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Development and Validation of the School Interracial Climate Scale[1]

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A scale to measure student perceptions of school interracial climate was developed. Items were written to reflect contact theory criteria for successful desegregation. Nearly 3,100 students in five middle schools responded to a pool of Likert-format items. Those responses were factor analyzed, and four factors emerged: Interdependence, Supportive Norms, Association, and Equal Status. Total scale internal consistency reliability was .89. The scale correlated highly with measures of proportion of other-race friends, cafeteria integration, classroom racial balance, and teachers' perceptions of successful desegregation. This was taken as evidence of the scale's construct validity. Students' responses to the School Interracial Climate Scale then were used to predict their attitudes in other school-related areas. Students who believed the contact theory criteria were begin met in their school had higher quality of school life scores, a higher sense of academic efficacy, and for whites, fewer perceived differences between a white and a black friend.

The 1954 *Brown v. Board of Education* Supreme Court decision held that racially segregated schools were unconstitutional. This decision has had a significant impact on American public education. Although the implemen-

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tation of the decision was delayed a number of years, the late 1960 and early 1970s saw a large number of court decisions requiring the desegregation of many of the nation's largest school systems (Kirp, 1982). Williams, Fisher, and Janis (1956) predicted that such desegregation would provide social scientists with an excellent natural laboratory for the study of intergroup contact. Others must have agreed, for in the past two decades, hundreds of studies of desegregated schools have been conducted (see Carithers, 1970; St. John, 1975; Schofield, 1978; and Stephan, 1978, for extensive reviews of the literature). Unfortunately the answer to the implicit question asked by all of these researchers still is not clear: "What are the effects of desegregation upon schools and students?" (Crain, 1976).

DESEGREGATION RESEARCH

Literature reviews consistently conclude that findings are mixed and that no apparent solutions exist to clarify the confusing results (Cohen, 1980). Researchers have offered various explanations for the apparently mixed results of their studies. For example, many of the studies have been theoretical evaluations of schools or school systems undergoing desegregation of their student and faculty populations (Schofield, 1978). While many of those evaluations have been valuable in illuminating short-term changes in desegregating schools, the atheoretical approach has limited the researchers' ability to focus on theoretically important variables, led researchers to emphasize different processes and outcomes, and reduced the comparability of the studies. In addition, there has been a dearth of reliable and valid instruments (St. John, 1975). Researchers have created their own instruments, often without testing the reliability or validity of measures in advance. Given the absence of a comprehensive theoretical guide, various researchers have examined unrelated questions, further diminishing the ability to generalize or synthesize from their findings.

The legal basis of the *Brown* decision was the court's declaration of the unconstitutionality of the "separate but equal" principle. However, the implicit theoretical basis of many social science studies of desegregation has been the proposition that blacks and whites will drop their stereotypes and their hostilities and become friends if they are brought together. This early version of contact theory (see Amir, 1976, for a thorough review) was criticized by Gordon Allport (1958) nearly three decades ago. In his classic work, *The Nature of Prejudice,* Allport discussed the effects of contact on intergroup relations and hypothesized that contact would *increase* intergroup tensions unless several conditions were present in the environment. These same conditions were the basis of Cook's "railroad study" that brought prejudiced whites into contact with blacks in optimal environments and measured the extent of attitudinal change (Cook, 1969). The Allport–Cook version of con-

tact theory holds that before desegregation within an organization can be successful, the following conditions must be met:

1. Equal status must be accorded to members of all racial and ethnic groups.
2. The organization must be structured in such a way that all groups are interdependent upon one another as they work toward common goals.
3. The social norms of that organization must support positive intergroup interactions.
4. The environment must be structured in such a way that there is potential for members of different groups to come to know each other as individuals.
5. Group members should contradict prevailing stereotypes others have of them.

These contact theory criteria are widely cited in the literature but have not been as widely used to guide desegregation research. A number of researchers believe that the work of Allport and Cook should lead us to expect outcomes dependent upon the extent schools meet the contact theory criteria (Bullock, 1978; Pettigrew, Useem, Normand, & Smith, 1973). According to this line of thought, schools where the contact criteria are present should have relatively harmonious intergroup interactions and positive intergroup attitudes. Schools where the contact criteria are absent should have relatively negative intergroup relations.

