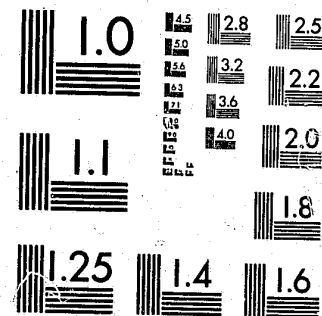


National Criminal Justice Reference Service

ncjrs

This microfiche was produced from documents received for inclusion in the NCJRS data base. Since NCJRS cannot exercise control over the physical condition of the documents submitted, the individual frame quality will vary. The resolution chart on this frame may be used to evaluate the document quality.



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Microfilming procedures used to create this fiche comply with the standards set forth in 41CFR 101-11.504.

Points of view or opinions stated in this document are those of the author(s) and do not represent the official position or policies of the U. S. Department of Justice.

National Institute of Justice
United States Department of Justice
Washington, D. C. 20531

10/12/82

81610

U.S. Department of Justice
National Institute of Justice

81610

This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the National Institute of Justice.

Permission to reproduce this copyrighted material has been granted by

Multivariate Behavioral
Research

to the National Criminal Justice Reference Service (NCJRS).

Further reproduction outside of the NCJRS system requires permission of the copyright owner.

MULTIVARIATE ANALYSIS OF GANG DELINQUENCY: II. STRUCTURAL AND DYNAMIC PROPERTIES OF GANGS¹

DESMOND S. CARTWRIGHT
University of Colorado

KENNETH I. HOWARD
Northwestern University
and

NICHOLAS A. REUTERMAN
Southern Illinois University

NCJRS

OCT 1 1981

ABSTRACT

Measures of structural and dynamic properties of gangs are developed: size, differentiation, primary pattern strength, competing pattern strength, and territorial dispersion; and cohesiveness, uniformity of attitude, and felt effectiveness. Except for size and dispersion, all measures are derived from applications of cluster and factor analysis. Evidence of construct validity is provided. The measurements are then related to mean scores on five factors of behavior for sixteen gangs. It is found that less differentiated gangs engage in more property offenses; gangs with stronger primary pattern engage in more conflict and stable sex behaviors; gangs with greater cohesion engage in less property offenses and conflict behaviors. Discussion centers upon a distinction between behavioral and attitudinal cohesiveness.

ACQUISITION

In an earlier paper (Cartwright and Howard, 1966) it was shown that the ecological characteristics of the neighborhoods containing sixteen Chicago gangs had important associations with the reported delinquent behaviors of those gangs. Neighborhoods higher in Socio-economic Status were likely to have gangs which engaged in more property offenses and other serious delinquencies. Neighborhoods higher in a factor of Suburban Characteristics proved to have gangs showing greater amounts of those behaviors associated with corner-boy activities of hanging, gambling, and so on. Thus the focus was placed upon the massive features of the environment—population, housing, economy, family life—in relation to highly particularized behaviors of small groups of boys—ranging between 8 and 68 members. The present paper focusses upon characteristics of the groups as groups, their structure and dynamics, and relates these characteristics also to behaviors. All of the gangs studied here are the same as those

1. This work has most recently been supported by a grant from the National Institute of Mental Health, Department of Health, Education, and Welfare, Grant Number RO1-MH-14999, made to the first author; by the Institute for Juvenile Research, Department of Mental Health, State of Illinois; and by General Research Support Grant FR-05666-2 from the General Research Support Branch, Division of Research Facilities and Resources, National Institutes of Health.

JULY, 1970

303

studied in the previous paper; however for the purpose of constructing certain indices of group properties it was necessary to employ only those gang members' data for whom precise information was available through psychological assessments. These subsets have been described by Short and Strodtbeck (1965).

The group properties to be studied fall into two classes. At a particular point in time the gang has a certain number of members, a certain structure of power and friendship cliques, a set of roles or behavioral emphases representing divisions of labor within the gang; such characteristics are structural in nature. A second kind of characteristic includes the cohesiveness of the gang, the uniformity of opinion displayed by its members, and the effectiveness with which they feel it functions; these are dynamic characteristics. It will be convenient to discuss each kind of variable and the measurement processes employed separately. This will constitute the bulk of the present report. Then the resulting measures will be related to behaviors.

Morphological Variables

Size. Thrasher (1963, p. 221) saw the variable of size of the gang as crucial in determining and in being determined by both the structural forms and the quality of interaction among members and the effectiveness of their enterprises:

"The necessities of maintaining face-to-face relationships set definite limits to the magnitude to which the gang can grow. The size of Itsckie's group was determined by the number of boys readily able to meet together on the street or within the limited space of their hang-out. The gang does not usually grow to such proportions as to be unwieldy in collective enterprises or to make intimate contacts and controls difficult. Ordinarily, if all members are present, what is said by one of the group can be heard by all. Otherwise, common experience becomes more difficult and the group tends to split and form more than one gang

"Greater growth can be accomplished only through modifications of structure, such as those resulting from conventionalization."

