

AN ABSTRACT OF THE THESIS OF

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Presented on May 7, 1987

Title: Effect of Traveling to the Union of Soviet Socialist Republics
on the Cognitive Complexity and Cultural Differentiation
of College Students

Abstract approved:

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Kelly's (1955) Personal Construct Theory has spawned two different notions which have a questionable positive relationship. Interacting with a foreign culture reportedly increases cognitive complexity and an awareness of cultural characteristics different from one's own culture. However, given the emphasis on differences in the present relationship between the USA and USSR traveling to the USSR may produce increased cognitive complexity, but decreased cultural differentiation (i.e., increased appreciation of the similarities rather than the differences between cultures). Experimental (traveling to the USSR) and control subjects were administered a modified Cultural Attitudes Repertory Task (CART) and a word association task to measure cultural differentiation and cognitive complexity, respectively. Both groups completed the tasks prior to the experimental group's predeparture training sessions, departure to the USSR, return from the USSR, and one month after return to the USA. Results indicated that both groups increased in cognitive complexity with mixed results for the degree of cultural differentiation, suggesting that acculturation requires more opportunity for cross-cultural familiarization than permitted during a 12 day tour.

EFFECT OF TRAVELING TO THE UNION OF SOVIET SOCIALIST REPUBLICS
ON THE COGNITIVE COMPLEXITY AND CULTURAL DIFFERENTIATION
OF COLLEGE STUDENTS

A Thesis
Presented to
The Division of Psychology and Special Education
EMPORIA STATE UNIVERSITY

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
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May 1987

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457942 DP AUG 19 '87

ACKNOWLEDGMENTS

I would like to express my sincerest appreciation to the members of my thesis committee, Dr. Kenneth A. Weaver, Dr. Stephen F. Davis, and Dr. B. J. Wells, for their time and energy spent on this research. Special gratitude is extended to Dr. Weaver, teacher, thesis advisor, and mentor, who offered continual guidance and encouragement during the past year. It was an honor and pleasure to be his first thesis advisee.

Grateful appreciation is given to Dr. Loren D. Tompkins who willingly offered outside criticism on the early drafts of this manuscript and assisted with the statistical analyses. His unsolicited humor made my last year at ESU even more memorable.

Furthermore, special thanks is given to Professor Roger L. Findlay who, for the first time, allowed research to be conducted on one of his many trips to the USSR. Without his interest and approval, this research would not have been possible.

I would also like to thank the members of the "Hopa Tour '86-'87" for their willingness to participate in this study. Our two weeks of travel ended with a life time of memories. In addition, a big "thank-you" is given to the members of the Foundations of Psychology

class, who served as a control group, for their continued interest in this project long after their participation was completed.

I would like to graciously acknowledge my parents, Richard and Nadine Stuber, whose love and support enabled me to turn my educational dreams into reality. This thesis is as much theirs as it is mine.

And finally, my sincere appreciation is given to Dr. Phillip D. Wann, of Missouri Western State College, who was instrumental in my decision to enter the field of psychology and pursue graduate study. He has influenced my life academically, professionally, and personally. It is to him that this research is dedicated.

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CHAPTER I

INTRODUCTION

Kelly's (1955) Personal Construct Theory proposes that an individual has a unique world view, referred to as the personal construct system, which defines reality through the interpretation of experiences. Individuals use their personal constructs "to understand events" (McCoy, 1983) and by so doing develop a frame of reference and viewpoint.

An individual's world view is composed of idiosyncratic constructs which determine the similarities and differences of events and, thus, enhance the prediction of future interactions with those events. A personal construct is a bipolar, conceptual dimension, e.g., friendly versus unfriendly, that may be used to describe events in the individual's life. In essence, individuals can be characterized as personal scientists who postulate theories, on the basis of their personal construct system, in an effort to understand and predict events (Bieri, 1955; O'Keefe & Sypher, 1981). "Constructs are systematically organized and interrelated, permitting inferences to be drawn and predictions to be made" (O'Keefe & Sypher, 1981, p. 72).

One application of Kelly's (1955) Personal

Construct Theory has been the assessment of cognitive complexity (Fukuyama & Neimeyer, 1985; Raphael, 1982; Robertson, 1986), i.e., the degree of differentiation (or number of constructs) in an individual's construct system (Neimeyer & Fukuyama, 1984; Robertson, 1986). Individuals possessing a more differentiated personal construct system are considered to be more cognitively complex (Domangue, 1984; O'Keefe & Sypher, 1981; Neimeyer & Fukuyama, 1984; Robertson, 1986). As a child develops in cognitive reasoning, so too does that child's personal construct system, which becomes more differentiated (O'Keefe & Sypher, 1981). By adulthood, however, one's personal construct system is conceived to be relatively stable. Changes in an individual's cognitive complexity tend to require exposure to relatively more significant events as age increases (O'Keefe & Sypher, 1981), such as with foreign travel experience (Robertson, 1986). A more cognitively complex individual is assumed to use a wider variety of constructs for processing information (Domangue, 1984). "Such complexity may lead to more diverse interpretations or encoding and retrieval devices" (Isen & Daubman, 1984, p. 1207) that may enable the individual to use a greater number of constructs in tasks such as word associations. "Any single experience or event is open to a wide variety of different interpretations"

(Neimeyer & Fukuyama, 1984, p. 215).

Kelly's (1955) Personal Construct Theory has also been adapted to the investigation of cross-cultural differentiation (Fukuyama & Neimeyer, 1985; McCoy, 1983) which increases sensitivity to cultural differences. Among other things, this investigation has resulted in the development of the Cultural Attitudes Repertory Technique (CART) which uses a scale designed to ascertain the sensitivity of personal constructs to cross-cultural understanding (Fukuyama & Neimeyer, 1985). Rather than focusing on events, the CART scale emphasizes the subject's frame of reference (world view) and viewpoint (constructs) about those events (Fukuyama & Neimeyer, 1985; McCoy, 1983). The premise is that individuals with more differentiated construct systems will be more aware of cultural differences (Neimeyer & Fukuyama, 1984). "The advantages of this technique (CART) over other research instruments for cross-cultural research are flexibility (versatility), assured high relevance in comparison with 'objective' (structured) measures, and an empirical data base relatively free from examiner effects in comparison with 'projective' (unstructured) techniques" (McCoy, 1983, p. 173). Thus, the CART scale can be adaptable to various research questions of interest without confining it to one particular measure.

