SOME EFFECTS OF RADIO AND TELEVISION ON CANDIDATE AND PARTY IMAGES*

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1.0 INTRODUCTION

This study reports the use of the semantic differential during an election debate on Finnish radio and television two days before the parliamentary elections of March 20 and 21, 1966.

1.1 Purpose of the Study

Much of modern communication research has dealt with political influence of mass media. It now seems that there is some agreement about the amount of influence.[1] In a democracy every citizen is exposed to so many opposing communications that the net effect is seldom persuasive. Thus, several election campaign studies[2] show that about the only measured influence of the mass media during an election has been to increase interest and, perhaps, voting turnout.[3]

We may ask, however, whether the research method and tools have been accurate enough? Maybe the voting figures do not tell enough and maybe the standard opinion polls are too "rough" to reveal sensitive political attitudes. Is there a Werner Heisenberg's "uncertainty principle" in the behavioral sciences as well as nuclear physics? Does the measuring instrument influence the results of the measurement? An answer would be development of new research tools to verify previous results made with old methods.

One such instrument is the *semantic differential* developed by Osgood, Suci and Tannenbaum[4] and used by them in some American presidential campaign studies in 1952.[5] Tannenbaum, Greenberg and

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One such instrument is the *semantic differential* developed by Osgood, Suci and Tannenbaum[4] and used by them in some American presidential campaign studies in 1952.[5] Tannenbaum, Greenberg and

Silverman used the same technique in connection with the Kennedy—Nixon presidential campaign in 1960.[6] To our knowledge these are the only published election studies using the semantic differential.

Both of the studies mentioned show clearly that the method is particularly well-suited to analyze political images in mass media. It is able to detect fine nuances in judgements of political parties and political candidates.

We decided to apply this technique in the Finnish parliamentary elections of March, 1966. (A large communications study has been made by Pertti Pesonen of the parliamentary elections in 1958 and 1962 using more traditional methods.[7]) However, our idea came so late that it was impossible to conduct a full-scale field study with an adequately large sample. Thus, it was decided to do a METHOD STUDY to test and possibly refine the instrument for future use.

Since our data was not representative of the whole population, we were not primarily interested in the images themselves, absolute values, but rather in the *meaning dimensions* (basic quality aspects) which are created by party and politician images. It is to these underlying dimensions that we refer with the term *image structure.*

As it was impossible — for practical reasons — to follow the whole election campaign, we decided to analyze only one election program simultaneously in radio and television. The program was the so-called "great election debate" on March 18, a Friday night two days before the elections.

1.2 Parties and Persons

Each of the seven political parties in the campaign was allowed to have two participants in this debate — 14 altogether. The chairman of the discussion was the Director General of the Finnish Broadcasting Corporation, Mr. Eino S. Repo. The debate started at 19.40 and was interrupted at 21.15. It started again at 22.35 and continued until 23.55. The same program was on radio and television.

The political parties studied during the debate were, in the order of their arrangement in Parliament:

SWEDISH PEOPLE'S PARTY (SP)
NATIONAL COALITION (CONSERVATIVE PARTY, NC)
LIBERAL PEOPLE'S PARTY (LP)
CENTER PARTY (CP)
FINNISH SOCIAL-DEMOCRATIC PARTY (SD)
WORKER'S AND SMALL FARMERS SOCIAL-DEMOCRATIC UNION (WU)
FINNISH PEOPLE'S DEMOCRATIC UNION (DU)

Of these parties SP, NC, LP and CP are considered non-socialist parties, SD, WU and DU are socialist parties. NC is a conservative party, CP was formerly Agrarian Union and DU is identified with the communists. LP was formed in 1965 by combining the centrist Finnish People's Party with the small Liberal Union.

SD is closest to the British Labour Party and WU was formed by opposing elements in SD. SP is a combination of many elements held together by the common minority language of the country.

The politicians in the debate were:

Kristian Gestrin, SP
Ingvar S. Melin, SP
Harri Holkeri, NC
Juha Rihtniemi, NC
Mikko Juva, LP
Aarne Välikangas, LP
Ahti Karjalainen, CP
Johannes Virolainen, CP

Rafael Paasio, SD
Kaarlo Pitsinki, SD
Olavi Saarinen, WU
Olli Uoti, WU
Paavo Aitio, DU
Hertta Kuusinen, DU
Eino S. Repo, chairman

Of these, Johannes Virolainen was the Prime Minister and Ahti Karjalainen the Minister of Foreign Affairs. Juha Rihtniemi, Mikko Juva and Rafael Paasio, as well as Dr. Virolainen, were party chairmen.

1.3 Problem

The purpose of this research is to study the method of using the semantic differential to indicate the image structure of political parties and politicians in a radio and television debate during a parliamentary election campaign.

Our problem setting has two simultaneous approaches. First, both the abstract concepts of the political parties and the concrete representatives of them are rated to indicate the influence of the object. Then a group of radio listeners is compared with a group of TV-viewers to find the influence of the media. These two experimental aspects are taken as independent variables and judgements of parties and politicians (i.e. image structures) are understood as dependent variables.

2. METHOD
2.1 Design of the Study

The experimental design of this study is illustrated in Figure 1. We had two sample groups: radio listeners and television viewers. Party and politician images of the groups were both measured with the same instrument. In addition, the party images of both groups were measured on the day before the debate. This was done to test the original homogeneity of the two groups and to provide a "neutral" comparison basis for party images.

The study has six experimental *conditions:*
1: radio group, PARTIES, before program
2: tv-group, PARTIES, before program
3: radio group, PARTIES, during program
4: tv-group, PARTIES, during program
5: radio group, POLITICIANS, during program
6: tv-group, POLITICIANS, during program

The image structure of each of the conditions is of interest by itself. However, the research data provides us with several possibilities for *comparison*. In this study we are interested in the following *comparisons*:

FIGURE 1. DESIGN OF THE STUDY. Conditions numbered (1–6), comparisons lettered (A–G).
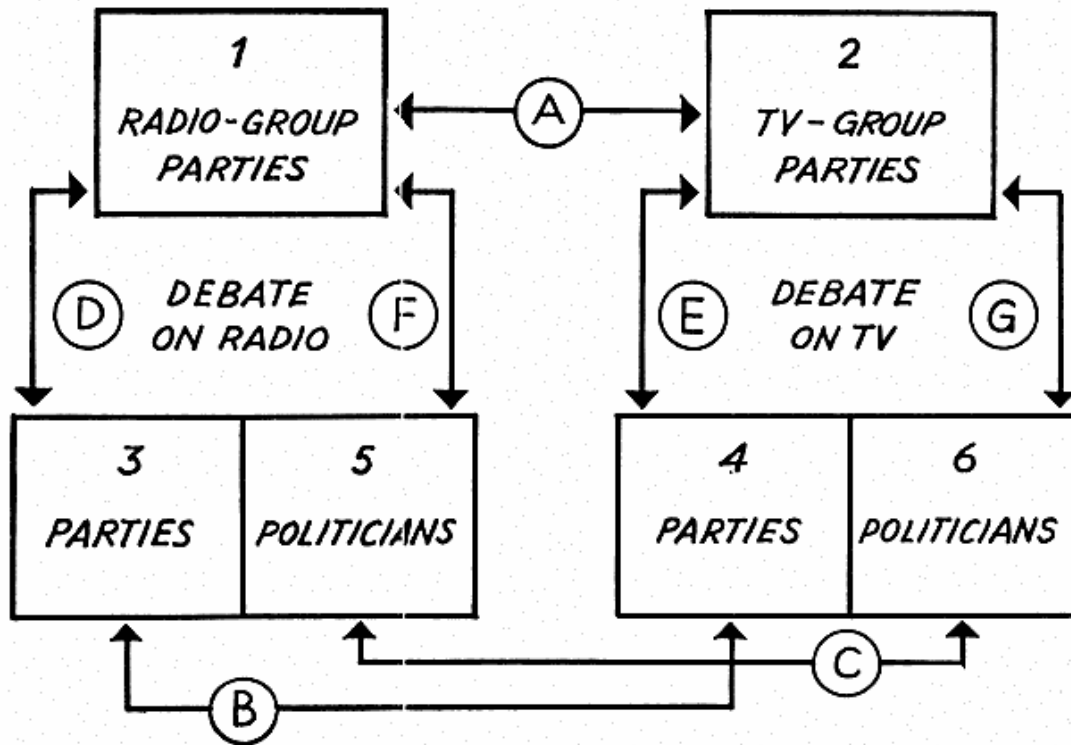
A: cond. 1 — cond. 2: control of homogeneity of the groups at the beginning of the experiment;

B: cond. 3 — cond. 4: influence of the media on party image structure;

C: cond. 5 — cond. 6: influence of the media on politician image structure;

D: cond. 1 — cond. 3: influence of radio debate on the party image structure over time;

E: cond. 2 — cond. 4: influence of tv-debate on party image structure over time;

F: cond. 1 — cond. 5: difference between everyday party image structure and the image structure of politicians in a radio debate;

G: cond. 2 — cond. 6: difference between everyday party image structure and the image structure of politicians in a tv-debate.

2.2 Subjects

The subjects were students of journalism and mass communications in a course organized by the Finnish Broadcasting Corporation and the University of Tampere. The ages were between 20 and 45, and most of the subjects were active journalists or radio reporters. Both sexes were equally represented.

Participation in the study was voluntary. Of a total of 80 students, 50 volunteered. Of these, two groups, 25 in each, were formed. One group agreed to follow the debate on radio and the other on television.

Party affiliation was not controlled. It was felt that questions about party affiliations might distort the results. As this was a method study, party preference played a minor role. However, the whole spectrum of political affiliation was represented in the class. It was also evident that no systematic effect — political or other — influenced the random selection procedure of the radio and tv-groups; thus the respondent groups can be regarded similar.

2.3 Measuring Instrument

Party and politician images were tested using the semantic differential technique. The objects of judgment are rated against sets of seven-step, bi-polar scales. The scales consist of pairs of opposite adjectives as good-bad, weak-strong etc. The ratings on individual scales made by each subject give an "image profile" of the concept in question. A combination of such profiles is often given as the final result of the study, as in the Tannenbaum—Greenberg—Silverman-study of the Kennedy—Nixon debates.

The average profile can be very expressive and shows clearly the changes of the images during an election campaign.

Statistical operations of the rating data, however, usually yield more information. The basic dimensions of experience — the image structure — can be revealed and illustrated. This is what we have tried to do.

In this study the subjects rated each political party and politician in the debate on 35 bi-polar scales. Subjects were asked to give an honest opinion on the concepts.

To obtain the scales for the study, the same group of students was asked two weeks before the test to give at least two dozen descriptive Finnish terms about political parties and politicians. The 35 most frequently mentioned were selected and given their "opposite" attribute.

In this paper the Finnish scales have been translated into English. There may have been some change in the meaning because of this. Operationally, the results of this study are defined by the Finnish terms .

2.4 Testing procedure

On the day before the debate one of the authors explained to the respondent groups the purpose of the study and gave instructions for the use of the semantic differential. The subjects also rated the political parties (conditions 1 and 2). Every subject went through seven randomly rotated lists of 35 scales, one page for each party. After this the lists were collected and the subjects were given a new set of questionnaires to be filled during the debate.

Subjects followed the program in their homes. They were asked to follow the first part of the program just to get acquainted with the situation and the persons. The evaluation was supposed to happen during the latter part of the program. Questionnaires were mailed to the authors on the following morning.

In spite of the quite laborious job, the subjects turned out to be very cooperative and all questionnaires were returned.

2.5 Treatment of data

The primary data were punched on tape; one point on a 7-step scale for each object and each subject. Product-moment correlation coefficients were computed[8] between all the scales using the data of both subjects and objects rated (simultaneously over both sources of variance). This was done separately for each experimental condition. All of the six correlation matrices were factor analyzed with the principal axis method.

Rotations were carried out with an oblique method, cosine rotation, developed by Yrjö Ahmavaara.[9] This method fixes the factor axes "as orthogonal as possible" but it does not force the factorial space into a rigid orthogonal structure as the varimax rotation does.

Factorial results were compared by using a new version of the transformation analysis which was originally developed by Ahmavaara.[10] The new version, *symmetric transformation analysis*, was developed by Seppo Mustonen.[11] It gives a quantitative description of factorial coincidence between the results of two different factor analyses (transformation matrices). It also gives a measure of the change in meaning of individual scales while moving from one factorial space to another (abnormal transformation).

Besides correlations and basic quality dimensions of the images, semantic differential data make it possible to take the reverse approach: to construct a measure of overall similarity between the concepts rated according to the image profiles. The placement of the factor axis into a space created by the images themselves and not their attributes lets us visualize the basic *concept dimensions.*

To demonstrate this we computed the D-values (similarities between average image profiles) for the sums of conditions 1 and 2. Besides visualizing this distance matrix we also gave it a factorial treatment.