SCHOOL SOCIAL CLIMATES

The presence or absence of the conditions specified by contact theory can be conceptualized as indicators of a school's interracial climate. Moos (1973) identified the study of organizational climates as one important way of coming to an understanding of environmental impacts upon human beings. Assessing environmental climates typically has involved asking various members of an organization or locale to indicate the extent of their agreement or disagreement with a number of statements concerning the nature of the social environment. The social climate of a wide range of human environments has been studied. Trickett and Moos (1973, 1974) examined the classroom environments of a number of different high schools in terms of both academic and interpersonal dimensions. Davidson, Hofmann, and Brown (1978) assessed the interracial climates of Indianapolis high schools. Schneider (1973) measured bank customer perceptions of their bank's organizational climate and related those perceptions to the probability that customers would take their accounts to another bank. Pargament, Silverman, Johnson, Echemenda, and Snyder (1983) measured the environmental climates of religious congregations and found important differences by size, race, and denomination.

In discussing environmental climate as a theoretical construct, Pargament et al. (1983) stated that it "has been used to refer to psychologically meaningful representations of an environment.... [it is] a central cognitive construct which intervenes between the setting and the attitudes and behavior of the individual" (p. 353). They further noted that the use of the concept of climate in this way involves three assumptions. The first assumption is that different environments have different climates. This assumption is similar to Moos's (1973) assertion that different environments have distinctive "personalities" in much the same way that people have different personalities. The second assumption is that climate is a psychosocial construct. This construct is related both to the nature of the setting and to the personal qualities of those who are a part of that setting. In asking an organization's members for their perceptions of the organization, one receives information both about the setting being described and about the persons describing it. The third assumption of those who study environmental climates is that the milieu and the individual affect each other in a reciprocal fashion. There is no unidirectional line of causation from one to the other; both are constantly changing each other. Kaye, Trickett, and Quinlan (1976) offer evidence that environmental climate ratings are consistent in important ways with other means of assessing the social environment such as ratings by outside observers and content analysis of verbal interactions. Climate ratings, then, are not simply reports of a "shared myth" to which organization members subscribe. The ratings can be useful ways of gaining important information about the environment.

The present study was designed to develop a reliable and valid measure of the interracial climate of desegregated schools based on the contact theory criteria. The resulting scale was used to assess the extent to which five middle schools met the various contact theory criteria for successful desegregation. Student responses to the scale were used to help predict their attitudes toward their school, their attitudes toward other-race students, and their sense of control over their academic efforts.

CONSTRUCTION OF THE SCALE

Method

Scale

Approximately, 3,300 middle school students (Grades 5-8) from five different schools in a Southeastern community responded to the questionnaire items. Fifty percent of the students were male and 50% were female.

Of the respondents 70% were white and 30% were black, a ratio that was closely approximated in each school. All students who failed to answer four items or more were excluded from the data set. An additional 462 students did not respond to three or fewer items; 75% of those failed to answer only one item. No item or set of items was overrepresented among those unanswered. For these students, stepwise multiple regression was used to estimate missing values on the interracial climate scale (Brown, 1977). The final data set contained 3,082 students.

Scale Development

Statements were written to reflect the four contact theory criteria that deal with the nature of the social environment (equal status, supporting social norms, interdependence, and acquaintanceship potential). Ideas for a number of items were obtained from short essays written by 30 middle-school students concerning black–white student relations.[3] An initial pool of 61 Likert-type items was developed. The 5-point response continuum ranged from strongly agree to strongly disagree. The item pool was administered to students in each of the five schools in the spring of 1980.

Because of the possibility that black and white students would differ in their view of the interracial climate, the response of the black and white students were analyzed separately. This made it possible for the factor structures of the two groups to be compared. A decision then was made as to whether separate scales would be needed for blacks and whites or whether one scale could be used for all students (Mulaik, 1972). The scores were standardized so that the pooled within-group variances were 1.0 for each item. Variance/covariance matrices were calculated separately for whites and for blacks. The matrices were then factor analyzed separately, and four factors emerged for each group. Several indices revealed that the factor structures of black students and white students were very similar. Coefficients of factor congruence ranged from .90 to .95, indicating that the four factor of the white group were nearly identical to the four factors of the black group. The size of the loadings of the items of the factors was similar, as was the percentage of variance accounted for by each of the factors. Because these three measures strongly suggested that the factor structures for the two groups were very similar, the responses of the black and white students were combined and further analyses utilized data provided by both white and black students.

[3]It is possible that some of these students may have been asked to respond to the items we developed. At the most, however, they would constitute less than 1% of the sample, and any risk their inclusion might entail is slight.