After reviewing effects of group size in experimental work, Thomas and Fink (1963) were able to provide a number of tentative generalizations; as group size increases: productivity (such as group problem solving) tends to improve, though speed does not, and in fact smaller groups often are faster; there is less inhibition upon expressions of disagreement and dissatisfaction; the

304

MULTIVARIATE BEHAVIORAL RESEARCH

cohesiveness of the group decreases and there is an increasing tendency to organize and provide for a division of labor, along with development of cliques and factions; the extent to which an individual will yield to pressures to conformity is likely to increase up to a point; individual members are less likely to find personal satisfaction in group activities.

Within the framework of our present conceptual scheme, the size of a gang is seen as one outcome of recruitment processes. The experimental evidence cited above suggests that there may well be very important consequences for the gang attendant upon the size its members (reflectively or unreflectively) accept.

Our measure of size was taken as the largest number of boys in a gang as known to any of the researchers who had dealings with them. These data are summarized by Short and Strodtbeck (1965). The resulting values for gang size are shown below in Table 1.

Differentiation. The concept of differentiation attempts to draw together a number of related concepts which appear frequently in discussion about gangs and in observations about the structures of groups. These concepts include: splitting of the gang, development of cliques, factions, specializations within the gang, and so on.

Thrasher pointed out that a mob, or a crowd that acts, is never divided against itself; but that a gang is often split into a number of cliques, defined as spontaneous interest groups which form within some larger social structure. He added (p. 222): "In a certain sense a well-developed clique is an embryonic gang which does not get detached from its social moorings, but remains incorporated within the larger whole."

Cartwright and Zander (1968a, pp. 485 ff.) have reviewed concepts associated with group structure. They observe first that efficiency in group performance often requires specialization so that some sub-group becomes primarily responsible for a given class of tasks. Differential role-assignment takes place and allows for structural differentiation. They say (p. 489):

"These parts may be given various labels such as status, position and office. Whatever the label, however, they are conceived as having two properties: (a) each member of the group may be located as 'inside' or 'outside' each part and (b) expected, permitted, and prohibited behaviors are associated with the occupancy of each part."

In the present case we are dealing with cliques rather than

"offices," but the notion of differentiation into parts, with each part having a certain set of behaviors characterizing it, is clearly central to the concept of structure and also clearly applicable to clique-formation and role-differentiation within gangs. Short and Strodtbeck (1965, pp. 115 ff.) formulated a concept of "attitude-cliques," and were able to show several such cliques in gangs. It is apparent from Thrasher's discussion above, and from the summary view of structure provided by Cartwright and Zander, that a concept of "behavior-cliques" would be most appropriate for characterizing structure. Most often, of course, the term "clique" has been used in connection with sociometric studies, in which a clique is defined primarily as a sub-group of persons who express friendship or work-preference choices for each other. But in the present context of studying structure, the notions of "interest groups" or "behavioral-cliques" appear to be superior to sociometric groupings.

As Newcomb *et al.* (1965, esp. Ch. 12) have pointed out in their discussion of structural differentiation and integration, the problem of conceptualization and measurement of these characteristics of groups has not so far been solved by social scientists. They stress as primary the concept of differentiation, since a concept of structuring must pre-suppose differentiated parts which are to be interrelated. And they raise two basic questions which must be provided with answers through developments of method: To what extent are the parts differentiated and in what ways are the parts interrelated?

In our present context, we must adopt a particular meaning for "parts," namely "behavior patterns." In so doing we can follow one of the suggestions made by Newcomb, *et al.*, by counting as a measure of differentiation simply the number of major behavior patterns that can be found in a given gang. But another aspect of differentiation is required; for a pattern may be different from another pattern in only one of many respects, or in several respects; so that there are degrees of similarity or difference, or differentiation, between any two patterns of behavior. In our assessment of differentiation we shall attempt to take both the number of parts and the degrees of difference between parts into account.

Our approach to measurement relied heavily upon the principles of factor and cluster analysis; however, these statistical procedures had to be applied to certain basic indices of similarity between individual boys within a gang. After considering a variety

of indices that could be chosen (such as product-moment correlation coefficients, Euclidean distance measures, etc.), we decided upon the intra-class correlation coefficient. This coefficient, as pointed out by Haggard *et al.* (1959), can be used to compare profiles in terms of their shape only (by equalizing means and standard deviations), in terms of both their shape and their scatter (by equalizing means only), in terms of shape and level (by equalizing standard deviations only), and finally in terms of shape, level and scatter all at once (by allowing both means and standard deviations to vary as given by the data).

We reasoned that the similarity in overall behavior pattern between two gang boys must certainly take into consideration the general level of behaviors; at the extremes, we would not expect to call two behavior patterns similar if they had the same shape but the one involved relatively little delinquent behavior and the other involved a great deal. We also felt that the selectivity of behaviors, or the specialization, could be important in comparing profiles, so that it would be desirable to include a comparison of the scatter in estimating overall similarity of profile. Finally, the particular shape of the profile would obviously also be important, since the very notion of a behavior pattern includes primary references to a depiction of relative emphases upon this and that behavior as against the one and the other behavior. Our decision accordingly was that the intraclass correlation coefficient should be used upon data freely varying in mean and standard deviation.

The actual equation used was:

$$[1] \quad R = 1 - \frac{\sum_{j=1}^n (X_{pj} - X_{qj})^2}{2n\sigma^2_{XT}} ;$$

where R is the intraclass correlation coefficient;

p, q are two persons;

there are j values X for each person ($j = 1, 2, \dots, n$);

σ^2_{XT} is the variance of all 2n values associated with the two persons.