Neimeyer and Fukuyama (1984) reported that after a one semester (45-hour) workshop in counseling ethnic minorities, which was "designed to raise issues regarding the effect on counseling of the unique values of a variety of nonmajority populations within the United States" (Neimeyer & Fukuyama, 1984, p. 218), students in counselor education increased in cultural differentiation, thus becoming more sensitive to the differences between cultures. Interacting with people from other cultures through foreign travel appears to be another way to enhance the ability of the individual to differentiate between cultures (Robertson, 1986). Using a CART Scale, Robertson (1986) reported an increase in cultural differentiation in students who spent five weeks in London on a study abroad program. In addition, Robertson (1986) linked the increased cultural differentiation to increased cognitive complexity. However, his study did not incorporate any independent method of assessing cognitive complexity. Inferring the state of cognitive complexity from a measure designed to assess cultural differentiation appears to be inappropriate. The relationship between increased cultural differentiation and cognitive complexity, suggested by their common origin in Kelly's (1955) Personal Construct Theory, has not been empirically supported.

Typically, increased cultural differentiation (e.g., Bieri, 1955), as operationalized by the CART scale, has been associated with one's ability to see the differences, rather than the similarities, that may exist between cultures. Thus, subjects low in cultural differentiation might be expected to see the similarities, rather than the differences between cultures. Bieri (1955) suggested that subjects of low cultural differentiation may also be low in cognitive complexity, which suggests that a decrease in cultural differentiation would also produce decreased cognitive complexity. If foreign travel increases cultural differentiation (Robertson, 1986), and if increased cultural differentiation means that individuals are more aware of another culture's differences relative to their own (Fukuyama & Neimeyer, 1985), then Americans should regard the Union of Soviet Socialist Republics (USSR) as being more different than the United States of America (USA) after, relative to before, traveling there. This predicted outcome, however, seems questionable as the current relationship between the American and Soviet cultures seems to emphasize the differences, rather than the similarities.

While writing about Communism in his 1954 book, The Psychology of Politics, Eysenck's personal biases (see Christie, 1956) allegedly influenced the results of his

study which emphasized a tough-minded suspicion of Communists. Since World War II, Western media has seemed to portray the Soviets as generally being the opposite of Westerners along a variety of indices, e.g., differences in free speech, access to information, or extrinsic reward for effort. Given this prevalent viewpoint so heavily skewed in favor of cultural differentiation between the USA and USSR, it seems quite probable that after travel to the USSR, a person might experience a decrease, rather than an increase in cultural differentiation, while simultaneously demonstrating increased cognitive complexity.

The present study attempted to investigate the relationship between cognitive complexity and cultural differentiation. It was hypothesized that: 1) the cognitive complexity scores of the subjects (i.e., the experimental group) traveling to the USSR would not statistically significantly increase after, relative to before their three 1-hour predeparture training sessions; and 2) the cognitive complexity scores of the experimental group would increase after, relative to before visiting the USSR for twelve days. In addition, the study attempted to answer the following research questions: 1) Will experimental group's scores on the CART scale change after, relative to before, their training session? 2) Will experimental group's scores

on the CART scale change after, relative to before, visiting the USSR for twelve days? 3) Will the cognitive complexity and CART scale scores be significantly positively correlated?

CHAPTER II

METHOD

Subjects

Thirty-four graduate and undergraduate student volunteers from Emporia State University (ESU), the University of Kansas (KU), and the University of Missouri-Kansas City (UMKC) participated in the study. The experimental group contained seven males and seven females and visited the USSR from December 26, 1986 to January 8, 1987. The control group contained six males and fourteen females. Relevant demographic information about the two groups is contained in Table 1. There were no statistically significant differences in ages between the experimental and control group, $t(32) = 1.75$, n.s. Research on cultural differentiation suggests that bilingual individuals tend to be more culturally differentiated than monolinguals (McLean, 1983; Paulston, 1978); however, only one subject, an experimental group female reported being bilingual.

Design

This study had a 2 (Exposure to the Soviet culture - 12 days or none) by 4 (Administration of cognitive complexity task and CART scale - prior to the pre-departure training, after pre-departure training, during the return flight to the USA, and one month after

Table 1

Demographic Profile for Experimental and Control Subjects

	Experimental Subjects	Control Subjects
Age Range	16 - 28	19 - 57
Mean Age	21.5	25.55
Freshmen	2	0
Sophomores	3	2
Juniors	4	4
Seniors	2	2
Graduates	3	3
Visited Mexico	4	8
Visited Canada	4	2

returning to the USA) mixed factorial design with Direct Exposure as the between subjects variable and Administration as the within subjects variable. The dependent variables were scores from the cognitive complexity task and the CART scale.

Materials

Consent Form and Demographic Questionnaire

The consent form (see Appendix A) outlined the study and its purpose and was signed by all subjects prior to their participation in the experiment. The demographic questionnaire (see Appendix B) requested the information about subjects' age, academic level and foreign travel experience.

Cognitive Complexity Task

Cognitive complexity was assessed by a task that required subjects to supply associations to stimulus words (Isen, Johnson, Mertz & Robinson, 1985). The unusualness of associations had been operationally defined as an association given by only a small portion of the subjects and demonstrated to be a reliable index of cognitive complexity (Isen et al., 1985). Per Isen et al. (1985), 80 nouns and adjectives were randomly selected from the Palermo and Jenkins (1964) list of word-association norms. A sample (N = 32), selected

from the same population as the subjects used in the present study, rated each noun and adjective on a semantic differential-type scale (Appendix C) ranging from pleasant (1) to very unpleasant (7). The 13 most pleasant, 13 most unpleasant, and 14 most neutral words were then randomly arranged into four 10-word lists, three words from each of the two affect categories and four words from the third. The lists were then typed on individual sheets of white paper and randomly assigned to one of the four administrations (Appendix D).

Cultural Differentiation Scale

For assessing cultural differentiation, the Cultural Attitudes Repertory Technique (CART) scale, based on Kelly's (1955) Personal Construct Theory, was modified to enable the experimenter to supply the constructs to the subjects. Tripodi and Bieri (1963) pointed out that repertory tests are equally reliable, whether the constructs are supplied to the subjects or the subjects supply their own. The score from this scale represented how an individual perceived the similarities and differences between the USA and USSR.

