the balance paradigm and its cross-cultural application

Towards A Theoretical Restatement

by

Arthur E. John González

Ph. D. Candidate in Psychology

and Nikolai E. Khokhlov

Associate Professor of Psychology
California State College
San Bernardino, California, USA

One psychologist refers to the theories generated by the concept of cognitive balance as paradigms for the «principle of consistency» (Brown, 1962). This consistency principle posits that an individual behaves so as to maximize the structural balance within his cognitive system. The principle derives essentially from Heider's formulation (1944, 1946) that a person (P) tends to keep his sentiments regarding another person (O) in line with their mutual evaluation of an object (X), forming the so-called P-O-X triad.

As one writer (Zajonc, 1954) notes, Heider's balance concept «assumes that social perception obeys Gestalt-like 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 character (positive or negative) of the elements of a cognitive unit. For example, one may view person P negatively and another 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» (*viz.*, in a balanced manner) and P^+, O^- are perceived as unbalanced. These relationships express the Gestalt notions of cohesive and restraining forces, respectively.

The aspect of a cognitive unit which the balance phenomenon deals with is attitude. Attitudes can be reflected in unit relationships, Heider proposes, of two kinds: sentiment and unit. A sentiment 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 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 his first statement of cognitive balance theory as such (1946), there arose some confusion as to the distinction between sentiment and unit relationships. Subsequent theoretical and empirical elaborations make no real

— The authors wish to acknowledge the assistance of several persons in the various studies reviewed herein. Les Herold, of the California State College, San Bernardino, made invaluable contributions to the original formulation of a theoretical statement. Glenn Weaver, of Princeton Univesrity, Lazaros Papadopoulos, of Thessaloniki, Greece, and Konstantina Z. Sheeran, of the County Welfare Department. San Bernardino, California, aided in the collection and analysis of data. And finally, Stavros Syngellakis, of Princeton University, and Polyvios G. Polyviou, of Oxford University, helped greatly in reviewing the Greek language questionnaires.

distinction between the two unit types, therefore.

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. $PL{-}O$, $PL^{+}X$, $OL^{-}X$ or $PL^{-}O$, $PL{-}X$, $OL^{+}X$
   Joe does not like Pete; Joe likes cars; Pete does not like cars. Or, Joe does not like Pete; Joe does not like cars; Pete does like cars.

Unbalanced :

1. $PL^{+}O$, $PL^{-}X$, $OL^{+}X$ or $PL^{+}O$, $PL^{+}X$, $OL^{-}X$
   Joe likes Pete; Joe does not like cars; Pete likes cars.
   Or, Joe likes Pete; Joe likes cars; Pete does not like cars.
2. $PL{-}O$, $PL^{+}X$, $OL^{+}X$
   Joe does not like Pete; both Joe and Pete like cars.

In short, depending on the saliency of the object of agreement or disagreement, 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 *seek* steady states) to describe the balance phenomenon. Heider more accurately conceived of balance in terms of preferences (1958, pp. 204-205). The nature of this preference is unclear. There is no claim for some noxious state in the absence of consistency (as in the cognitive dissonance formulation), discounting any claims as to its having direct drive-like properties. The closest parallel to the forces which prompt balance preferences is the Gestalt forces towards «good forms» in object perception. So, while one cannot derive a drive state analog of the balance disposition, he can state that, according to Heider, social perception is mediated by a consistency principle, the consequences of which form the attitudinal array dichotomized above as balance and imbalance, and that this array is a more or less universal attribute of such perception.

Subsequent extensions of Heider's work, Newcomb (1953), Cartwright and Harary (1956), Abelson and Rosenberg (1958), and others, shifted the emphasis of cognitive balance to interpersonal and intrapersonal relationships viewed as cognitive dynamics in which the focus is primarily on change. Nonetheless, the basic notion remains: that every person is bound by some preference in social perception such that he will maintain a maximum degree of consistency (or like dynamic alignment—positive or negative) between his beliefs and inter-, intrapersonal bonds.