For each gang on which behavior data were available, intraclass correlation coefficients between every possible pair of boys

were computed using a list of 22 behaviors: gambling, theft, alcohol, marihuana, narcotics, public drunkenness, group fighting, individual fighting, signifying, hanging, joy riding, petting, work experience, auto theft, bribery, carrying concealed weapons, forgery, homosexuality, pimping, statutory rape, truancy, and assault. Assembling these coefficients into a single correlation matrix, the matrix for each gang was then analyzed using the BCTRY system of cluster analysis (Tryon and Bailey, 1966) to find out first: how many independent clusters are there? Second, to what extent are they uncorrelated among themselves? Thus the answer to our question concerning the number of major behavior patterns in a gang is given by the number of clusters needed to account for the obtained matrix of intra-class correlations; and the answer to our question concerning the extent of dissimilarity among the patterns is given by the smallness of the correlations between those clusters after they have been located in their best possible position given the data at hand. It is simply calculated: the similarity is given by the average correlation between pairs of clusters in a matrix; the dissimilarity is the complement of the similarity, i.e. one minus the average similarity.

In calculating our final measure of differentiation, we considered whether there should be a greater weight put on the number of patterns or on the dissimilarity, or whether they should be equally weighted. We considered whether they should be combined by multiplying number by dissimilarity; or by adding number and dissimilarity. There appeared to be no readily available criterion for choosing among these alternatives; so we chose the simplest procedure, adding number and dissimilarity with equal weights.

Given the number of clusters, say C, and their average dissimilarity, say $(1.00 - \bar{\Phi})$, weights w were applied such that

$$[2] \quad \sum w_1 C = \sum w_2 (1.00 - \bar{\Phi}) = 6.0 ,$$

where the summation was taken over the twelve gangs with available data.

Primary pattern strength. We saw above that Thrasher commented upon the extent of development of a clique: a clique may

be well-developed or not. Applying this same notion to a behavior pattern, it may be well-developed or not. Its clarity as a pattern within the repertoire of the group as a whole may be partly indicated by the extent to which that pattern controls or accounts for the behaviors of the members, and partly by the number of members whose behaviors are to some extent or entirely controlled by (or modelled after) that pattern. If there is but one pattern discernible in a given gang, then its position of dominance is evident; but if there are two or more patterns, then the primacy of one pattern over another within the group as a whole becomes analytically problematic. If each pattern can be measured for its strength, then the strongest may be named the primary pattern. The implications of this assignment will be made more explicit in connection with a discussion of the remaining patterns in the next section.

Our procedure for measuring the strength of development of the primary behavior pattern within a gang rests upon some straightforward principles of cluster and factor-analysis. In brief, the primary pattern was taken as that associated with the first and largest cluster of boys. Its strength was given by the mathematical size of that cluster, or, to put it another way, by the amount of the total between-boy similarity in behavior profiles that could be described in terms of that cluster: technically known as the "communality accounted for by the cluster or factor." This total of course is influenced very heavily by the number of boys in the gang; so it was necessary to divide the total by the number of boys (creating in effect a value representing the amount of communality accounted for per boy).

Competing pattern strength. While in many cases it may be that there are three or more major patterns of behavior evident within a gang, we chose to focus only upon the two having the greatest strength. In this sense we may envision the pattern with the second largest score for strength within a gang as being also a potential (and perhaps actual) competitor for prime adherence throughout the membership. In the case of formal groups this kind of notion could be applied to the contrast between the pattern prescribed in the descriptions of jobs or offices, and the pattern of individual preferences for adaptation that may ultimately modify the actual job that is done in any given role. In the case of gangs, the competing pattern may encompass a quite different form of delinquency; whereas the conflict pattern might be primary, a retreatist pattern might provide strong competition. If

the gang has been assigned a Detached Worker, the competing pattern might well be that collection or profile of behaviors which the Worker is trying to exemplify and prescribe for the whole gang. It would be interesting to speculate that certain general rules might apply to the interrelation between primary and competing patterns: such that, if (for some reason of major external intervention, or of forceful change in membership) the primary pattern should disintegrate, the competing pattern would assume precedence. Understanding the nature of a competing pattern could then provide a useful guide for anticipating the next new profile of gang (or other group) behavior, should the prevailing major profile be disrupted.

The strength of the competing behavior pattern within a gang was computed in a fashion similar to the primary pattern strength.

First, the competing pattern itself was simply that pattern associated with the second largest orthogonal cluster found in the matrix of intraclass correlation coefficients. Its strength is necessarily affected by the size of the first cluster, since the larger the first one is, the smaller the amount of communality that remains to be distributed among the second, third and subsequent clusters. Accordingly a procedure was devised to counteract this influence of the first cluster, since leaving the influence in the measurement of the competing pattern strength would necessarily produce a sizable negative correlation between the two strengths, of primary pattern and of competing pattern. Essentially the influence was divided out by taking the complement of the Primary Pattern Strength score and dividing it into the obtained value for total communality accounted for by the second cluster:

$$[3] \quad \Sigma a_2^2 / (1.00 - \Sigma a_1^2 / N) \cdot N \dots$$

Dispersion. A concept that has not so far received attention in connection with study of gangs is the territorial dispersion of the gangs as a whole. Do they all live in the same block? Or do they all have to travel some distance in order to meet together? It might be expected that at some time, in some way, they all originally came together in one place, since that presumably allowed for the origin of the gang. Such a place might be a school, or a club.