To develop the constructs used in the present CART scale, individuals (N = 30), selected from the same population as the subjects used in the present study, were asked to write down their responses to the

following statements: "List as many ways you believe the Soviet and American cultures are alike" and "List as many ways you believe the Soviet and American cultures are different." Their responses were converted to constructs, such as orientation to the family and fear of government. All similarity and difference constructs were then rank ordered by a second group of subjects (N = 25) as to the subjects' relevance in describing the Soviet and American cultures (Appendix E). The frequency distribution was computed to determine the 15 most relevant similarities and 15 most relevant differences.

The 30 most relevant constructs (similarities and differences) were those dimensions which the USA and USSR were considered to be the most similar and most different, respectively. The constructs were transformed into a 7-point Likert Scale, bounded by the extreme levels of the bipolar dimension that defined the particular construct (see Appendix F). The 30 constructs, randomly arranged, formed the CART scale designed to measure cultural differentiation and composed of two subscales: similarity and difference. The CART scale for each administration contained the 30 constructs in different randomized order. In addition to the USA and the USSR, Canada was also included as a to-be-rated country. Canada is perhaps viewed by

Americans as the country most similar to the USA (Weinstein & Cox, 1987), and thus was considered as a control.

Procedure

Three weeks prior to the experimental group's training sessions, the cognitive complexity task and CART scale were pilot tested on a group of subjects (N = 7) to ensure clarity of directions. All subjects reported no difficulties with either task.

Experimental subjects (i.e., subjects traveling to the USSR) were first tested at the beginning of the first training session. The training sessions, designed to prepare the experimental subjects for visiting the USSR, included lectures on the history of the USSR, the central economic planning system, the USSR's role in world affairs, and expectations for interaction with Soviet citizens. Experimental subjects were given passport and Soviet visa forms to complete, a listing of common phrases in Russian, and a brochure on rules and regulations concerning travel in the USSR. Control subjects (volunteers from an ESU psychology course) were also first tested on the same day as experimental subjects. The informed consent form and demographic questionnaire were completed first followed by the cognitive complexity task and CART scale. After

receiving the first list of words, subjects were instructed to read each word carefully and then write down the first association that came to mind. Subjects had unlimited time to complete the task. The CART scale required subjects to rate the USA, USSR, and Canada separately in provided columns on the right of each construct. At the end of the third one-hour training session (three weeks after the first administration), the cognitive complexity task and CART scale were again completed by experimental subjects and control subjects.

On December 26, 1986, the experimental group flew from Kansas City, Missouri to Prague, Czechoslovakia arriving December 27, 1986. The itinerary was as follows: one day in Prague, two days in Moscow, three days in Visnius, three days in Leningrad, three days in Tallinn, and one final day in Moscow. Activities during the 12 days included touring the cities by bus, visiting museums, and attending cultural events.

Although contact with the Soviet people was possible, it was limited at best. Cold weather inhibited outdoor conversation, and tourists seemed to be left at a separate level of existence from the Soviet society. The experimental group members primarily interacted with themselves. The USSR tour took place during the fall semester break. Thus, the

control group was experiencing the Christmas and New Year holiday season. No control subjects traveled outside of the USA during the study.

After 12 days in the USSR, the experimental group boarded the plane in Moscow for its return flight. On board, the cognitive complexity task and CART scale were administered for the third time. At the same time, control subjects were completing the cognitive complexity task and CART scale that had been mailed to them with instructions and a pre-addressed stamped envelope for returning the results. One month after the experimental group's arrival in the USA (February 8, 1987), all 34 subjects again completed the cognitive complexity task and CART scale.

Scoring

In scoring the cognitive complexity task, the criterion for an associated word to be considered unusual was established as that word being given as an associate only one time across the thirty-four subjects. Each unusual word association was scored as one point. Higher scores indicated greater cognitive complexity. Subjects' scores could range from 0 (no unusual associations) to 10 (all unusual associations). The CART scale was scored by adding subjects' ratings for each country across the 15 similarity and the 15

difference constructs. Thus, six scores were obtained: USA-similarity, USA-difference, Canada-similarity, Canada-difference, USSR-similarity, and USSR-difference. Then, the USSR score for each construct was subtracted from the USA score for the corresponding construct to produce the USA-USSR similarity and difference score. The same procedure was used to find the USA-Canada and USSR-Canada similarity and difference scores. Higher similarity and difference scores indicated an increase in cultural differentiation.

CHAPTER III

RESULTS

The scores from the cognitive complexity task were analyzed with a 2 (Exposure to the USSR - 2 weeks or none) by 4 - (Administration - prior to pre-departure training, after pre-departure training, during the return flight to the USA, and one month after returning to the USA) mixed factor analysis of variance with Exposure as the between-subjects variable and Administration as the within-subjects variable. The USA-USSR, USA-Canada, and USSR-Canada CART scale scores were separately analyzed with a 2 (Exposure) X 4 (Administration) X 2 (Construct - similarity and difference) mixed factor analysis of variance with Construct being a within subjects variable.

The results of the analyses of variance performed on the cognitive complexity task scores, and the USA-USSR, USA-Canada, and USSR-Canada CART scale scores are presented in Tables 2, 4, 6, and 8 respectively. Means and standard deviations for the cognitive complexity task and CART scale scores for USA-USSR, USA-Canada, and USSR-Canada scores are presented in Tables 3, 5, 7, and 9, respectively. Statistical comparisons of means were accomplished using Scheffe

Table 2

Two Way Analysis of Variance
Cognitive Complexity Scores
For Exposure and Administration

Source of Variation	DF	MS	F
Between Subjects			
Exposure (E)	1	2.62	
Error	32	13.10	
Within Subjects			
Administration (A)	3	18.60	8.66 *
EC	3	1.38	.64
Error	96	2.15	

* $p < .001$

Table 3

Means and Standard Deviations

Cognitive Complexity Scores

For Exposure and Administration

Administration	Experimental Group	Control Group	Overall
1	2.79 * (2.52)**	2.65 (1.90)	2.72 (2.21)
2	2.86 (2.63)	3.00 (1.95)	2.93 (2.29)
3	4.43 (2.50)	3.60 (1.96)	4.00 (2.23)
4	4.36 (2.44)	4.05 (2.06)	4.20 (2.25)
Overall	3.61 (2.51)	3.33 (1.97)	3.47 (2.24)

2.79 = mean
 (2.52) = standard deviation

Table 4

Three Way Analysis of Variance

USA and USSR CART Scale Scores

For Exposure, Administration, and Construct

Source of Variation	DF	MS	F
Between Subjects			
Exposure (E)	1	145.95	.263
Error	32	554.22	
Within Subjects			
Administration (A)	3	151.40	3.23 *
Construct (C)	1	80553.60	264.26 **
EA	3	86.64	1.85
EC	1	39.12	.13
AC	3	60.36	1.57
EAC	3	28.33	.74
Error	96	38.37	