3.0 RESULTS

3.11 Factor Analysis

The factor analyses of the six correlation matrices gave an idea of the basic dimensions of the images in the six research conditions. We present the rotated factor tables of each of the conditions as well as our interpretation. The primary loading (highest value on a row) is signified with an x, a positive secondary loading (values above .30) with + and negative with —. The attributes are arranged in rank order of the primary loadings (Table 1).

Table 1. Rotated factor tables of the six research conditions, indicating primary loadings (x) and secondary loadings (+ or −) of the 35 attributes (in rank order of the primary loadings).

CONDITION 1

Reliability

	I	II	III	IV
honest — dishonest	x			
fair — unfair	x			
just — unjust	x			
reliable — unreliable	x			
truthful — false	x			
good — bad	x			
responsible — irresponsible	x			
pleasant — unpleasant	x			
democratic — undemocratic	x			
respected — worthless	x		+	
intelligent — dumb	x		+	
competent — incompetent	x		+	
useful — useless	x		+	
secure — dangerous	x	−		
calm — irritating	x	−		

Courage

	I	II	III	IV
aggressive — defensive		x		
agitated — moderate		x		
brave — cowardly		x	+	
fast — slow		x		+
colorful — colorless		x	+	
active — passive		x	+	
liberal — conservative		x		+
arrogant — collected	−	x		
lively — dull	+	x		

Authority

	I	II	III	IV
authoritative — meaningless			x	
clear — unclear			x	
sure — unsure			x	
strong — weak	+	x		
energetic — lax	+	x		

Objectivity

	I	II	III	IV
unprejudiced — prejudiced				x
objective — partial				x
selfsacrificing — selfish				x
modern — oldfashioned	+	+		x
broadminded — narrowminded	+			
interesting — boring				

CONDITION 2

Reliability

	I	II	III	IV
honest — dishonest	x			
reliable — unreliable	x			
pleasant — unpleasant	x			
truthfull — false	x			
responsible — unresponsible	x			
good — bad	x			
fair — unfair	x			
just — unjust	x			
secure — dangerous	x			
interesting — boring	x	+		
clear — unclear	x		+	
respected — worthless	x		+	
intelligent — dumb	x	−	+	
useful — useless	x	+	+	
calm — irritating	x	−		

Courage

	I	II	III	IV
brave — cowardly		x		
liberal — conservative		x		
aggressive — defensive		x		
fast — slow		x		
modern — oldfashioned		x		
colorful — colorless		x		
active — passive		x		
lively — dull	+	x		
energetic — lax	+	x		−
arrogant — collected		x		−

Authority

	I	II	III	IV
authoritative — meaningless			x	
competent — incompetent			x	
strong — weak		+	x	
sure — unsure	+		x	

Objectivity

	I	II	III	IV
objective — partial				x
selfsacrificing — selfish				x
democratic — undemocratic				x
unprejudiced — prejudiced		+		x
agitated — moderate		−	+	x
broadminded — narrowminded		+		x

Four interpretable factors emerged in every condition accounting for 60—70 per cent of the total variance of ratings. The factors, however, are not similar in all six conditions.

The difference between conditions 1, 2, and 4 is small, as is the difference between 5 and 6. There is more difference between condition 3 versus 1, 2, and 4 and again between 5 and 6 versus 1, 2, 3, and 4. It was a surprise to the authors to see the change in party image (conditions 1, 2, 3, 4) was larger for the radio

Table 1, continued

CONDITION 3

Reliability

	I	II	III	IV
pleasant — unpleasant	X			
honest — dishonest	X			
truthful — false	X			
just — unjust	X			
reliable — unreliable	X			
objective — partial	X			
selfsacrificing — selfish	X			
good — bad	X			
useful — useless	X			
democratic — undemocratic	X			
interesting — boring	X			
respected — worthless	X	+		
secure — dangerous	X			+
fair — unfair	X			+
responsible — irresponsible	X			+

Energy

	I	II	III	IV
strong — weak		X		
energetic — lax		X		
authoritative — meaningless		X		
sure — unsure		X		+
active — passive		X	+	
fast — slow	+	X	+	
brave — cowardly	+	X	+	
colorful — colorless		X	+	

Liberality

	I	II	III	IV
liberal — conservative			X	
modern — oldfashioned			X	
unprejudiced — prejudiced			X	+
broadminded — narrowminded	+		X	+
dull — lively	+	+	X	

Moderation

	I	II	III	IV
arrogant — collected				X
calm — agitated				X
clear — unclear		+		X
moderate — irritating	+			X
competent — incompetent		+		X
defensive — aggressive			−	X
intelligent — dumb		+		X

CONDITION 4

Reliability

	I	II	III	IV
truthful — false	X			
reliable — unreliable	X			
honest — dishonest	X			
pleasant — unpleasant	X			
secure — dangerous	X			
fair — unfair	X			
good — bad	X			
responsible — irresponsible	X			
clear — unclear	X			
democratic — undemocratic	X			
just — unjust	X			
collected — arrogant	X	−		
competent — incompetent	X		+	
intelligent — dumb	X		+	
calm — irritating	X	−		
interesting — boring	X	+	+	
moderate — agitated	X	−		+

Courage

	I	II	III	IV
aggressive — defensive		X		
fast — slow		X		
active — passive	+	X	+	
brave — cowardly	+	X	+	
colorful — colorless		X	+	
lively — dull	+	X	+	
energetic — lax	+	X	+	
liberal — conservative		X		+

Authority

	I	II	III	IV
strong — weak			X	
authoritative — meaningless			X	
useful — useless	+		X	
sure — unsure	+		X	
respected — worthless	+		X	

Objectivity

	I	II	III	IV
unprejudiced — prejudiced	+			X
modern — oldfashioned	+	+		X
objective — partial	+			X
selfsacrificing — selfish	+			X
broadminded — narrowminded	+			X

group (1—3) than for the television group (2—4). We shall come back to this question in the subsequent explanation of the transformation analysis. The difference between the party-factors and politician-factors was, of course, expected.

3.12 Party Image Dimensions

The first factor in all of the party-conditions seems to be a general *evaluative* as in the original Osgood—Suci—Tannenbaum-study. We call this the RELIABILITY-factor.