However, the maintenance of a gang membership would certainly be easier if all the members lived on the same block than if all lived several blocks away from each other. The sheer physical effort that would be needed to bring them all together should probably be considered a cost, to be outweighed (or not) by the rewards of gang membership. Since all the boys we studied as gang members were still in good standing at the time of the research, we must suppose that the rewards of membership did outweigh the costs (of distance and anything else). We might therefore expect that a gang with a greater degree of geographical dispersion would consist of members whose rewards from membership are proportionately greater. This fact could well be represented in a greater cohesiveness of the gang; it might also mean that they would engage in less horsing around and more of whatever well-defined activities characterized them, be it auto theft, team sports, or fighting a hated rival gang.

From the residence information for 70% (and up) of the members of a gang who came in for assessment, it was possible to calculate the amount of territorial *dispersion* of the gang as estimated from the available data. Dispersion was defined as the average distance in miles between the residences of the gang members. Distances were taken not as linear, but rather as actually walkable (or rideable); thus a distance was calculated as going around a park unless there were a gate and road through it; and from one corner of a block to the opposite corner was taken as the total of two adjacent sides.

The distances were calculated using a large map and rulers or compass as needed. A matrix of distances between all pairs of boys in a gang was prepared for each gang. Each boy's average distance to the other members' residences was computed; then the average over all these individual averages was calculated to obtain the average between-boy distance for the gang as a whole. As may be seen in Table 1, there was considerable variation between the gangs in this measure of dispersion.

Dynamic Variables

We turn now to the dynamic characteristics of cohesiveness, uniformity and effectiveness.

Cohesiveness. We follow explicitly the definition of *cohesiveness* given by Festinger (1950):

"The resultant of all the forces acting upon the members to remain in the group. These forces may depend on the attractive-

Table 1
Morphological Characteristics of Gangs

Gang	Size	Differen- tiation	Primary Pattern Strength	Competing Pattern Strength	Dispersion
01	68	1.469	.489	.243	.39
05	58	.951	.633	.303	1.66
06	8	1.000 ^a	.565 ^a	.326 ^a	.12
09	42	.674	.668	.319	.34
10	44	1.523	.524	.401	1.55
11	19	1.200	.335	.444	1.35
13	43	.674	.691	.515	3.12
14	26	1.000 ^a	.565 ^a	.326 ^a	.50
15	57	.641	.750	.480	1.03
16	16	1.000 ^a	.565 ^a	.326 ^a	.65
18	16	.200	.799	.005	1.61
20	47	1.685	.495	.479	.34
21	28	1.444	.361	.244	.34
22	40	.652	.453	.232	.75
23	22	.882	.577	.480	.44
25	8	1.000 ^a	.565 ^a	.326 ^a	3.84

^aColumn means were inserted for gangs for whom no behavior data were available and hence no structural scores could be derived.

ness or unattractiveness of either the prestige of the group, members in the group, or the activities in which the group engages."

In his discussion of group cohesiveness, Dorwin Cartwright (1968) has enumerated a number of different approaches to measuring this characteristic: a) degree of interpersonal attraction among members; b) evaluation of a group as a whole; c) closeness or identification with a group; d) expressed desire to remain in a group; and e) composite indexes.

The materials available to us allowed development of measures for two of these general kinds of approach to cohesiveness: degree of interpersonal attraction, and closeness or identification with a group.

Our measure of cohesiveness through attraction was taken from data obtained by the Semantic Differential (Osgood, *et al.*, 1957; Gordon *et al.*, 1963). Subjects were invited to rate the image of "Someone who is a member of _____" (with the name of their own gang in the blank), using the following items (7-point scale):

Clean	.....	Dirty
Good	.....	Bad
Kind	.....	Cruci
Fair	.....	Unfair
Pleasant	.....	Unpleasant

These items are markers for the factor of Evaluation in such data. Responses were scored in the favorable direction on all five

paired items, and the sum of the five responses constituted the measure of an individuals' Favorableness of Evaluation of his gang. Pooling the scores for all individuals in a gang gave the mean, which was used to represent the average attraction felt toward the gang by the members.

A second measure of cohesiveness is the extent of identification with the group that members feel. Using the Semantic Differential data again, scores on the Potency factor were obtained in a manner similar to that for Evaluation, but with five other adjective-pairs:

Hard	Soft
Large	Small
Strong	Weak
Brave	Cowardly
Rugged	Delicate

Scores were added for Hard, Large, Strong, Brave, Rugged. Here, as for Evaluation, the directions of Osgood *et al.* (1957) were followed.

Thus estimates were obtained for each subject's Evaluation Factor Score and Potency Factor Score on two images: the image of a gang member as above, and the image of "Myself as I usually am." Four scores were available for each person:

Evaluation	Gang	Self
Potency	eg	es
	pg	ps

Given the two scores for Evaluation and the two scores for Potency, it is possible to calculate the net difference or distance between the Self image and the Gang image:

[4]
$$D = \sqrt{(eg - es)^2 + (pg - ps)^2}$$

It can be seen that D is a straightforward Euclidean distance measure. By subtracting each person's distance measure, D, from a constant number, 3.0, it was then possible to get a measure of *closeness* between the Self image and the Gang image, which we felt was a reasonable interpretation of "identification." The group value was taken as the mean closeness for the members of the gang.