* $p < .05$ ** $p < .001$

Table 5

Means and Standard Deviations
USA and USSR CART Scale Scores
For Exposure by Administration by Construct

Administration	Exposure	Similarity	Difference	Total
1	E	18.71 * (7.79)**	51.50 (13.41)	35.11 (10.6)
	C	19.95 (9.23)	57.70 (10.33)	38.83 (9.78)
2	E	16.29 (6.00)	51.93 (10.99)	34.11 (8.50)
	C	19.90 (8.25)	54.40 (14.49)	37.15 (11.37)
3	E	17.43 (11.07)	48.86 (18.61)	33.14 (14.84)
	C	16.80 (9.54)	50.25 (11.88)	33.53 (10.71)
4	E	17.00 (8.82)	53.93 (17.52)	35.46 (13.17)
	C	15.65 (10.00)	52.90 (14.95)	34.28 (12.48)
Total	E	17.36 (8.42)	51.55 (15.13)	34.46 (11.76)
	C	18.08 (9.26)	53.81 (12.91)	35.95 (11.08)

Note: E = Experimental Group; C = Control Group
18.71 = mean, (7.79) = standard deviation

Table 6

Three way Analysis of Variance
 USA and Canada CART Scale Scores
 For Exposure, Administration, and Construct

Source of Variation	DF	MS	F
Between Subjects			
Exposure (E)	1	92.21	.24
Error	32	384.61	
Within Subjects			
Administration (A)	3	70.86	2.95 *
Construct (C)	1	528.11	10.49 **
EA	3	24.04	.27
EC	1	71.77	1.47
AC	3	16.05	.78
EAC	3	5.18	.25
Error	96	20.70	

* $p < .05$

** $p < .01$

Table 7

Means and Standard Deviations

USA and Canada CART Scale Scores

For Exposure, Administration, and Construct

Administration	Exposure	Similarity	Difference	Total
1	E	18.21 * (6.97)**	15.43 (8.19)	16.82 (7.58)
	C	16.70 (10.28)	14.95 (8.41)	15.83 (9.35)
2	E	17.93 (7.63)	13.21 (6.22)	15.57 (6.93)
	C	15.10 (7.91)	12.80 (8.17)	13.95 (8.04)
3	E	15.93 (8.94)	13.50 (6.57)	14.71 (7.76)
	C	13.50 (8.96)	12.45 (8.81)	12.98 (8.89)
4	E	18.29 (7.08)	12.71 (7.17)	15.50 (7.13)
	C	16.15 (9.69)	14.10 (10.10)	15.13 (9.90)
Total	E	17.59 (7.67)	13.71 (7.04)	15.65 (7.36)
	C	15.36 (9.21)	13.58 (8.88)	14.47 (9.05)

Note: E = Experimental Group; C = Control Group
 18.21 = mean; (6.97) = standard deviation

Table 8

Three Way Analysis of Variance
USSR and Canada CART Scale Scores
For Exposure, Administration, and Construct

Source of Variation	DF	MS	F
Between Subjects			
Exposure (E)	1	40.58	.06
Error	32	640.30	
Within Subjects			
Administration (A)	3	101.37	1.80
Construct (E)	1	44081.87	171.17 *
EA	3	93.16	1.65
EC	1	19.61	.08
AC	3	2.37	.07
EAC	3	15.12	.47
Error	96	32.46	

* = $p < .001$

Table 9

Mean and Standard Deviations
USSR and Canada CART Scale Scores
For Exposure by Administration by Construct

Administration	Exposure	Similarity	Difference	Total
1	E	24.93 * (10.45)**	48.71 (13.62)	36.82 (12.04)
	C	23.30 (8.68)	53.05 (11.47)	39.17 (10.08)
2	E	25.86 (7.29)	51.29 (11.25)	38.57 (9.27)
	C	25.55 (9.62)	51.10 (15.06)	38.33 (12.34)
3	E	24.14 (11.82)	49.93 (16.85)	37.04 (14.34)
	E	21.30 (9.54)	47.15 (14.22)	34.23 (11.89)
4	E	25.64 (9.92)	51.93 (12.45)	38.79 (11.19)
	E	23.10 (11.36)	49.60 (15.22)	36.35 (13.29)
Total	E	25.14 (9.87)	50.47 (13.43)	37.80 (11.65)
	C	75.29 (9.80)	50.23 (13.99)	62.76 (11.90)

Note: E = Experimental Group; C = Control Group
24.93 = mean; (10.45) = standard deviation

contrasts set at the .05 level of significance.

Hypothesis 1

Hypothesis 1 stated that the cognitive complexity scores of the subjects traveling to the USSR would not statistically significantly increase after, relative to before, their predeparture training. Results indicate that hypothesis 1 was supported. In addition, no statistically significant difference in the control group's cognitive complexity between the first and second administration was obtained. Also, the experimental and control group's cognitive complexity scores did not differ from each other after the first or second administration of the cognitive complexity task.

Hypothesis 2

Hypothesis 2 predicted that the cognitive complexity scores of the experimental group would increase after, relative to before, visiting the USSR. No statistically significant change was obtained from the second to the third administration of the cognitive complexity task, thus, hypothesis 2 is not supported. The cognitive complexity scores of the control group also did not statistically significantly change from the second to the third administration. In addition, the

experimental and control group's cognitive complexity scores did not differ from each other after the second or the third administration of the cognitive complexity task.

Cognitive complexity scores of both experimental and control groups scores also did not differ from the third to the fourth administration of the cognitive complexity task, nor did they differ from each other after the fourth administration. However, the analysis of variance displayed in Table 2 did reveal a significant main effect for Administration. Following Scheffe contrasts, cognitive complexity was significantly greater for Administrations 3 and 4 than 1. Also, Administration 4's relative to 2's cognitive complexity scores was greater.

Research Question 1

Research question 1 asked whether the experimental group's score on the CART scale would change after, relative to before, the training sessions. The experimental group's scores on the USA-USSR, USA-Canada, and USSR-Canada similarity and difference subscales did not significantly change from the first to the second administrations of the CART scale. The CART scale scores of the control group also did not statistically significantly change from the first to the second

administration. In addition, the experimental and control groups did not differ from each other on either administration.