Supporting empirical evidence. Most early empirical studies testing Heider's theory of an underlying disposition towards cognitive balance asked the subject to play the rôle of some hypothetical person and supply the missing bond in a triadic unit. Jordan (1953), for example, asked subjects to imagine themselves as some P who liked O and maintained, *vis-a-vis* O, some relationship with X. The Jordan study generally supported Heider's notion as measured by the experimental subject's self-reported preference for balanced triadic social structures. Horowitz, Lyons, and Perlmutter (1951) demonstrated that evaluation of some event was 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 American and Low Country subjects, leading Heider (1958) to conclude that the balance phenomenon 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 *in*consistency 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 and sex 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. In a study of sex differences in the disposition towards cognitive balance by González (1974), male and female students at Princeton University were administered a P-O-X triadic social structure. Attitudinal and interpersonal sentiments were evaluated along four dimensions. Of the four test items, one entailed an unspecified relationship between P and O. In a second item, the interpersonal relationship indicated was between P and the father. Item three directed P to relate to a teacher whom he disliked, and the final

item (4) designated a conflict between P and a teacher on some issue X.

Subjects in the study were instructed to indicate the dynamic character (positive or negative) between the various personal units in the triad and issue X. Significant differences were found across the sex factor for two of the four items, with greater evidence for the balance effect among male subjects than among female subjects. Female subjects also showed significantly less disposition towards balanced triads in the total number of structures completed. Percentages of balanced triads by sex and item type are presented in Table 1. Statistical significance for differences was established by a *z* test for differences between proportions, with *alpha* levels indicated in the table of means.

TABLE 1. *Percentage of Balanced P-O-X Triadic Socia Structures by Item Type and Sex of Subjects*

Item	Subject Sex Female	Male
1	76.7%	89.3%
2	96.4	92.9
*3	66.7	100.0
**4	63.3	93.7
** Mean% across all items	75.4	93.7

*p <.05
**p <.01
Note: Task items represent repeated measures within each level of the factor sex, with n at each level = approximately to 30 subjects.

Cross-cultural perspectives. With the exception of the results offered by Festinger and Hutte's (1954) study in support of the balance hypothesis, the scant literature available seems to suggest that the balance effect does not have cross-cultural predictive value. Since anthropologists have often noted that, within some cultures, members may entertain logically incompatible cognitions with no apparent pressure to reconcile their beliefs (see Osgood and Tannenbaum, 1955), these suggestions should come as no surprise. Moreover, the implications for further qualification—beyond those apropos of age and sex variables—of the theoretical structure of cognitive balance are extremely important.

Two major studies of the cross-cultural application of cognitive balance were done between Greek and North American sample populations. The first of these studies (Khokhlov and González, 1973) tested the balance notion across a number of items in the two populations. Three age subgroups were formed across the Greek and American samples: high school, 17-18 years of age; college, with an age range of 19-25; and a subgroup of college graduates, 25-28 years old. Within the statistical constraints of the cultural and age groups, the selection of fifteen individuals in each group was random.

Aside from inoperative «dummy» items to provide a check on the subjects' understanding of the questionnaire, three balance tasks were presented. All items recorded responses on a composite scale with polarity signs and a vector of numerical values from 1 to 5. The subject thus indicated whether his assessment of a cognition was positive or negative and the intensity of that assessment.

The first item, the task «friend,» 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); i.e., $PL^{+}X$. His acquaintance (O) was noted as having made a negative response to the same third person (X); i.e., OL−X. In the testing question, the subject was asked to repeat or, if applicable, re-assess his attitude towards his acquaintance (O) on the basis of the conflicting or discrepant situation.

The second item, task «father,» repeated the same paradigm, but the key person (O) was now the subject's father and the third person (X) his or her friend.

The third item utilized the concept «country.» Subjects were asked to assess their feelings towards their country. They were then presented with the hypothetical event, that their country had just attacked an innocent nation. Subsequent attitudes towards the country were then tested as in other items.

An analysis of variance of scores on the items before (BD) the introduction of the conflict or discrepancy situation and when the subjects were in discrepancy (ID) yielded significant differences between cultures and age groups on various tasks for BD and ID scores. Changes between the two scores represent a re-assessment of attitudes in the face of discrepancy and consequent support for the consistency principle.