CONDITION 5

Reliability

	I	II	III	IV
respected — worthless	×			
useful — useless	×			
reliable — unreliable	×			
competent — incompetent	×			
responsible — irresponsible	×	+		
truthful — false	×	−		
just — unjust	×	−	+	
honest — dishonest	×	−	+	
fair — unfair	×	−	+	
authoritative — meaningless	×			+
secure — dangerous	×	+		
calm — irritating	×			+
objective — partial	×			+
moderate — agitated	×		+	+
democratic — undemocratic	×			+
clear — unclear	×		+	
pleasant — unpleasant	×	+		
	×	+		

Energy

	I	II	III	IV
fast — slow		+		
energetic — lax		+		
lively — dull		+		
interesting — boring		+		
colorful — colorless		+		
active — passive		+		
sure — unsure	+	×		
good — bad	+	×		
brave — cowardly		×		
strong — weak	+	×		
intelligent — dumb	+	×		

Liberality

	I	II	III	IV
liberal — conservative			×	
modern — oldfashioned			×	
unprejudiced — prejudiced	+		×	
broadminded — narrowminded	+		×	

Composure

	I	II	III	IV
defensive — aggressive				×
collected — arrogant	+			×
selfsacrificing — selfish			+	×

CONDITION 6

Reliability

	I	II	III	IV
truthful — false	×			
reliable — unreliable	×			
fair — unfair	×			
honest — dishonest	×			
just — unjust	×			
secure — dangerous	×			
moderate — agitated	×			+
collected — arrogant	×			+
responsible — irresponsible	×	−		
objective — partial	×		+	
broadminded — narrowminded	×		+	
selfsacrificing — selfish	×		+	
democratic — undemocratic	×	+		
calm — irritating	×			+
respected — worthless	×	+		
clear — unclear	×	+		

Energy

	I	II	III	IV
brave — cowardly		×		
energetic — lax		×		
active — passive		×		
lively — dull		×		
colorful — colorless		×		
strong — weak		×		
interesting — boring		×		
fast — slow		×		+
authoritative — meaningless	+	×		
good — bad	+	×		
intelligent — dumb	+	×		+
sure — unsure	+	×		
competent — incompetent	+	×		
useful — useless	+	×		+

Liberality

	I	II	III	IV
liberal — conservative			×	
unprejudiced — prejudiced		+	×	
modern — oldfashioned	+	+	×	

Composure

	I	II	III	IV
defensive — aggressive				×
pleasant — unpleasant	+	+		×

The second factor of conditions 1, 2, and 4 seems to be more like the activity-factor in Osgood et al. We call it the COURAGE-factor. The second factor of condition 3 (radio during program) seems to be a combination of the *potency* and *activity* factors of a standard semantic differential analysis. We call this the ENERGY-factor.

The third factor again has common elements with the potency-factor of Osgood et al. We call it the AUTHORITY-factor. In condition 3 this factor suggests the third factor in the politician-factor model, a factor which we call the LIBERA-LITY-factor.

The last factor in party image analysis is called the OBJECTIVITY-factor for the conditions 1, 2, and 4. This factor has some common features of the fourth factor in Osgood et al. called the *stability*-factor. Here again the fourth factor in condition 3 is different. We call it the MODERATION-factor, and it seems to be a mixture of the general evaluative, potency and activity-factors. The semantic differential judgments in conditions 1, 2, and 4 are fairly consistent with the factorial results in Osgood—Suci—Tannenbaum. It seems, however, that the similarity of condition 3 is not as good — the factors have dispersed. One explanation might be that the party image through the radio becomes "diffused." There is further evidence of this in the transformation analysis.

3.13 Politician Image Dimensions

The politician images in radio and television are rather similar in the factor-structure. The first factor is a typical general evaluative factor which we call the RELIABILITY-factor. The second is a combination of the *potency* and *activity* factors and is called the ENERGY-factor. The third factor could be the *stability* factor in Osgood et al. and is called the LIBERALITY-factor. The last, quite small factor suggests the 8th factor in Osgood et al.: aggressiveness; we call it the COMPOSURE-factor.

3.21 Factorial Space

The formal relationships between the structures can be illustrated as in Figure 2. The figures show the factor correlations given by the cosine rotation and the amount of variance accounted for by each factor. The size of the factor circle represents the percentage of the common variance. (The sum of the four circles is thought to be 100 %.) The distance between two circles represents factor correlations: the higher the correlation, the smaller the distance. This two-dimensional picture is, however, a somewhat arbitrary visualization of the "real" multidimensional situation. It may be useful, however, as a frame of reference.

The dominance of the first factor, "reliability", is evident. It accounts for the largest part of the common variance, about 40 % in all cases. It also seems to be the dominant evaluation basis to which most of the other dimensions directly relate. The dominance of the first factor is very similar to the result of the original Osgood et. al. -study.

3.22 Party Image Structures

In the *party image structures* (conditions 1—4) the rather weak fourth factor (objectivity, moderation) seems to be a poorly differentiated special aspect of the general dimension of the first factor. The other two factors are relatively independent. The pictures show differences between the factorial results which are very difficult to see in the factor tables because they lack direct information about the relations between different factors.