Uniformity. Cartwright and Zander (1968b) have recently summarized a number of considerations pertinent to uniformity in groups. Some of the reasons for similarity among members of groups are: a) that collections of persons in the same environment are inclined to assume there is only one "correct" description of that environment, and those who differ from the rest will be in conflict either to agree or to leave; b) since a person's very membership in a group determines to some extent his exposure to aspects of the environment, the members are in fact more likely to have similar environments than if they were not members; c) persons are attracted to and recruited by groups who are similar to the new potential member; d) there are definite group pressures to uniformity, such as the conscious or unconscious enforcement of standards. Four basic theoretical positions have been advanced to explain why such pressures to uniformity are instituted: to help the group accomplish its goals, and to maintain its membership, and to help the members develop validity for their opinions, and to clarify their relationship with the surroundings. Uniformity may pertain to beliefs, attitudes, values or behavior; but whichever it is, and whichever particular function is to be served by the uniformity, the strength of pressures to conform will be determined in part by the importance of the matter to the group and by the extent to which members believe that the uniformity will in fact serve that purpose. One especially relevant generalization is that (Cartwright and Zander, 1968b, p. 144):

"... cohesiveness gives a group power to influence its members, and heightens their readiness to attempt to influence and be influenced by others. We should expect to find, then, that the greater the cohesiveness of a group is, the stronger its pressures to uniformity will be whenever this uniformity serves a group function. There is considerable evidence in support of this expectation."

In the particular approach to measurement of uniformity adopted here, we shall focus upon uniformity of attitudes among the gangs, and upon such matters as quite probably have a high degree of general relevance to gang functioning. From the Semantic Differential data, fourteen images were used, and either the Potency Factor Score or the Evaluation Factor Score was considered. The measure of uniformity was taken as a constant (the number 30) minus the sum of the standard deviations of the group on the following:

- Evaluation Factor score for "Someone who ..."
- ... has a steady job washing and greasing cars.
 - ... likes to read good books.
 - ... gets his kicks by using drugs.
 - ... stays cool and keeps to himself.
 - ... likes to spend his spare time hanging on the corner with his friends.
 - ... works for good grades at school.
 - ... makes easy money by pimping and other illegal hustles.
 - ... saves his money."

- Potency Factor score for "Someone who ..."
- ... sticks by his friends in a fight.
 - ... knows where to sell what he steals.
 - ... makes out with every girl he wants.
 - ... is a good fighter with a tough reputation.
 - ... has good connections to avoid trouble with the law.
 - ... shares his money with his friends."

All of these images were originally selected as highly relevant attitudinal objects for gang members. The variation in Factor Score among the members of a gang in regard to one image would certainly indicate the extent of non-uniformity among the members in attitude toward that image. By summing the standard deviations (which are the best statistical representatives of the amount of variation in a group) over all fourteen items, and cutting across the two different aspects of attitudinal response available in the Evaluation and Potency Factor Scores of the Semantic Differential, we felt that a substantial estimate of the non-uniformity in a gang could be obtained. Subtraction from the constant then gives our measure of uniformity.

Effectiveness. It is not clear that informal groups such as gangs have a definite "product" in the sense that they look upon themselves as accomplishing some clearly understood objective. However, regardless of the extent to which they may like each other or value the prestige of their gang, there may still be an overall appraisal of how well the gang accomplishes whatever it does attempt to accomplish, be it a rumble, a robbery, a dance, or whatever. In experimental groups, of course, it has been possible to establish clear-cut objectives of solving problems of various kinds (for example, Deutsch, 1949). In the present field situation however nothing like an observer's judgment of productivity could be obtained. However, an approximation to the members' own thoughts concerning the productivity of their group could be developed. It seemed plausible to identify the Potency Factor in the Semantic Differential with a notion of felt effectiveness on the part of gang boys with respect to their gang. Walter Miller (1958) has shown that toughness—here thought to be equivalent to Po-

JULY, 1970

315

tency—is of great importance to lower class adolescent males as they appraise themselves and the world around them. This should apply especially to their gang, which also constitutes a fundamental part of their culturally specified experience and identity according to Miller.

Our measure of effectiveness, then, was simply the average Potency Factor Score for the members of a given gang, in relation to the image of "Someone who is a member of———," with the blank filled by the name of the boy's gang.

The measures of dynamic characteristics are shown in Table 2.