The pattern of responses for Greek and American subjects by task type and mean assessment scores before and in discrepancy is graphically presented in Figure 1. The effect of the discrepancy situation (or the strength of the balance effect) is represented as a depressing factor which reduces the mean scores from BD to ID. It is obvious that the balance effect is significant in the Greek cultural group only for the task country, reflected in the significant interaction for task type by cultural group.

While there was no effect for the age variable in the Greek population, the American sample

differed in responses by age, in keeping with the findings of the previous studies reported. Figure 2 graphically represents the ID scores for Greek and American subjects by age subgroup collapsed across tasks. The variation in responses by age in the American cultural group, as opposed to the Greek population, is immediately apparent.

In order to render the data in terms of a classical designation of balance as an absolute change in polarity, rather than as the more discrete scaled effect treated by the analysis of variance, responses were also assessed by treating sign change only. Results, distributed by age and task, appear in Table 2. The balanced triad represents a response by sign realignment and the unbalanced triad reflects no change in polarity. The third column in Table 2 indicates the distribution of balanced and unbalanced triads as recorded in columns 1 and 2, tested non-parametrically for H_0. Evidence of support or the lack of support for balance theory appears in column 4 of the table.

TABLE 2. *Number of Balanced Triads by Age Group and Task*

Tasks, culture and age groups	Balanced triads	Unbalanced triads	Probability under H_0	Balance theory support
Task «Friend»				
Americans :				
High School	12	3	.018	yes
College	13	2	.004	yes
Post-college	12	3	.018	yes
Greeks :				
High School	0	15	1.000	no
College	0	15	1.000	no
Post-college	0	15	1.000	no
Task «Father»				
Americans :				
High Sschool	11	4	.059	no
College	13	2	.004	yes
Post-college	7	8	.696	no
Greeks :				
High School	0	15	1.000	no
College	1	14	.999	no
Post-college	0	15	1.000	no
Task «Country»				
Americans :				
High School	10	5	.151	no
College	12	3	.018	yes
Post-college	0	15	1.000	no
Greeks :				
High Sschool	2	13	.996	no
College	2	13	.996	no
Post-college	10	5	.151	no
All tasks				
Americans :				
High School	33	12	.018	yes
College	38	7	.001	yes
Post-college	19	26	.197	no
Greeks :				
High School	2	43	1.000	no
College	3	42	1.000	no
Post-college	10	35	.999	no

The second cross-cultural study to examine the balance effect across American and Greek sample populations (González and Davis, 1974), constituted a replication, in part, and extension of the work of González and Khokhlov. The purpose was to test the two populations along a sex factor for a single age group (16-18 years of age). In a 2X2X2 factorial design, the responses of male and female Greek and American subjects were assessed both before (BD) and in (ID) a discrepancy situation. The task or item types remained identical to those in the earlier study (Khokhlov and González, 1973), though a slightly different scaling technique was employed: Rather than indicate affect polarity by a sign value, subjects were instructed to record their feelings along a 10-point adjectival vector with bipolar dimensions ranging from «dislike» (1) to «like» (10).

Mean responses were analyzed by item type, sex of the subject, nationality of the subject, and the discrepancy situation. For the discrepancy factor, a lower assessment in the ID condition reflects an attempt by the subject to align his feelings in the initial BD condition with the intervening discrepant information. The mean scores appear in Table 3.

TABLE 3. *Mean Attitude Scores Before (BD) and In (ID) Discrepancy Situation*

Sex and Task Type	Nationality			
	Greek		American	
	BD	ID	BD	ID
Friend				
Male	9.50	7.75	9.13	4.00
Female	9.75	9.75	9.88	5.25
Father				
Male	9.88	9.75	9.38	6.25
Female	10.00	9.88	9.88	9.38
Country				
Male	9.88	9.75	7.38	2.38
Female	10.00	10.00	9.63	6.13

Note: N = 8 subjects per cell.

A separate analysis of variance was performed for each item in a split-plot factorial design (subject sex by nationality of subject split across the discrepancy situation), with repeated measures at

the two sub-levels of the discrepancy situation factor. Tukey's q ratio was employed as a comparison test for differences between cell means in the internal analysis of the ANOVA model, with all reported q ratios exceeding the critical q and q' values at the .01 *alpha* level.