FIGURE 2. Factor correlations in factor space and percent of common variance.
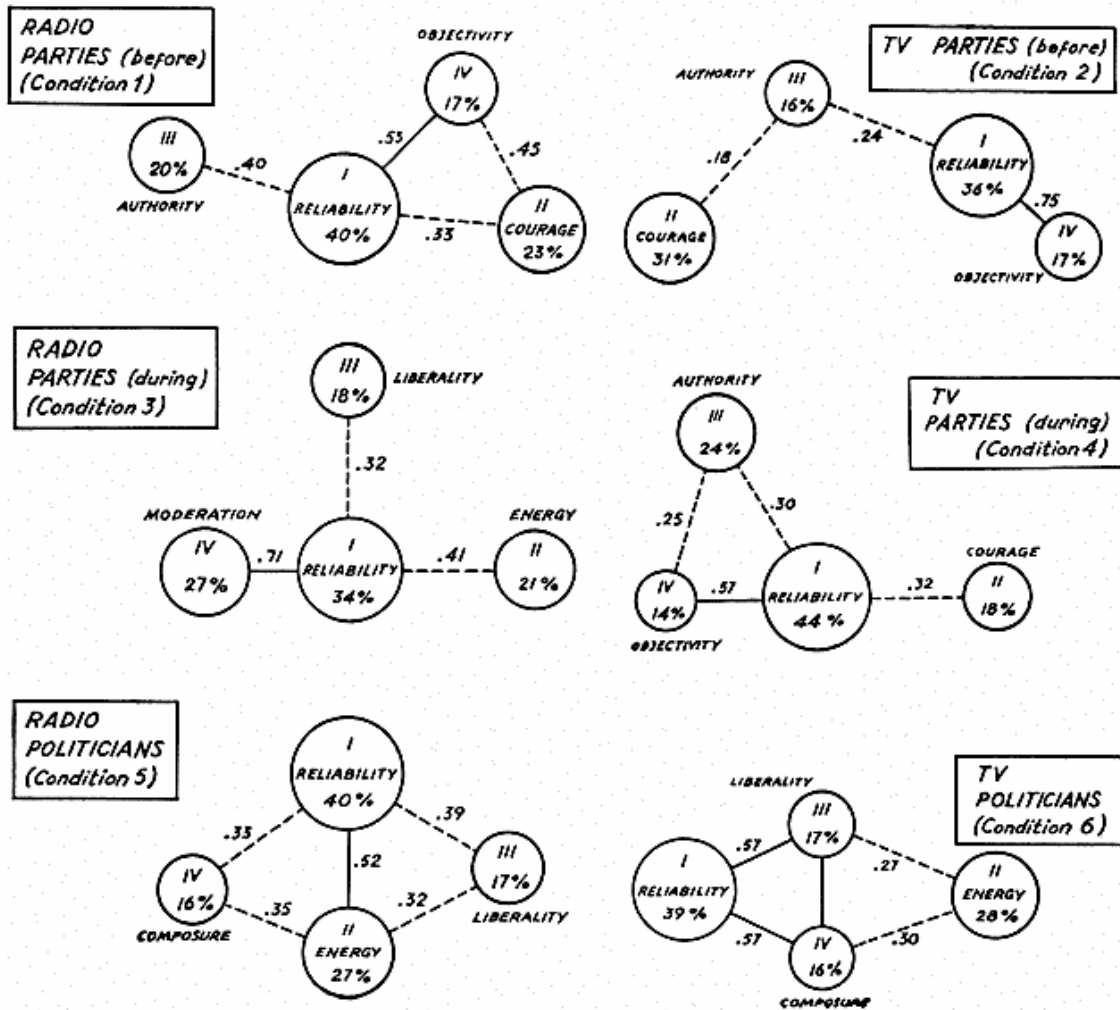
The differences are a good indication of the efficiency of this comparison approach. The change from conditions 1 to 3 (radio) and 2 to 4 (TV) shows the influence of the debate on party image structures. In the radio group the debate causes a tendency towards greater differentiation of the three main image components. While the fourth weak factor approaches the first and most intensive one. For television, the opposite is true.

The pictures seem to indicate that the image structures of the groups were not the same at the beginning of the experiment, but it is important to realize that the discrepancy was found only between the formal structures which can be considered more peripheral. There is practically no difference between the contents of the dimensions, which is our main interest. A quantitative comparison between the contents of these two control image structure strongly supports that there is sufficient similarity between the groups for further consideration (cf. Table 4).

3.23 Politician Image Structures

Politician image structures (conditions 5—6) are less differentiated than the party image structures. Most of the different aspects in the total image are closely related to the *general evaluative factor*.

3.3 Relative Factor Salience

3.31 Party Image Dimensions

A closer look at the factorial structure of the party images show some media effects which we, however, hesitate to generalize. In Table 2 we show first the percent of total variance accounted for by each of the four rotated factors.

Table 2. The percent of total variance in party images accounted for by the four rotated factors.

	I	II	III	IV	Total
Condition 1: Radio "before"	23 %	13 %	11 %	10 %	57 %
Condition 3: Radio "during"	23 %	14 %	12 %	19 %	68 %
Condition 2: Television "before"	22 %	18 %	10 %	10 %	60 %
Condition 4: Television "during"	31 %	13 %	17 %	10 %	71 %

The first observation is that there is an increase of the total cumulative variance from *before* to *during* the program in both media. In both comparisons the change amounts to 11 percentage points. This seems to indicate that the program clearly *amplifies* existing images. A large single change in factors is accounted for by the evaluative first factor in television; the change is 9 %. This would indicate that the program is most "effective" in this "image part." A similar change is in the fourth factor of the radio (9 %) — however, the whole factor changes character. The percent of common variance in Figure 3 clarifies this further. There the change in the first factor of the TV-group is 12 % in the same direction as above. The change is almost entirely at the expence of the second factor, "courage." The program has also increased the third factor, "authority," in the TV-group. In the radio-group the only important change seems to be the growth of the fourth factor "objectivity" and "moderation".

As a conclusion of these two comparisons, we should like to suggest that the effect of this particular communication situation has been an amplification and concentration of the party image. We leave the inferences about the individual factors to the conclusion of the article.

3.32 Politician Image Dimensions

For the politician image structures the same comparison can be made only between the media as there was no *before-during* -comparison.

According to table 3, the differences are rather small and no further comments is needed before the transformation analysis given later.

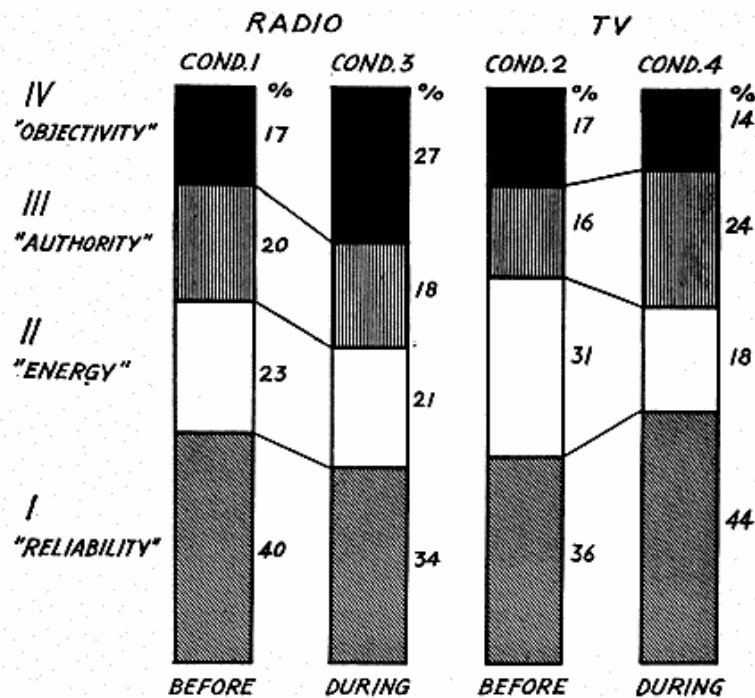**FIGURE 3. The percent of common variance in the party judgement.**

Table 3. The percent of total variance in the politician judgement accounted for by the four rotated factors.

	I	II	III	IV	Total
Condition 5: Radio "during"	24 %	16 %	10 %	10 %	60 %
Condition 6: Television "during"	23 %	17 %	10 %	9 %	59 %

3.3 Transformation Analysis: Comparison between Different Image Structures

This part of our study is a new approach in the analysis of political images in the mass media. Our main interest is, therefore, to see whether *transformation analysis* gives such new information which is not obtained through previous and perhaps easier methods of analysis.