Table 2
Dynamic Characteristics of Gangs

Gang	Cohesiveness —Attraction	Cohesiveness— Identification	Uniformity	Effectiveness
01	4.35	1.49	9.9	4.45
05	4.16	1.32	7.9	4.61
06	3.77	1.03	7.5	5.37
09	4.56	1.82	11.8	5.04
10	5.24	1.73	8.4	5.00
11	5.10	1.72	11.6	4.80
13	4.37	1.82	12.1	4.40
14	5.15	1.85	14.3	4.95
15	3.95	1.04	5.3	5.73
16	4.93	1.51	9.4	5.11
18	3.20	1.82	9.0	5.40
20	3.99	1.29	9.2	5.12
21	5.21	1.74	7.1	4.80
22	3.87	1.11	6.3	5.24
23	4.73	2.02	10.2	4.40
25	5.09	2.14	11.2	5.34

The validity of the various measures may be gauged through their ability to meet theoretical expectations or expectations based upon previous research findings with cognate measures and their interrelationships. Table 3 presents the intercorrelation matrix for the measures.

Size has been repeatedly found to be associated with certain other characteristics; according to Cartwright and Zander (1968a, pp. 498-499), larger groups tend to be less cohesive and to show weaker pressures toward uniformity. They have more absenteeism and turnover, suggesting that members find participation less satisfying in larger groups. We should expect that our measure of size would correlate negatively with cohesion and uniformity; which is true for the signs of the coefficients in Table 3, although only one coefficient approaches significance statistically. New-

316

MULTIVARIATE BEHAVIORAL RESEARCH

Group Characteristic	1	2	3	4	5	6	7	8	9
1. Size		.21 ^a	.10	.19	-.14	-.18	-.38 ^a	-.24	-.27
2. Differentiation			-.72 ^a	.33	-.25	.51 ^a	-.05	.01	-.30 ^a
3. Primary Pattern				-.13	.27 ^a	-.54	.01	-.01	.29
4. Competing Pattern					.09	.35	-.03	.16	-.23
5. Dispersion						.12 ^a	.44 ^a	.24	-.01
6. Cohesiveness (A) ^b							.56 ^a	.45 ^a	-.36
7. Cohesiveness (I)								.71 ^a	-.39
8. Uniformity									-.43
9. Effectiveness									

^aDecimals omitted throughout. Coefficients with the superscript ^a pertain to expected associations as described in the text; and therefore are properly to be evaluated using a one-tailed distribution of probabilities: for $N = 16$, $r \geq .38$, $p < .10$; $r \geq .43$, $p < .05$; $r \geq .58$, $p < .01$. For remaining coefficients, a two-tailed distribution is appropriate, and for given value of r , the p -values above should be doubled.

^bHere, and subsequently, Cohesiveness (A) means cohesiveness of the attraction form; Cohesiveness (I) means the identification form of cohesiveness.

comb *et al.* (1965, pp. 359-364) show that increasing size is generally associated also with increasing differentiation. Our relevant coefficient is a positive .21, which is not statistically significant however.

Focusing upon differentiation, the only expectation that can be found from existing results (apart from the connection with size) pertains to satisfaction. Since satisfaction is greater from participation in smaller groups, then, since the greater differentiation can be seen as providing for more smaller groups within a gang of given total size, then greater differentiation should be associated with an increase in satisfaction. Differentiation is also expected to result in a greater degree of productivity (through the efficiencies of division of labor), and hence might also be expected to yield a higher amount of felt effectiveness among members. In our data, we find a significant positive relationship between differentiation and attraction-cohesiveness (which might be aligned with satisfaction); but a negative (though nonsignificant) relationship with effectiveness. The strong negative correlation between differentiation and primary pattern strength is to be taken merely as a necessary connection between these two concepts, since, in the limit, if the primary pattern has maximal strength there is nothing left for any competing patterns at all.

No relevant expectations can be made for the Primary Pattern Strength and Competing Pattern Strength measures since

they are new as concepts. In relation to Dispersion, however, also a new concept in the group property field, it was earlier indicated that we might reasonably expect a more dispersed group to be more attracted to the group and to be more serious about its business, because their membership is maintained at greater cost (of time and travel). In fact we find Primary Pattern Strength positively correlated with Dispersion, though not to a statistically significant degree; and also the expected correlation of Cohesion with Dispersion does emerge in regard to the identification measure, with $r = +.44$, statistically significant.

Turning to the dynamic characteristics, we should expect that two measures of Cohesion should correlate positively, which they do, with a significant correlation of .56. As will be recalled from our earlier discussion of Cohesion it is expected that it will correlate positively with Uniformity. In Table 3, both measures of Cohesion do have significant correlation coefficients with Uniformity.

The single expectation for Effectiveness was that it would correlate positively with Differentiation; which it did not. We therefore reject it as a probably invalid measure.

RELATIONSHIPS WITH BEHAVIORS

In the previous paper in this series (Cartwright and Howard, 1966) a full description was given of the factors of behavior that were obtained upon the members of gangs, using the reports made by streetworkers. The brief titles for the factors are shown in Table 4, where the correlations between group means on the factor scores and the measures of group characteristics are given.

Table 4
Correlations between Group Characteristics and Behaviors^a

Group Characteristics	Behavior Factors				
	Conflict	Corner Boy	Stable Sex	Retreatist	Property Offenses
Size	.48	-.11	.40	.21	-.20
Differentiation	-.43	.10	-.41	-.29	-.65
Primary Pattern	.74	.10	.64	.43	.54
Competing Pattern	-.11	.50	-.14	-.27	-.09
Dispersion	-.03	-.27	.39	-.37	.47
Cohesiveness (A)	-.71	.20	-.50	-.48	-.68
Cohesiveness (I)	-.54	.33	-.38	-.20	-.23
Uniformity	-.44	.19	-.11	.02	-.01

^aDecimals omitted throughout. For $N = 12$ gangs, $r \geq .50$, $p < .10$; $r \geq .58$, $p < .05$; $r \geq .71$, $p < .01$.