Research Question 2

Research question 2 asked whether or not the experimental group's scores on the CART would change after, relative to before traveling to the USSR. Experimental group's scores on the USA-USSR, USA-Canada, and USSR-Canada similarity and difference subscales did not significantly change from the second to the third administration of the CART scale for each administration. The CART scale scores of the control group also did not statistically significantly change from the second to the third administration. In addition, the experimental and control groups did not differ from each other on either administration.

The analyses of variance displayed in Tables 4,6, and 8 reveal a significant main effect for Construct. As expected, subjects rated the countries similarly on the 15 similarity constructs and more differently on the 15 difference constructs. The analyses of variance performed on the USA-USSR and USA-Canada CART scale scores revealed a significant main effect for Administration, $F(3, 96) = 3.23, p < .05$, and, $F(3, 96)$

= 2.95, $p < .05$. Scheffe contrast performed on the USA-USSR and USA-Canada CART scale scores obtained from the four administrations revealed no statistically significant differences between administrations.

Research Question 3

Research question 3 asked whether or not the scores from the cognitive complexity task and CART scale would be significantly positively correlated, indicating a relationship between increased cognitive complexity and greater cultural differentiation. From Table 10, cognitive complexity was not significantly correlated with either the USA-USSR, USA-Canada, or USSR-Canada scores. However, the nonsignificant trend apparent in Table 10 is that as cognitive complexity increased, countries initially different from each other (i.e., USA-USSR, USSR-Canada) tended to become more similar and countries similar to each other (e.g., USA-Canada) became more different.

Table 10

Pearson Product Moment Correlations
Between Overall Cognitive Complexity and
CART Scale Scores

	Cognitive Complexity	USA-USSR	USA-Canada	USSR-Canada
Cognitive Complexity	-	-	-	-
USA-USSR	-.16	-	-	-
USA-Canada	.30	.12	-	-
USSR-Canada	-.16	.78 *	.20	-

** = $p < .001$

CC = Cognitive Complexity Task

CHAPTER IV

DISCUSSION

Kelly's (1955) Personal Construct Theory is the common origin for cognitive complexity and cultural differentiation. Past research (e.g., McCoy, 1981; Neimeyer & Fukuyama, 1984; Robertson, 1986) has suggested that cross-cultural training or foreign travel experience will increase both cultural differentiation and cognitive complexity, however, the same instrument has commonly been used to measure both. One purpose of this study was to determine whether relationship between cognitive complexity and cultural differentiation were related. The word association task (Isen et al, 1985) used in the present study permitted an assessment of cognitive complexity independent of cultural differentiation.

The theoretical basis underlying cultural differentiation is that increased knowledge increases awarenesses of the differences in a society. Given the current emphasis on the cultural differences, rather than the similarities between the USA and USSR, a second purpose was to ascertain whether visiting the USSR would increase, or decrease Americans' cultural differentiation toward the USSR.

Hypothesis 1

As predicted, the cognitive complexity of the experimental group did not increase as a function of receiving three one-hour training sessions designed to prepare subjects for travel in the USSR. On the other hand, individuals exposed to a 1 semester (45 hour) workshop designed to elicit cross-cultural awareness increased in cognitive complexity (Neimeyer & Fukuyama, 1984). The three training sessions in the present study included information on how to dress and travel in the USSR and expectations for interaction with the Soviet people, e.g., curiosity of the Soviet people about American society and explanations about Soviet customs. Thus, the length and intensity of training experiences seems to be important for increasing cognitive complexity.

Hypothesis 2

Cognitive complexity scores of the experimental group did not significantly increase after, relative to before traveling to the USSR. Two explanations may account for this result. First, the trip may not have been "significant" (O'Keefe & Sypher, 1981) enough to increase cognitive complexity. According to O'Keefe and Sypher (1981), cognitive complexity stabilizes by the

time an individual reaches adulthood, thus, an unusual event (experience) would be necessary to increase cognitive complexity. Although traveling to the USSR is, at present, a rarity for most American citizens, experimental subjects interacted with one another, rather than with the Soviet people. A more significant interaction with foreign citizens may be necessary to increase cognitive complexity.

Results of hypothesis 2 contradict Robertson (1986), who reported an increase in cognitive complexity after foreign travel. Subjects in Robertson's (1986) study spent 5 weeks in Great Britain on a study abroad program, whereas subjects in the present study traveled in the USSR for only 12 days. It should be noted, however, that Robertson (1986) did not use a control group, thus, any changes in cognitive complexity could be attributable to "simple maturation" (Robertson, 1986, p.20).

The cognitive complexity scores collapsed across the experimental, and control groups did statistically significantly increase from the first to the fourth administration. Perhaps, the measurement of cognitive complexity is confounded by improvement in subjects' ability to create new word associations, making this type of task contraindicated for use with repeated measure designs. This improved thinking may be a result

of the "practice effect." Individuals are more apt to remember problems with simple solutions (as with the cognitive complexity task in the present study) and thus, "do better on the second attempt...resulting from acquisition of a better strategy" (Bourne, Dominowski, Loftus & Healy, 1979, p. 263). Thus, the cognitive complexity task used in the present study, or any cognitive complexity task for that matter, may not be appropriate to use as a repeated measure due to potential practice effect as well as subject maturation.

Research Question 1

Neimeyer and Fukuyama (1984) suggest that Americans with little or no cross-cultural understanding tend to view other cultures as similar to themselves before cross-cultural training. Increased cultural differentiation describes those individuals who can grasp the "diverse points of views of other people" (Neimeyer & Fukuyama, 1984, p. 218). Although cross cultural training in the present study included three one hour sessions, which emphasized the differences between the USA and USSR (i.e., social customs, economic class), there were no significant changes in CART scale scores for the experimental subjects. However, the predeparture training session in the present study, relative to the cross cultural workshop in Neimeyer and

Fukuyama's (1984) study, was different not only in content, but in its purpose (e.g., preparation for international travel in the present study versus investigation of nonmajority populations).

A major difference between the present study and the research conducted by Robertson (1986) was in the development of the CART scale. Robertson's CART scale, which was administered to most subjects at predeparture training, included constructs which were supplied by the subjects who rated them on Likert-type scales. If individuals do in fact view other cultures as being more similar to themselves prior to cross-cultural experience (Neimeyer & Fukuyama, 1984), Robertson's (1986) CART scale may have been extremely sensitive to cultural differentiation. The CART scale used in the present study contained equal numbers of similarity and difference constructs on which the USA and USSR were to be rated to avoid this bias.