TABLE 4. *Summary of the Analysis of Variance of Attitude Scores—Task Friend*

Source	df	MS	F
Subject sex (A)	1	18.06	17.07**
Nationality (C)	1	72.25	68.29**
A X C	1	0.63	0.06
Error	28	1.06	
Discrepancy situation (B)	1	132.25	204.30**
A X B	1	5.06	7.82*
B X C	1	64.00	98.87**
A X B X C	1	1.56	2.14
Error	28	0.65	

*p < .01
**p < .001

TABLE 5. *Summary of the Analysis of Variance of Attitude Scores—Task Father*

Source	df	MS	F
Subject sex (A)	1	15.02	46.39*
Nationality (C)	1	21.39	66.09*
A X C	1	11.39	35.19*
Error	28	0.32	
Discrepancy situation (B)	1	15.02	34.15*
A X B	1	6.89	15.67*
B X C	1	11.39	25.90*
A X B X C	1	6.89	15.67*
Error	28	0.44	

*p < .001

TABLE 6. *Summary of the Analysis of Variance of Attitude Scores—Task Country*

Source	df	MS	F
Subject sex (A)	1	40.64	43.04*
Nationality (C)	1	199.52	211.31*
A X C	1	31.64	33.51*
Error	28	0.94	
Discrepancy situation (B)	1	74.39	57.17*
A X B	1	2.64	2.03
B X C	1	70.14	53.89*
A X B X C	1	1.89	1.45
Error	28	1.30	

*p < .001

The summary analyses of variance for the three test items, «friend,» «father,» and «country,» appear in Tables 4, 5, and 6 above. In all three tasks there were significant effects for subject sex, nationality of subject, and the discrepancy situation, with significant two-way interactions for sex and nationality on all but task «friend.» There were significant two-way interactions for discrepancy and nationality on all three items, and a significant two-way interaction for sex and discrepancy in tasks «friend» and «father.» The three-way interaction for sex, discrepancy and nationality was significant only for the task «father.»

On item 1, task «friend,» significant BD-ID differences (i. e., consistency effects) were found only for Greek males ($q = 5.37$), female Americans ($q = 14.20$), and male Americans ($q = 15.57$), differing in magnitude from least to greatest balance in that order. There were no significant differences in original BD scores among all groups. In ID scores, American males ($q = 9.95$) differed from American females, as did Greek males ($q = 6.22$) from Greek females, reflecting an overall effect for subject sex.

For item 2, task «father,» there was a balance effect only for American males ($q = 14.29$), with significant BD score differences only between American males and Greek females ($q = 4.37$), suggesting that only American males re-assessed their affect for the father in the face of a discrepant situation.

American males and females showed the only BD-ID attitude change on item 3, task «country,» ($q = 13.37$ and 9.35, respectively), with less attitude change among female subjects. It is interesting to note that, while Greek males and females did not differ in initial assessments of their country, American males and females reported divergent BD scores ($q = 9.29$), as well as significantly different ID scores ($q = 15.49$). Furthermore, in the American sample, the degree of attitude shift (balance) was more pronounced in the American male subjects (5 and 3.5 points, respectively). The unusual implications is that American males are more likely to derogate their country for an apparently negative act than are American females, and that Greek subjects do not reassess their attitudes towards country in the face of presumably discrepant or inconsistent intervening factors.

These two studies taken together seriously question the cross-cultural application of cognitive balance. The single case for the effect in a Greek sample population in the first study seems to be task and age specific (post-college subjects in assessing the task «country»), and then only on a discrete scale which ignores the classical definition of cognitive ballance as a change of affect polarity. In the second

study, the only evidence for cognitive balance is among Greek males on the task «friend» (though admittedly the study considers only a single age subgroup).

Theoretical implications The studies reviewed suggest two distinct avenues of 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 place greater emphasis on 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 Greek subjects in the two cross-cultural studies reported as a mere artifact of an array of cognitions (i. e., a set of tasks) which inadequately replicate the consistency principle in the Greek culture. That is to say, while the matrix of cognitions utilized did not elicit balanced responses, there exists the possibility that, in other matrices of interacting cognitions, the balance phenomenon is operative. By the same token, age and sex variables within a single culture may interact with a given set of cognitions such that balance is either 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 conditions T_n, is it parsimonious to refer to the principle as a universal «cognitive preference»? Moreover, at least in a cross-cultural sense, can one seriously defend a phenomenon which bases its functionality, not on observed data, but on the eventuality of its discovery in future research? It is seldom that ubiquity is established on the anticipated exception taken as the paradigm case.