Table 4 shows a number of weaker results and several strong ones.

One weaker result concerns Competing Pattern Strength, which is correlated positively with Corner Boy behaviors; suggesting that these tend to be the most likely contents of a competing pattern, as found among the present gangs. Another weak but interesting result is the correlation of .47 between Dispersion and Property Offenses; which suggests that the incentives present in sufficient strength to overcome the aversive forces of distance are precisely those pertaining to the commission of serious delinquencies.

Among the strong relationships the first is the finding that Property Offenses are committed more by gangs having a less differentiated set of behavior patterns. Second, the stronger a gang's Primary Pattern Strength, the more likely it is to engage in Conflict Behaviors and in the behaviors associated with Stable Sex Maturity. Third, the greater the Cohesion of a gang (as measured by attraction) the less likely it is to engage in Conflict Behavior or in Property Offenses and Other Serious Delinquencies. Since this last result challenges the expectations of several theorists we shall focus upon its consideration in the discussion to follow.

DISCUSSION

The negative correlation between Cohesion (A) and Conflict and Property Offense behaviors stands in direct contrast to the claim of Klein (1967, p. 2) to the effect that the more cohesive gang tends to be the more delinquent. It also contradicts the assertion by Thrasher (1963, pp. 43-44) that conflict is essential to the formation of a gang:

"To become a true gang the group as a whole must move through space (linear action) and eventually . . . must meet some hostile element which precipitates conflict. Movement through space in a concerted and cooperative way may include play, the commission of crime—such as robbing or rum-running—and migration from one place to another . . .

"Conflict . . . comes in clashes with other gangs or with common enemies such as the police, park officials, and so on . . . It is as the result of collective action and particularly of conflict that the gang, especially in its solidified form, develops morale."

The ideas of "true gang," "concerted and cooperative," "collective action," "solidified," and "morale" all seem to be consistent

JULY, 1970

with the notion of cohesion, defined earlier (after Festinger) as the resultant of all the forces acting upon the members to remain in the group. We should expect that the more a gang engages in conflict, the more it would be a true gang, with concerted collective effort, solidified in form and with high morale; in short, more cohesive. But our results say that the opposite is true.

However, the fact that Primary Pattern Strength also correlates so strongly and positively with Conflict suggests the possibility that it is this kind of collective solidity—behavioral rather than attitudinal or cathectic—that is associated with (and possibly produced by) conflict. Indeed, the ideas mentioned above, of "true gang," "concerted and cooperative," and so on, are also consistent with a purely behavioral interpretation; through conflict the members become solidified in their *behavior pattern*.

There are frequent parallels in the affairs of men: political coalitions, Russia and the West united in war against Nazi Germany, these are notable examples in macrostructures. In smaller matters no less, persons are often drawn together in unison for a common cause: the signing of a petition for or against a local program, the construction and legal processing of protective covenants by a group of property-owners threatened by substandard housing in the area, and so on. In these collective actions there may be greater or lesser complexity of the common behaviors required; but in the majority of instances it is clear that a common purpose and the given set of common behaviors exhaust the list of prerequisites for membership and efficient collective action. There is no need for everybody to feel more generally attracted to the group, to feel loyalty, or any other special sentiment.

Such a purely instrumental relationship between the individual and the group is definitely not what Thrasher envisaged in his description of group unity among gangs, however. He wrote (1963, p. 195):

"This unity of the gang rests upon a certain consensus or community of habits, sentiments, and attitudes, which enable the gang members to feel as one, to subordinate themselves and their personal wishes to the gang purposes, and to accept the common objectives, beliefs, and symbols of the gang as their own. The *esprit de corps* of the gang, which is characteristic even of the diffuse type, is evident in many of its collective enterprises—in the enthusiasm of talk-fests, in its play together, its dances, its drinking bouts."

These remarks reinforce the view that Thrasher considered the gang to have a unity represented far more closely by our

measures of cohesion and uniformity. The behaviors that he mentions in reference to collective enterprises are more like those of the Corner Boy factor than of Conflict. And indeed, in Table 4 we see that the measures of cohesiveness and uniformity are positively correlated (though not significant) with the Corner Boy factor scores.

It seems reasonable that in fact Thrasher was merging two kinds of solidarity in his picture of the typical gang, a behavioral and an attitudinal solidarity. By holding this distinction firmly in mind, we may approach a more refined insight into the differences between gangs.

But, if it is proper to make the distinction between behavioral and attitudinal solidarity, calling the first unity in collective action, and the second cohesion, then we are still left with the puzzling fact that these two variables are negatively correlated over the present gangs (see Table 3) and also function in precisely opposite ways in relationship to Conflict. For there is no reason inherently why these two variables should be negatively related in general. Rather one might plausibly expect there to be no relationship at all. That is, groups displaying unity of collective action might have high cohesion or low cohesion equally well; and groups with high cohesion might or might not display unity of collective action.