The CART scale used by Neimeyer and Fukuyama (1984) required subjects to make comparisons of three choices at a time (e.g., International Female, Asian-American female, Latin Female) and determine ways in which any 2 of the 3 choices were similar to each other. Subjects then rated their responses on a Likert-type scale before and after the cross-cultural workshop. Neimeyer and Fukuyama (1984) CART intentionally investigated foreign

individuals, rather than countries, and their CART scale dimensions lacked specificity. In addition, their subjects were not permitted to rate the same comparisons and thus their responses lacked uniformity. Any changes in subjects' scores could then be attributable only to the individual subject and not overall group changes which might hamper the scale's reliability. It is noted, however, that the CART scale used by Neimeyer and Fukuyama (1984) may have been designed for individual rather than group differences. The CART scale used in the present study allowed for subjects to direct their thoughts to specific countries (i.e., USA and USSR) which allowed comparisons of responses to be made across all subjects.

Research Question 2

The twelve day travel experience in the USSR did not elicit significant changes in experimental subjects' cultural differentiation for the USSR, or Canada. Robertson (1986), though, reported that subjects were better able to see the differences between cultures after a five week travel experience in London. This discrepancy, as noted in the discussion for hypothesis 2, may be related to the short time span subjects spent in the USSR, as compared with Robertson's (1986) subjects who spent five weeks in London.

A more pertinent issue than time for becoming more culturally differentiated may be the interaction with the people. The experimental group spent most of their time interacting with each other rather than with the Soviet people. Perhaps the quality of a visit (greater interaction with foreign people) is as important in influencing changes in the personal construct system, whether in cognitive complexity or cultural differentiation, as in the quantity (length of stay). Although subjects in Robertson's (1986) study lived in a dormitory setting, only two of their week days were spent with pre-scheduled activities (Markley, personal communication, April 10, 1987). Their remaining schedule was considered "free time" which allowed more opportunity for cross-cultural familiarization. Interaction with the British people was also enhanced by the common language. In the present study, the twelve day tour was highly structured with activities. Although 5 of the 14 experimental subjects had taken beginning Russian classes, only 1 was competent in Russian. Thus, even if the opportunity to converse with a Soviet citizen had presented itself, the language barrier may have precluded meaningful discourse. To become acculturated, one may need to do more than "see the sights" in a foreign country.

Experimental and control subjects' CART scale

scores were large on the first administration for the USA-USSR and USA-Canada scores. Both groups significantly reduced their USA-USSR and USA-Canada CART scale scores across administrations and thus decreased in cultural differentiation. Perhaps to compare the USA and USSR in a structured manner over time made the two countries appear to be more alike.

Past research indicates that Americans view foreign cultures as similar to themselves prior to cross-cultural education (Neimeyer & Fukuya, 1984) or foreign travel experience (Robertson, 1986). Changes in cultural differentiation should be predicted according to that particular country's relationship to the USA. Perhaps cultural sensitivity, rather than cultural differentiation, would better describe an individual's change in their personal construct system.

Research Question 3

Cognitive complexity and cultural differentiation stemmed from Kelly's (1955) Personal Construct Theory and thus became equated. Yet, after cognitive complexity and cultural differentiation were measured independently, no significant correlation was found. Both experimental and control subjects increased in cognitive complexity, while simultaneously decreasing in cultural differentiation, suggesting that cognitive

complexity can exist without cultural differentiation.

Researchers need to look more closely at the measure used to determine the effects of cross-cultural experiences. For example, there may be a need to reoperationalize cognitive complexity scales. Both experimental and control subjects increased in cognitive complexity, suggesting that practice with the task may have confounded the effect of traveling to the USSR. Instead, cognitive complexity measures might be more appropriately used to determine whether a person is cognitively complex in relationship to other personality characteristics.

Conclusions

Although previous research predicts that Americans view foreigners as more similar to themselves, both experimental and control groups initially viewed the USA and USSR as highly differentiated with a significant decrease over four administrations. Cross-cultural researchers must assess current relationships between two cultures before assuming that individuals will increase in cultural differentiation as a function of cross-cultural training or foreign travel experience.

A reexamination of the work by Tripodi and Bieri (1963), who reported equal reliability between CART scales with provided constructs and constructs supplied

by subjects, may be indicated. The CART scales used in Robertson (1986) and Neimeyer and Fukuyama's study (1984) each used different methodology in the CART scale's construction. The construction of the CART scale in the present study attempted to provide a structured framework of thought for subjects without losing its original asset of diversity.

Recommendations for future study

The CART scale used in the present study attempted to investigate the effect of cross-cultural experience on cultural differentiation. A further comparison could be made of American subjects who travel to the USSR as exchange students or who to live with Soviet families. This study could also be replicated to determine changes in cultural differentiation for countries which Americans view as similar to themselves, such as Canada (Weinstein & Cox, 1987), Great Britain (Robertson, 1986), or in various subcultures within the continental USA (Neimeyer & Fukuyama, 1984).

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APPENDIX A

Informed Consent Document

I have voluntarily agreed to be a participant in this study regarding the effect of traveling, or not traveling to the U.S.S.R. I understand it is my right to withdraw from the study at any time, and that there will be no risk or other forms of discomfort involved. My involvement includes completing a biographical information sheet. In addition, I will complete two brief paper and pencil tasks, administered four different times. The tasks will measure various aspects of the relationship between travel and cognitive processing. The benefits of this study will be a clearer understanding of cognitive processing. I realize I do not have to sign any form or survey other than this consent document, and therefore my privacy as related to this study is ensured.

I have read the above statements and have been fully advised of the procedures to be used in this project. I have been given sufficient opportunity to ask any questions concerning the procedures and possible risks and I assume them voluntarily. I likewise understand that I can withdraw from the study at any time without being subjected to reproach.

Signature of Subject

Date

APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

Sex: male_____ female_____

Age: _____

Classification: Fr___ Soph___ Jr___ Sr___ Grad___

University enrolled:_____

Foreign travel: Mexico yes___ no___ Canada yes___ no___

Are you fluent in a language other than English? yes___ no___

If yes, which language(s)?_____

Fluency is in: reading___ writing___ speaking___

Have you ever traveled to the U.S.S.R. before?

yes___ no___

Are you planning to visit a foreign country during
the next semester break? yes___ no___

APPENDIX C

Directions: Read each of the following words carefully.
 Think about each word's pleasantness or unpleasantness.
 Then rate each word according to its pleasantness or
 unpleasantness. An exmple has been provided.