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 do 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 statement. But the findings reported 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 the Greek sample, leading one to suspect that the latter can accept and assimilate ambiguity and imbalance in their sentimental relationships without pejorative consequences and apparently without violating some preferential perceptual mechanism.

In terms of 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, 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 balance his cognitions on the basis of supportive beliefs gleaned either from notions of a traditional decision pattern peculiar to his social formation or from his expectations about the social psychological model of «man the consistent organism.» Tedeschi, Schlenker, and Bonoma (1971) point out that researchers in social science often ignore the extent to which *they* might be manipulated by *students* as a result of these circumstances. Vivid support of this alternative explanation is presented in Table 2, where support for the balance effect is overwhelmingly accounted for by the American college-age group.

The authors strongly suggest that some effort be expended in the replication of the findings reported. Despite attempts to vary method, analysis, and cognitive units in these and other studies in preparation, 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 an automatic adjustment of attitudes may be a cultural, experimental, or, as a result of its inadequate formulation, a theoretical artifact. We are left with a greater impression of the seriousness in which an old Spanish aphorism asserts that «a man who does not contradict himself may have nothing to say.»

REFERENCES

Abelson, R. P., & Rosenberg, M. J. «Symbolic Psycho-logic: A Model of Attitudinal Cognition.» *Behavioral Science*, 1958, 3, 1-13.

Brown, R. W. «Modes of Attitude Change.» In R. W. Brown *et al.* (Eds.), *New Directions in Social Psychology*. New York: Holt, 1962.

Cartwright, D., & Harary, F. «Structural Balance: A Generalization of Heider's Theory.» *Psychological Review*, 1956, 63, 277-293.

Festinger, L., & Hutte, H. «An Experimental Investigation of the Effect of Unstable Interpersonal Relations in a Group.» *Journal of Abnormal and Social Psychology*, 1954, 49, 513-522.

Freedman, J. L. «How Important Is Cognitive Consistency?» In R. P. Abelson *et al.* (Eds.), *Theories of Cognitive Consistency: A Sourcebook*. Chicago: Rand McNally, 1968. Pp. 497-503.

González, A. E. J. «Cognitive Balance in Agreement on Issue and Interpersonal Relations among Age Groups.» *Psychological Reports*, 1972, 30, 31-34.

González, A. E. J., & Maxwell, P. G. «Balance and Pubescent Cognition in P-O-X Triads.» *Revista Latinoamericana de Psicología*, 1973, 5, 59-64. (Text in Spanish)

González, A. E. J. «Sex Differences and P-O-X Triadic Social Structures.» *Revista Latinoamericana de Psicología*, 1974, 6, in press. (Text in Spanish)

González, A. E. J., & Davis, W. M. «Sex Differences and Cognitive Consistency: A Greek and North American Contrast.» *Journal of Cross-Cultural Psychology*, 1974, 5, in press.

Heider, F. «Social Perception and Phenomenal Causality.» *Psychological Review*, 1944, 51, 358 - 374.

Heider, F. «Attitudes and Cognitive Organization.» *Journal of Psychology*, 1946, 21, 107-112.

Heider, F. *The Psychology of Interpersonal Relations*. New York: Wiley, 1958.

Horowitz, M. W., Lyons, J., & Perlmutter, H. V. «Induction of Forces in Discussion Groups.» *Human Relations*, 1951, 4, 57-76.

Jordan, N. «Behavioral Forces that Are A Function of Attitudes and Cognitive Organization.» *Human Relations*, 1953, 6, 273-287.

Khokhlov, N.E., & González, A.E. J. «Cross-cultural Comparison of Cognitive Consistency.» *International Journal of Psychology*, 1973, 8, 137-145.

Newcomb, T. M. «An Approach to the Study of Communicative Acts.» *Psychological Review*, 1953, 60, 393-404.