One possible explanation may lie in the fact that Cohesion (A), Cohesion (I) and Uniformity may together reflect a higher-order variable of Cooperativeness versus Competitiveness. In the experiment by Deutsch (1949) on this subject a reward was provided for the group as a whole in the cooperative situation; a reward was promised only for the individual who did best in the competitive situation. A variety of interpersonal behaviors were then observed over the experimental period: "we-feeling" was rated higher for the cooperative group, they worked together more, they coordinated their efforts more, they were more attentive to each other and accepted each other's ideas more, and they were more friendly to each other; by contrast, the competitive groups were rated as more frequently playing the role of evaluator-critic (in the human-relations problem), more often having communication difficulties (this was also reported by the group members themselves), more often being an aggressor, more often being a blocker, and more often defending oneself.

The subjects in this experiment were also asked to fill out a questionnaire at the end of the period. The competitive group indicated that they felt a lesser degree of obligation to the other

group members and that they had less desire to win their respect. When asked how long it had taken them to learn the last names of their fellow group members, the competitive situation subjects said it had taken longer; moreover they more often misspelled the names of the other members of their group.

These many results appear to offer a consistent picture of a competitive group in which the members are more or less hostile to each other, even though they are all going through the same pattern of problem-solving behavior. If we are right in judging the trio of Cohesion (A), Cohesion (I) and Uniformity to characterize the degree of cooperativeness of groups, then it would follow that in the more competitive (less cohesive) groups there would be more hostility among the members, evidenced in aggression, blocking the other, defending oneself, ignoring the other's identity, paying less attention, being less friendly, and so on.

It has been noted before that members of these gangs, taken collectively, show lesser appreciation for their fellows than do members of boys' clubs for other club-members (Gordon, *et al.*, 1963). Moreover Short and Strodtbeck (1965, pp. 217 ff.) have described a lack of social assurance and a presence of dependency needs among gang boys, which, along with intellectual and experience deficiencies, they summarize as "social disability". Outstanding for our present purpose is their observation from interview data that there is a low degree of felt mutual obligation among gang members, and hence a low degree of group cohesion.

Our present results are not relevant to an argument concerning the level of cohesion among gangs in general; they are relevant to differences between gangs in degree of cohesion; or in degree of cooperativeness versus competitiveness. It is suggested by our data that gangs which engage in more Conflict Behavior and in more Property Offenses are gangs characterized by more competitive interpersonal relations among the members. When turned outward toward an enemy of the gang, these same competitive tendencies emerge as unity in the collective behaviors of fighting another gang, and in raiding property.

REFERENCES

- Cartwright, D. The nature of group cohesiveness. In: Cartwright, D., and Zander, A. (Eds.) *Group Dynamics: Research and Theory*. New York: Harper and Row, 1968. pp. 91-109.
- Cartwright, D., and Zander, A. (Eds.) *Group Dynamics: Research and Theory*. New York: Harper and Row, 1968a. Third edition.
- Cartwright, D., and Zander, A. Pressures to uniformity in groups. In Cart-

- wright, D., and Zander, A. (Eds.) *Group Dynamics: Research and Theory*. New York: Harper and Row, 1968b. pp. 11-151.
- Cartwright, D. S., and Howard, K. I. Multivariate Analysis of gang delinquency: I. Ecologic influences. *Multivariate Behavioral Research*, 1966, 1, 321-371.
- Deutsch, M. The effects of cooperation and competition upon group process. *Human Relations*, 1949, 2, 129-152, and 199-231.
- Festinger, L. Informal social communication. *Psychological Review*, 1950, 57, 271-282.
- Gordon, R. A., Short, J. F. Jr., Cartwright, D. S., and Strodtbeck, F. L. Values and gang delinquency: a study of street-corner groups. *American Journal of Sociology*, 1963, 69, 109-128.
- Haggard, E. A., Chapman, J. P., Isaacs, K. S., and Dickman, R. W. Intra-class correlation vs. factor analytic techniques for determining groups of profiles. *Psychological Bulletin*, 1959, 56, 48-57.
- Klein, M. W. (Ed.), *Juvenile Gangs in Context*. Englewood Cliffs, N. J.: Prentice-Hall, 1967.
- Miller, W. B. Lower class culture as a generating milieu of gang delinquency. *Journal of Social Issues*, 1958, 14, 5-19.
- Newcomb, T. M., Turner, R. H., and Converse, P. E. *Social Psychology: The Study of Human Interaction*. New York: Holt, Rinehart and Winston, 1965.
- Osgood, C. E., Suci, G. J., and Tannenbaum, P. H. *The Measurement of Meaning*. Urbana: University of Illinois Press, 1957.
- Short, J. F., Jr., and Strodtbeck, F. L. *Group Process and Gang Delinquency*. Chicago: University of Chicago Press, 1965.
- Thomas, E. J., and Fink, C. F. Effects of group size. *Psychological Bulletin*, 1963, 60, 371-384.
- Thrasher, F. M. *The Gang: A Study of 1,313 Gangs in Chicago*. Chicago: University of Chicago Press, 1963. (Revised and abridged edition).
- Tryon, R. C., and Bailey, D. E. The BC TRY computer system of cluster and factor analysis. *Multivariate Behavioral Research*, 1966, 1, 95-111.

Copyright 1970, by The Society of Multivariate Experimental Psychology, Inc.

END