Reliability

Subjects' responses were randomly divided into an item analysis sample ($N = 1{,}504$) and a cross-validation sample ($N = 1{,}578$). Factor analyses were performed on the item analysis sample to determine the factor structure of the items. Reliability coefficients were calculated on the cross-validation sample. This cross-validation procedure reduced the likelihood that spuriously high correlations between two or more variables found in one sample would both distort the factor analysis and inflate the reliability estimates. Working with the item analysis sample, a correlation matrix was computed for the 61 items. Communality estimates of each of the variables were calculated using multiple R^2s. A principal axes factor analysis was performed (Guertin & Bailey, 1970) and both orthogonal and oblique rotations were tried and compared. The items that loaded most highly on the emergent factors were chosen to form subscales representing those factors. After selecting the items for the final scale, total scale and subscale reliability coefficients were computed on the cross-validation sample.

Validation

Data were collected on a number of other variables to provide information on the construct validity of the scale. In each instance, the object was to see if the school means varied on the interracial climate scale in a predictable manner that was related to the school means on each of the validation criteria. Six measures were used to test the validity of the scale.

Other-Race Friends. Students were asked to indicate the proportion of their friends who were of a different race than they from 1 (almost none of my friends) to 5 (almost all of my friends).

Cafeteria Integration. The number of interracial seating adjacencies in the school cafeterias was plotted, coded, and converted into standard score measure (Campbell, Kruskal, & Wallace, 1966). This could be considered the behavioral analog of the other-race friend question. The expected number of black/white adjacencies assuming randomness is subtracted from the number of observed adjacencies. The difference is then divided by the standard deviation of the adjacencies assuming randomness, a process that is comparable to z-score computations. Negative numbers indicate more aggregation than under randomness and positive numbers indicate less aggregation than under randomness. This technique was used successfully by Schofield and Sagar (1977) in coding interaction in a desegregated middle school in Pittsburgh, PA.

Attitudes Toward School. The Battle Attitude Toward School Scale (Damico, Hines, & Northrop, 1975) was administered, and black/white differences in general attitudes toward school were computed.

Classroom Resegregation. Another measure was based on Koslin, Koslin, Pargament, and Waxman's (1972) findings that resegregation by classroom within a desegregation school is related to negative desegregation outcomes. The amount of resegregation that occurred within the five schools of the sample was determined by comparing a random sample of classroom racial ratios with the overall 70/30 ratio found in each school.

Multicultural Orientation. Using questions from a teacher survey developed by the National Opinion Research Center (NORC; Narot, 1973), faculty members indicated the extent to which their schools had a generally multicultural orientation that reflected and included minority as well as majority persons and interests.

Teacher beliefs about the success of desegregation at their schools were measured by asking other questions from the NORC study (Narot, 1973).

Each of these measures was correlated with the total scale score of the interracial climate scale. It was predicted that schools where students had more positive responses on the interracial climate scale would be schools with a higher proportion of other-race friends, greater racial integration in the school cafeterias, less within-school resegregation by classroom, a more multicultural orientation, and more positive teacher ratings concerning the success of desegregation. Positive correlations therefore were predicted between the climate scale and each of these validation measures. A negative correlation was predicted between the climate scale and the black/white difference measure of the attitude toward school scale. This prediction was based on the hypothesis that fewer black/white differences in school attitudes would be related to higher climate scale scores and greater black/white differences should be associated with lower climate scale scores.

Results

Scale Development and Reliability

A principle axes factor analysis was performed on the item analysis sample and a five-factor solution seemed most satisfactory when evaluated by criteria summarized in Mulaik (1972). The eigenvalue of the sixth factor was significantly smaller than that of the fifth factor and accounted for much less of the variance among the items. The conceptual clarity of the six-factor solution was poor as well. For these reasons, five principal axes factors were

rotated to both orthogonal (Varimax) and oblique (Simple Loadings) solutions. There were moderate interfactor correlations in the oblique rotation, ranging from .09 to −.53. The oblique solution also provided better simple structure, as there were fewer items that had high loadings on more than one factor. The oblique approach therefore was preferred.

The first factor of the analysis was composed almost entirely of items written to measure the concept that all groups are interdependent as they work toward common goals. The factor was named "Interdependence." The second factor consisted of items written to measure student perceptions of the organizational norms. Nearly all of the items specifically reflected teacher and/or principal expectations and desires. All items were phrased in a positive direction, and the factor has been labeled "Supportive Norms."