Cheese	very pleasant	1	2	3	4	5	6	7	very unpleasant
Table	very pleasant	1	2	3	4	5	6	7	very unpleasant
Dark	very pleasant	1	2	3	4	5	6	7	very unpleasant
Music	very pleasant	1	2	3	4	5	6	7	very unpleasant
Sickness	very pleasant	1	2	3	4	5	6	7	very unpleasant
Man	very pleasant	1	2	3	4	5	6	7	very unpleasant
Deep	very pleasant	1	2	3	4	5	6	7	very unpleasant
Soft	very pleasant	1	2	3	4	5	6	7	very unpleasant
Mountain	very pleasant	1	2	3	4	5	6	7	very unpleasant
House	very pleasant	1	2	3	4	5	6	7	very unpleasant
Hand	very unpleasant	1	2	3	4	5	6	7	very pleasant
Short	very unpleasant	1	2	3	4	5	6	7	very pleasant
Fruit	very unpleasant	1	2	3	4	5	6	7	very pleasant
Butterfly	very unpleasant	1	2	3	4	5	6	7	very pleasant
Smooth	very unpleasant	1	2	3	4	5	6	7	very pleasant
Chair	very unpleasant	1	2	3	4	5	6	7	very pleasant
Sweet	very unpleasant	1	2	3	4	5	6	7	very pleasant
Woman	very unpleasant	1	2	3	4	5	6	7	very pleasant
Cold	very unpleasant	1	2	3	4	5	6	7	very pleasant
Slow	very pleasant	1	2	3	4	5	6	7	very unpleasant
River	very pleasant	1	2	3	4	5	6	7	very unpleasant
White	very pleasant	1	2	3	4	5	6	7	very unpleasant
Beautiful	very pleasant	1	2	3	4	5	6	7	very unpleasant
Window	very pleasant	1	2	3	4	5	6	7	very unpleasant
Rough	very pleasant	1	2	3	4	5	6	7	very unpleasant

Citizen	very pleasant	1	2	3	4	5	6	7	very unpleasant
Foot	very pleasant	1	2	3	4	5	6	7	very unpleasant
Needle	very pleasant	1	2	3	4	5	6	7	very unpleasant
Anger	very unpleasant	1	2	3	4	5	6	7	very pleasant
Carpet	very unpleasant	1	2	3	4	5	6	7	very pleasant
Girl	very unpleasant	1	2	3	4	5	6	7	very pleasant
High	very unpleasant	1	2	3	4	5	6	7	very pleasant
Sour	very unpleasant	1	2	3	4	5	6	7	very pleasant
Earth	very unpleasant	1	2	3	4	5	6	7	very pleasant
Trouble	very unpleasant	1	2	3	4	5	6	7	very pleasant
Cabbage	very unpleasant	1	2	3	4	5	6	7	very pleasant
Hard	very pleasant	1	2	3	4	5	6	7	very unpleasant
Eagle	very pleasant	1	2	3	4	5	6	7	very unpleasant
Stem	very pleasant	1	2	3	4	5	6	7	very unpleasant
Lamp	very pleasant	1	2	3	4	5	6	7	very unpleasant
Dream	very pleasant	1	2	3	4	5	6	7	very unpleasant
Yellow	very pleasant	1	2	3	4	5	6	7	very unpleasant
Bread	very pleasant	1	2	3	4	5	6	7	very unpleasant
Justice	very pleasant	1	2	3	4	5	6	7	very unpleasant
Boy	very pleasant	1	2	3	4	5	6	7	very unpleasant
Health	very unpleasant	1	2	3	4	5	6	7	very pleasant
Bible	very unpleasant	1	2	3	4	5	6	7	very pleasant
Memory	very unpleasant	1	2	3	4	5	6	7	very pleasant
Sheep	very unpleasant	1	2	3	4	5	6	7	very pleasant
Bath	very unpleasant	1	2	3	4	5	6	7	very pleasant
Cottage	very unpleasant	1	2	3	4	5	6	7	very pleasant
Swift	very unpleasant	1	2	3	4	5	6	7	very pleasant
Blue	very unpleasant	1	2	3	4	5	6	7	very pleasant

Hungry	very unpleasant	1	2	3	4	5	6	7	very pleasant
Ocean	very pleasant	1	2	3	4	5	6	7	very unpleasant
Head	very pleasant	1	2	3	4	5	6	7	very unpleasant
Stove	very pleasant	1	2	3	4	5	6	7	very unpleasant
Long	very pleasant	1	2	3	4	5	6	7	very unpleasant
Child	very pleasant	1	2	3	4	5	6	7	very unpleasant
Bitter	very pleasant	1	2	3	4	5	6	7	very unpleasant
Hammer	very pleasant	1	2	3	4	5	6	7	very unpleasant
Thirsty	very unpleasant	1	2	3	4	5	6	7	very pleasant
City	very unpleasant	1	2	3	4	5	6	7	very pleasant
Square	very unpleasant	1	2	3	4	5	6	7	very pleasant
Butter	very unpleasant	1	2	3	4	5	6	7	very pleasant
Doctor	very unpleasant	1	2	3	4	5	6	7	very pleasant
Loud	very unpleasant	1	2	3	4	5	6	7	very pleasant
Thief	very unpleasant	1	2	3	4	5	6	7	very pleasant
Lion	very unpleasant	1	2	3	4	5	6	7	very pleasant
Heavy	very pleasant	1	2	3	4	5	6	7	very unpleasant
Tobacco	very pleasant	1	2	3	4	5	6	7	very unpleasant
Baby	very pleasant	1	2	3	4	5	6	7	very unpleasant
Moon	very pleasant	1	2	3	4	5	6	7	very unpleasant
Scissors	very pleasant	1	2	3	4	5	6	7	very unpleasant
Quiet	very pleasant	1	2	3	4	5	6	7	very unpleasant
Green	very pleasant	1	2	3	4	5	6	7	very unpleasant
Street	very pleasant	1	2	3	4	5	6	7	very unpleasant
King	very pleasant	1	2	3	4	5	6	7	very unpleasant
Blossom	very unpleasant	1	2	3	4	5	6	7	very pleasant
Afraid	very unpleasant	1	2	3	4	5	6	7	very pleasant
Salty	very unpleasant	1	2	3	4	5	6	7	very pleasant

