect was especially pronounced in the American college age group.

The authors suggest that some effort be expended in the replication of the findings reported. Despite attempts to vary method, analysis, and cognitive issues, the results thus far remain consistent. They pose a strong possibility that the assumption of a universally operative model of cognitive consistency as an irresistible tendency to resolve cognitive imbalance by attitude realignment may be a cultural, experimental, or, as a result of its inadequate formulation, a theoretical artifact.

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