Osgood, C.E. «Cognitive Dynamics in the Conduct of Human Affairs.» *Public Opinion Quarterly*, 1960, 24, 341-365.

Osgood, C. E., & Tannenbaum, P. H. «The Principle of Congruity in the Prediction of Attitude Change.» *Psychological Review*, 1955, 62, 42-55.

Scott, W. A. «Conceptualizing and Measuring Structural Properties of Cognition.» In O. J. Harvey (Ed.), *Motivation and Social Interaction*. New York: Ronald Press, 1963. Pp. 266-288.

Tedeschi, J. T., Schlenker, B. R., & Bonoma, T. V. «Cognitive Dissonance: Private Ratiocination or Public Spectacle?» *American Psychologist*, 1971, 26, 685-695.

Wolf, R. *The Role of Conceptual Systems in Cognitive Functioning at Varying Levels of Age and Intelligence*. Unpublished Doctoral Dissertation, Syracuse University, 1962.

Zajonc, R. B. «Cognitive theories in social psychology.» In G. Lindzey and E. Aronson (Eds.), *The Handbook of Social Psychology*. (2nd ed.) Vol. 1. Reading, Mass.: Addison-Wesley, 1954. Pp. 320-411.

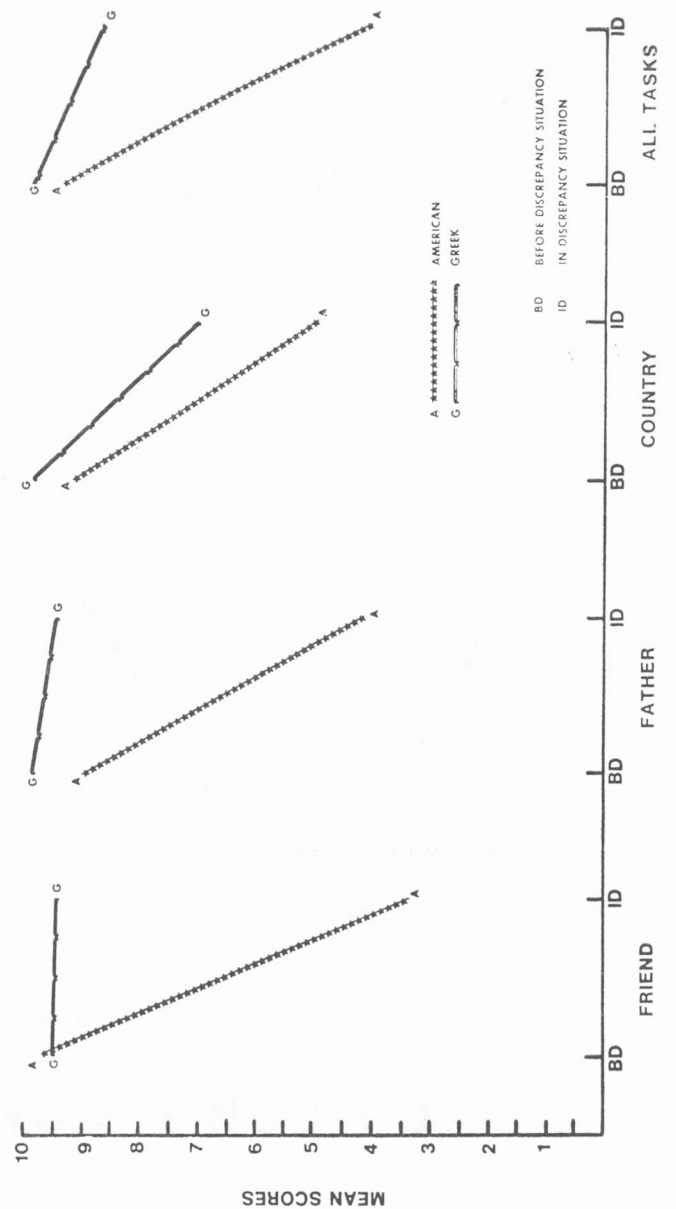

FIGURE 1: *Effect of Discrepancy Situation on Mean Scores*

FIGURE 2: *Mean Scores of Age Subgroups in Discrepancy Situation*