APPENDIX D

WORD ASSOCIATION TASK - FORM 1-1

Directions: Listed below are 10 target words. Read each target carefully and think of a word that you believe is most closely associated with the target. Then write the word beside the target.

quiet	-	_____
soft	-	_____
bath	-	_____
thief	-	_____
loud	-	_____
hungry	-	_____
square	-	_____
foot	-	_____
scissors	-	_____
short	-	_____

WORD ASSOCIATION TASK - FORM 1-2

Directions: Listed below are 10 target words. Read each target carefully and think of a word that you believe is most closely associated with the target. Then write the word beside the target.

baby	-	_____
ocean	-	_____
child	-	_____
afraid	-	_____
needle	-	_____
bitter	-	_____
dark	-	_____
deep	-	_____
lion	-	_____
long	-	_____

WORD ASSOCIATION TASK - FORM 1-3

Directions: Listed below are 10 target words. Read each target carefully and think of a word that you believe is most closely associated with the target. Then write the word beside the target.

blue	-	_____
health	-	_____
dream	-	_____
music	-	_____
anger	-	_____
thirsty	-	_____
sickness	-	_____
street	-	_____
chair	-	_____
hard	-	_____

WORD ASSOCIATION TASK - FORM 1-4

Directions: Listed below are 10 target words. Read each target carefully and think of a word that you believe is most closely associated with the target. Then write the word beside the target.

beautiful - _____

moon - _____

ocean - _____

trouble - _____

tobacco - _____

rough - _____

heavy - _____

hand - _____

stove - _____

cold - _____

APPENDIX E

Read all constructs first and think about how they individually relate to the USA and the USSR. Rank each construct according to its relevance in describing the similarities between the USA and USSR. Indicate the most relevant construct by writing the number '1' beside the construct in the blank provided. Then proceed through the rest of the constructs in a likewise manner.

- _____ - standard of living
- _____ - love of country
- _____ - alcohol use
- _____ - love of sports
- _____ - holiday celebrations
- _____ - desire for peace
- _____ - desire for world power
- _____ - emphasis on the military
- _____ - similarity of foreign policies
- _____ - relationship with other countries of the world
- _____ - emphasis on science education
- _____ - orientation to the family
- _____ - belief in God
- _____ - relationship with the other superpower
- _____ - unemployment rate
- _____ - number of cultural events
- _____ - desire American products
- _____ - similarity of clothing styles
- _____ - orientation to the future
- _____ - socializing
- _____ - listening to rock & roll music
- _____ - participation in sports
- _____ - emphasis on moral values
- _____ - preservation of country's history
- _____ - reluctance to admit weakness

Read all constructs first and think about how they individually relate to the USA and USSR. Rank each construct according to its relevance in describing the differences between the USA and USSR. Indicate the most relevant construct by writing the number '1' beside the construct in the blank provided. Then proceed through the rest of the constructs in a likewise manner.

- _____ - public criticism of the government
- _____ - food production
- _____ - prominence of the middle class
- _____ - freedom of the press
- _____ - fear of government
- _____ - government use of secret police
- _____ - religious freedom
- _____ - opportunity for job advancement
- _____ - repressed in creativity
- _____ - domestic travel restrictions
- _____ - international travel restrictions
- _____ - subjected to government propaganda
- _____ - choice of career
- _____ - availability of housing
- _____ - varitey of television programming
- _____ - similarity of working conditions
- _____ - freedom of speech
- _____ - business competition
- _____ - knowledge of the other superpower
- _____ - access to information
- _____ - variety of brand products
- _____ - emphasis on civil rights
- _____ - extrinsic reward for effort
- _____ - similarity of teaching methods
- _____ - development of space technology
- _____ - number of material possessions
- _____ - quality of manufactured products

APPENDIX F

CULTURAL CONSTRUCTS FORM - 2-1

Directions: Below are 30 constructs that relate to life in the USA, USSR, and Canada. Accompanying each construct is a 7-point scale that identifies the dimension along which the construct is to be rated. As you carefully read the construct and the scale, think how each construct describes the life in each of the three countries. Decide where the USA, USSR, and Canada are placed on the scale. Then write the corresponding number in the appropriate columns. An example has been provided.

	unemployment rate							USA	USSR	Canada	
high	1	2	3	4	5	6	7	low	2	6	4
	emphasis on moral values										
high	1	2	3	4	5	6	7	low			
	religious practice										
open	1	2	3	4	5	6	7	closed			
	public criticism of the government										
permitted	1	2	3	4	5	6	7	not permitted			
	the press										
censored	1	2	3	4	5	6	7	not censored			
	admitting personal weakness										
difficult	1	2	3	4	5	6	7	easy			
	orientation to the future										
emphasized	1	2	3	4	5	6	7	not emphasized			
	desire for world power										
high	1	2	3	4	5	6	7	low			
	government use of secret police										
high	1	2	3	4	5	6	7	low			

	fear of government							USA	USSR	Canada
high	1	2	3	4	5	6	7	low		
	creativity									
repressed	1	2	3	4	5	6	7	not repressed		
	preservation of country's history									
important	1	2	3	4	5	6	7	not important		
	number of cultural events									
many	1	2	3	4	5	6	7	few		
	foreign policy									
sensitive	1	2	3	4	5	6	7	insensitive		
	love of sports									
high	1	2	3	4	5	6	7	low		
	alcohol use									
high	1	2	3	4	5	6	7	low		
	emphasis on civil rights									
high	1	2	3	4	5	6	7	low		
	domestic and international travel									
restricted	1	2	3	4	5	6	7	not restricted		
	holiday celebrations									
important	1	2	3	4	5	6	7	not important		
	variety of television programming									
high	1	2	3	4	5	6	7	low		

government's use of propaganda frequent 1 2 3 4 5 6 7 infrequent	USA	USSR	Canada
opportunity for job advancement high 1 2 3 4 5 6 7 low			
desire for peace high 1 2 3 4 5 6 7 low			
public participation in electoral process high 1 2 3 4 5 6 7 low			
access to information high 1 2 3 4 5 6 7 low			
emphasis on the military high 1 2 3 4 5 6 7 low			
emphasis on science education high 1 2 3 4 5 6 7 low			
love of country high 1 2 3 4 5 6 7 low			
choice of career predetermined 1 2 3 4 5 6 7 personal			
freedom of speech common 1 2 3 4 5 6 7 uncommon			
orientation to the family high 1 2 3 4 5 6 7 low			