The main results of the transformation analysis will be presented in *transformation matrices.* It offers a quantitative presentation for the mathematical compatibility of factors from two independent factorizations. The coefficients in a transformation matrix indicate the semantic similarity, i.e. *similarity of contents,* between all combinations of dimensions in two factorial results. The values of the coefficients vary between 0.00 (no compatibility) and 1.00 (complete similarity). Besides this information we also look for abnormal transformation, which is a measure of changes in the meaning of the individual scales from one factor space to another.

Comparison A (condition 1 — condition 2)

The transformation matrix of the comparison between the *party* structures of radio and TV-groups *before the debate* is presented in Table 4.

Table 4. Transformation matrix of comparison A. Rows — radio group; columns — TV-group.

			TV			
			I	II	III	IV
RADIO	I	"reliability"	.998	.006	.061	.016
	II	"courage"	.008	.992	.009	.125
	III	"authority"	.061	.006	.998	.028
	IV	"objectivity"	.016	.125	.026	.992

The similarity of factor contents is almost perfect. Further proof is the fact that no significant abnormal transformation was found; both groups have used the scales according to the same content criteria.

Our conclusion is that in terms of image contents our *respondent groups share the same party image structure*.

Comparison B (condition 3 — condition 4)

The following two comparisons indicate the influence of the *media* on image structure. In the case of the party image, the effect of the media is, of course, only indirect as no program characteristics are measured. The compatibility of the *party image structure during debate* of the two respondent groups is presented in Table 5.

Table 5. Transformation matrix of comparison B.

			TV			
			I	II	III	IV
RADIO	I	"reliability"	.977	.058	.179	.102
	II	"energy"	.030	.858	.501	.108
	III	"liberality"	.034	.266	.258	.928
	IV	"moderation"	.209	.435	.807	.342

In comparison A, we compared the party image structures of the groups before the debate, and the similarity was almost perfect. Not so any more, the program has changed the images.

The first dimension, "reliability," has not changed much. The "liberality" dimension (radio) corresponds well with the "objectivity" of the TV-group although there is a little "moderation" of the radio group in the "objectivity" of the TV-group.

The influence of the media is evident in the reorganization of the potency and activity dimensions. Comparison E indicates that there is not much change in the TV-group. The change has been greater in the radio group. Therefore, the columns in the table can be considered as "constants" and we can follow only the changes in the radio group. The comparison is, however, somewhat redundant as the same changes can be seen in comparisons D and E. This would not be the case if there had been changes also in the party images of the TV-group. Then the media effect would have been difficult to separate from the *before-during* debate changes.

Also some individual scales indicate abnormal transformation, i.e. changes in meaning of the descriptive terms as a consequence of media difference. The following sclaes have been influenced by media characteristics: fast — slow, clear — unclear, useful — useless, strong — weak, respected — worthless, and collected — arrogant. The transformation analysis makes it possible to further analyze these changes — to note the kind of meaning change of a scale in terms of the meaning dimensions. These very fine semantic considerations will, however, be left outside the scope of this study.

Comparison C (condition 5 — condition 6)

The compatibility of the politician image structures of the two groups is presented in Table 6.

Table 6. Transformation matrix of comparison C.

			TV			
			I	II	III	IV
RADIO	I	"reliability"	.971	.014	.095	.219
	II	"energy"	.041	.988	.048	.139
	III	"liberality"	.162	.005	.935	.316
	IV	"composure"	.170	.151	.339	.913

The image structures are very similar. The only small differences are in the two last dimensions. There were slight abnormal transformations in the scales objective — partial, useful — useless, and fast — slow.

Our conclusion is that *there was very little media effect in the politician image structures between the radio and television groups.* In our experimental audience the debate has created essentially the same kind of criteria for evaluation of the participants regardless of the media.

Why changes in the party images and not in the politician images? It may be that the party images are rather vague and conceptual in the Finnish multi-party system and the politician images are more perceptual. The concrete stimulus constellation of politicians did not leave enough scope for personal experience to be influenced by the form of communication.

Comparison D (condition 1 — condition 3)

The influence of the radio debate on party image structure is demostrated in Table 7.

Table 7. Transformation matrix of comparison D. Rows — before debate; columns — during debate.

			DURING			
			I	II	III	IV
BEFORE	I	"reliability"	.957	.051	.019	.285
	II	"courage"	.194	.712	.462	.492
	III	"authority"	.153	.692	.346	.615
	IV	"objectivity"	.153	.111	.816	.546

If we look at the second row we can see what has happened to the second before debate factor "courage". The main "loading" is still in the second factor during the program but there are large "loadings" also in the third and fourth factors: the *before debate factor* has broken into three parts, as seen through during debate factors.

The third *before* debate factor (third row) is now split mostly between the second and fourth during debate factors and not much is left for the third factor. Similarly it can be seen that the fourth *before* debate factor (fourth row) corresponds mostly to the third *during* — factor with some meaning elements of the fourth factor.

Of course all this could be intuitively read also in the "verbal" factor tables by following the changes of the attributes in different factors in different conditions. However, it is a very difficult and unreliable task as we have to compare many simultaneous changes with their primary and secondary loadings. In the transformation analysis we can immediately see the changes, their direction and their relative importance.

The result of the comparison above seems to be that *listening to the radio debate has significantly changed the image structure of the political parties.* A partial reorganization has taken place.

In spite of the changes in the factor structure, only a few indications of abnormal transformation was found. The only scales, in which a slight shift in meaning could be noticed as a result of the listening situation, were fast — slow and objective — partial.

Comparison E (condition 2 — condition 4)

Table 8 shows the influence of the TV-debate on the *party image structures.*

Table 8. Transformation matrix of comparison E.

		DURING			
		I	II	III	IV
BEFORE	I "reliability"	.988	.114	.098	.022
	II "courage"	.128	.936	.141	.296
	III "authority"	.074	.210	.959	.177
	IV "objectivity"	.031	.258	.227	.939

The loadings on the matrix diagonal are very high (.988; .936; .959; .939), clearly showing that the factor structures remain essentially the same.

In the TV-group the debate seems to have minimal influence on the party image structures.

Some abnormal transformation appeared in connection with the scales cowardly — brave and arrogant — collected. TV-debate has caused some shift in the meaning of these terms which refer to the "performance connotations."

Comparison F (condition 1 — condition 5)

The difference between the *party image structures without the influence of debate* and *politician image structures during radio debate* is shown in Table 9.

Table 9. Transformation matrix of comparison F. Rows — parties; columns — politicians.

			POLITICIANS			
			I	II	III	IV
PARTIES	I	"reliability"	.932	.103	.158	.309
	II	"courage"	.301	.706	.480	.426
	III	"authority"	.161	.701	.534	.445
	IV	"objectivity"	.123	.029	.678	.724

The interpretation of the matrix gives possibilities for several considerations about the meaning in the political language. Although the first factors, "reliability", correspond with each other, we can see that the "reliability" in politicians has some of the elements of "courage" (second factor — rows) in parties. On the other hand "reliability" of parties has some of the elements of "composure" (fourth factor — columns) in politicians.

The semantic image of the parties fits rather well the Osgood et al. model of primary human expressions in *evaluative, potency and activity* dimensions. The party image second factor corresponds to the activity dimension (active — passive) and the third factor, the potency dimension (strong — weak). In the politician image, however, the second factor is a combination of these two factors which is clearly seen in the second column.

It could be said that the politician image is colored with performance characteristics.

Considerable abnormal transformation was found; the meaning of the attributes is closely connected with the nature of the concept which is judged. The following scales have different meanings for parties and politicians in the radio-group: good — bad, authoritative — meaningless, strong — weak, pleasant — unpleasant, fast — slow, and lively — dull.

It is not difficult to imagine what kind of changes have happened when the attention is moved from the relatively conceptual image of a party to the vivid image of a politician in a radio debate.

Comparison G (condition 2 — condition 6)

The difference between the *everyday party image structure* and *politician image structure during the TV-debate* is shown in Table 10.

Table 10. Transformation matrix of comparison G.

			POLITICIANS			
			I	II	III	IV
PARTIES	I	"reliability"	.976	.160	.101	.108
	II	"courage"	.137	.781	.405	.456
	III	"authority"	.022	.563	.187	.805
	IV	"objectivity"	.168	.219	.889	.364

The transformation results are very much similar to the comparison F. *The semantic reorganization in the TV-debate is very similar to the radio debate.*

There are, however, some small differences. In the case of the TV-group, the "objectivity" (fourth factor, parties) corresponds quite well to the "liberality" (third factor) of the politician image structure. Similarly the "authority" (parties) and "composure" (politicians) seem to be more closely connected in the TV-group than in the radio group.

The total amount of abnormal transformation was in this case considerably greater than in the radio comparison. The following scales indicated the strongest tendency of changes in the meaning in the different rating situations: pleasant — unpleasant, brave — cowardly, strong — weak, authoritative — meaningless, lively — dull, self-sacrificing — selfish, interesting — boring, liberal — conservative, modern — oldfashioned, and unprejudiced — prejudiced.

3,4 Party Images in Semantic Space

Figure 4 shows the relations between the seven political parties. The distance between two party circles corresponds to the magnitude of the D-value across the average rating profiles (all scales) of the parties and indicates the overall similarities between the party images.[12] Again, this kind of representation serves only as a "rough" illustration of the "real" situation. A multidimensional space would be better.

FIGURE 4. Party images in semantic space.
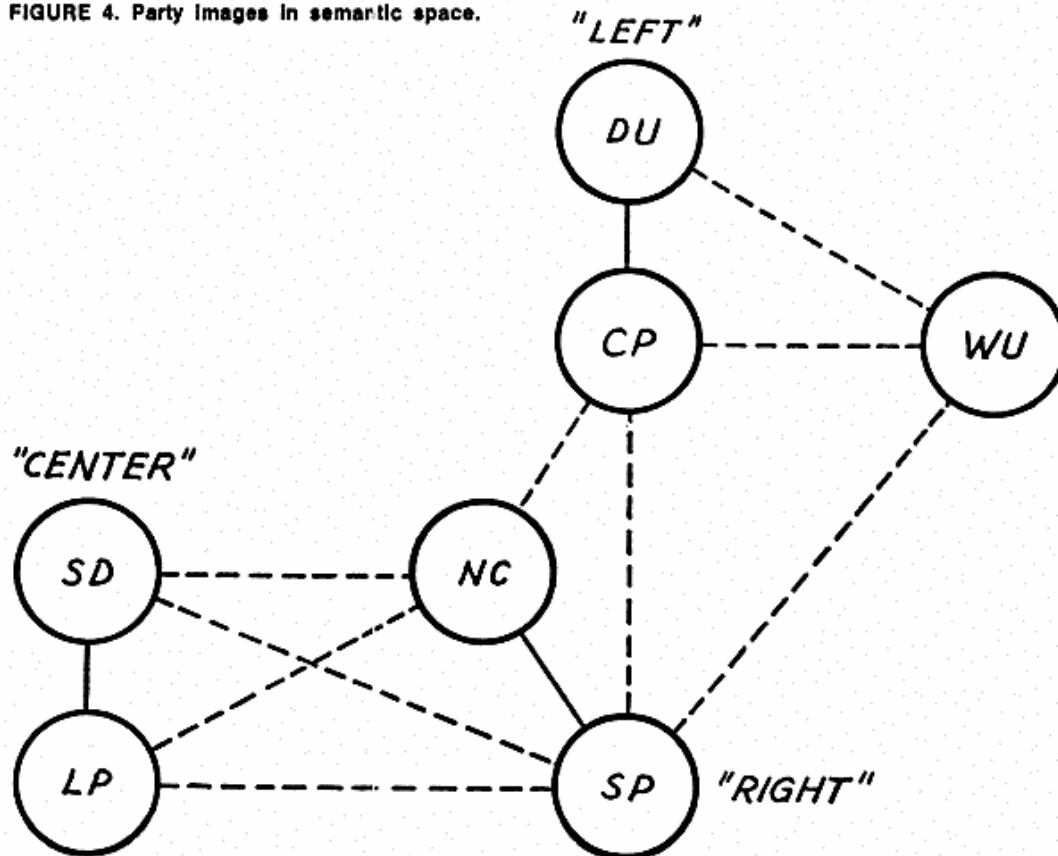
The picture shows clearly, however, some unexpected relationships between the parties. *The image structure does not very well correspond to the traditional right — left criteria of the party system.*

The dimensions of the "party space" were calculated after linearly transforming the D-values into the form of correlation coefficients. Maximal D was interpreted as $d = 0.00$ and minimal D respectively $d = 1.00$. Factorization of this distance-matrix accounted for 62 % of total variance. Varimax rotation gave the following results:

Table 11. Factorization of party images.

	I	II	III
SP	.803	.211	.288
NC	.769	.167	.345
DU	.057	.754	.087
CP	.307	.669	.238
WU	.276	.601	.021
SD	.195	.264	.719
LP	.358	.019	.688

The dimensions of the "party space" can be interpreted with the conventional party classification: first factor is the political right, second factor is the political left and the third factor is the center. The third factor seems, however, to be closer to the right than to the left according to the relatively strong secondary loadings of this factor on NC and SP.

For a Finnish observer, at least, the most interesting thing in this "party space" is the place of the CP which before the elections was the dominant party and considered to be a non-socialist center party. In the image space of our audience, however, it is closely related with the two parties of the extreme left. Even the socialist party SD seems to be perceived more central oriented than CP.

4.0 DISCUSSION
4.1 Method

This was mostly a method study as we said in the beginning. The study has once more shown the advantages of the semantic differential technique in this kind of research: the method allows us to follow very fine image changes during an election campaign. This again may give entirely new information about the reasons behind the election results. We may also find that the semantic image structure of political parties and politicians is different from the traditional left-right or liberal-conservative continua.

Our contribution to the semantic differential technique in political studies is the inclusion of the transformation analysis. The comparison results seem to justify its use in this connection: it indicates quantitatively the semantic similarities and differences between two image structures, and it also points out the individual scales which mean different things in connection with these image structures.

Although we hesitate to generalize the meaning dimensions found in this study, our results may still serve as a rough indication of the basic qualities of political images. The factor analysis results can be utilized for selecting a limited number of descriptive scales which cover the whole meaning spectrum.

Both varimax and cosine rotations lead to same overall dimensions. We preferred cosine rotation as a more "flexible" method, which is sensitive enough to indicate the faint meaning relationships between different dimensions in a single image structure.

It is useful to consider the relative portions of common and total variance which different factors account for. This kind of illustration provides information about the relative importance of different dimensions.

Besides correlating the descriptive scales and revealing the underlying meaning dimensions, it is plausible also to use the same rating data to yield another kind of information: the nature of the "concept space" in question. The latter approach is based on the average image profiles: distance measures of semantic similarity between all combinations of concepts are calculated and this "distance network" constructs a semantic space around the concepts.

4.2 Political Images in Radio and Television

In the previous analysis there seemed to be some contradicting results. For example, the transformation analysis comparison E showed that there was very little change in the party image structure in the TV-debate. However, the comparison of the variances in chapter 3.3 showed that factors I and III grew considerably; there were also changes in the factorial space in Figure 2.

The explanation seems to be, however, that the "nature" of the image structure remained essentially the same. The changes have happened in the "intensity" of the dimensions, not in their "color", i.e. meaning contents. Thus we can safely compare the relative salience of the factors and interpret the effects of the medium in this way.

Thus it seems that *the television debate accentuated the EVALUATION (reliability) and POTENCY (authority) dimensions of the party image structure* (Figure 3).

The case with the radio group is different. In fact what has happened is rather complicated — or at least difficult to explain. Figure 3 shows that nothing much has happened if we compare the variances — the largest change was in factor IV. However, the transformation analysis comparison B shows that there has been a thorough re-organization of the scales inside the factors — so much that all but the first factor had to be given new names.

The case of the radio image structure is a good indication of the advantage of the transformation analysis. If we had only compared the relative salience of the factors as in Figure 3, the interpretation would have been at least partly wrong.

In the radio debate only the EVALUATIVE (reliability) dimension seemed to

remain the same, all the other dimensions seemed to get mixed with each other. We explain this by saying that the "diffuse" radio image leaves more scope for personal experience. The explanation is not fully satisfactory and the result may have been partly influenced by the research conditions. Further research is needed.

As we did not judge the politicians *before* the debate, no comparison can be made about the *changes* in their image structures. Comparison G shows, however, that *there is very little difference in the "color" of their image dimensions in the two media.*

4.3 Inferences about the Result of the Research

In the beginning we posed the somewhat rhetorical question about the "uncertainty principle." We are not able to give an answer as our results cannot be compared with any other simultaneous studies. In this study we found some changes in individual variables but very little general trend.

We are also willing to propose that the influence of the mass media in a political campaign is more "preserving" than changing or creating. If this is accepted, then it is easier to understand why the only noticeable media change was in the radio group: the medium gives a very diffuse image "picture" which is not stimulating enough to maintain a "clear" image. So far this is a hypothesis which could have been checked with another "image" test *after* the debate to see whether the image structure has returned to its original state after the stimulus has gone.

The factorial structures of the party images are perhaps the most interesting results of the study. The general image structure fits well the Osgood et al. model of evaluation — activity — potency dimensions. However, the detailed analysis of the factors and their comparisons give a view of the image structure "inside" these general dimensions. At least our study suggests that political images are *multidimensional* by their nature which fact has been often torgotten.

NOTES

[1] Joseph T. Klapper, *The Effects of Communication* Clencoe, Ill.: The Free Press, 1961.
[2] Klapper, op. cit., and Pertti Pesonen, *Valtuutus kansalta* Vammala: Werner Söderström, 1965.
[3] William A. Glazer, Television and Voting Turnout, *Public Opinion Quarterly*, vol. (Spring 1965) pp. 71—86 and Agnus Campbell Has Television Reshaped Politics? Columbia Journalism Review, Fall 1962 pp. 10—13.
[4] Charles Osgood — George Suci — Percy Tannenbaum, *The Measurement of Meaning* Urbana: University of Illinois Press, 1957.
[5] Osgood — Suci — Tannenbaum, op. cit., p. 105.
[6] Sidney Kraus, ed., *The Great Debates* Bloomington: Indiana University Press, 1962 pp. 271—288.
[7] Pesonen, op. cit.
[8] The authors are grateful for the assistance from the Computer Center of the University of Tampere. All the computations were made with Elliott 803 equipment.

[9] cf. Toivo Vahervuo, — Yrjö Ahmavaara, Johdatus faktonanalyysiin (Introduction to Factor Analysis), Porvoo: Werner Söderström, 1958; and Touko Markkanen, On the Primary Factor Space and Its Dimensionality, Helsinki: Alkoholipoliittisen tutkimuslaitoksen tutkimusseloste No 5, 1963 (Mimeo).

[10] cf. Yrjö Ahmavaara, Transformation Analysis of Factorial Data, Helsinki Ann. Acad. Sci. Fenn., B 88, 2, 1954; newer developments of the method will be published in a monograph by Ahmavaara "Transformation analysis".

[11] Seppo Mustonen, Symmetrinen transformaatioanalyysi (Symmetric Transformation Analysis), Helsinki: Alkoholipoliittisen tutkimuslaitoksen tutkimusseloste No 24, 1966 (Mimeo).

[12] Osgood et al., op. cit., pp. 94—97.