The third factor contained negatively worded items reflecting Cook's proposal that intergroup interactions should present the individual involved with an opportunity for personal friehdship. The factor has been labeled "Association." The criterion of "Equal Status" was reflected in the fourth factor. A number of status sources were represented (i.e., administration, faculty, and peer sources of status), and there were a balance of positively and negatively worded items. The fifth factor was important from the factor analysis perspective; its inclusion in the factor rotation was necessary for the clear emergence of the first four factors. Few items loaded highly on the fifth factor, however, and it was not clear conceptually. Consequently, the factor was not used as a basis for selecting items for the final scale.

Items that constituted the first four factors were ordered according to the size of the loadings on each factor. Those items with loadings greater than .35 on a factor were selected to represent that factor as subscale of the final version of the School Interracial Climate Scale (SICS). The items selected to form each subscale and their loadings on the factors represented by the subscales can be found in Table I. The complete scale comprises 43 items.

The internal consistency reliability of the SICS was calculated on the cross-validation sample using Cronbach's alpha (Cronbach, 1951). The total test reliability was .89, indicating that, even though the scale was multidimensional, at a higher level of abstraction the items reflected the same construct. The interdependence subscale had an alpha coefficient of .74; supportive norms, .67; association .68; and equal status, .66.

Validity

Schoolwide means were computed for the total score of the SICS and were correlated with means for each school on the six validation measures. The SICS scores were highly correlated with the proportion of students' other-

race friends, the amount of racial integration in the schools' cafeterias, the amount of classroom racial balance within the schools, and the attitudes of each teacher toward their own school's desegregation, (Table II).[4]

Two of the validity coefficients did not support our hypothesis. Black/white differences in general attitude toward school were correlated in the opposite direction than was predicted. Few differences between black and whites were obtained in general attitudes toward school at any of the five schools, however. The fact that these difference scores were all near zero makes the correlation coefficient difficult to interpret. A positive correlation was expected between the School Interracial Climate Scale and the discussion of racial issues in school classes. It was believed that such discussions would occur in schools with more favorable interracial climates. However, a negative correlation was obtained between these measures. Discussions with school personnel indicated that teachers were more likely to conduct such discussions when they were having trouble with interracial issues. Rather than being a sign of acceptance and appreciation of difference, the discussions were largely unsuccessful attempts to reduce classroom tensions and hostilities. The large size of many of the validity coefficients, and the fact that 11 of the 13 coefficients calculated were in the predicted direction, offer some evidence of the construct validity of the scale being developed.

PREDICTING STUDENT ATTITUDES

Method

Sample

Approximately one-third of all the students in each of the five schools who took the School Interracial Climate Scale also responded to a series of questions concerning their perceptions of their school, their impressions of same- and other-race friends, and their sense of control over their academic achievement. These students were randomly selected from each school. A sample of 767 students was obtained, with 538 whites and 229 blacks. There were nearly equal numbers of male and female students.

[4]When one is working with a small sample, yet wishes to retain the relative subtlety or parametric as opposed to nonparametric correlational procedures, Hayes (1963) recommended the use of the Pearson product-moment correlation to determine the magnitude of the relationship between two variables. At the same time, he suggested that the probability levels associated with coefficients be ignored as unreliable when based on a sample as small as the one employed in this study ($n = 5$ schools). This is the procedure followed here. The correlation coefficients presented in Table II, therefore, are descriptive measures only; no inference can be made to a broader population. Given the scale development purposes of the present study, that does not seem to be a major limitation.

Table I. Subscale Structure of the School Interracial Climate Scale

Factor loading	Item content
	Factor 1: Interdependence
.66	Black and white students in this school need each other.
.64	Blacks and whites have important things to offer each other.
.60	After blacks and whites get to know each other, they find they have a lot in common.
.54	Blacks and whites are better off when they work together than when they stay away from each other.
.53	Black and white students at my school are all working together for the same things.
.51	Students at this school think it's good to get to know other students of different races.
.49	Black and white students help each other in my classes.
.47	Students of different races at my school work together well in the student activities.
.46	Students here like to have friends of different races.
−.44	It's better when schools have students of just one race.
.43	Black and white students play games together at this school.
.40	If people of different races don't play and work together, they suffer for it.
.38	Students of different races at my school have to get to know each other at one time or another.
.37	Going to this school helps me understand people of different races.
.36	Other students expect you to have friends of different races.
	Factor 2: Supportive Norms
.74	The principal and assistant principals encourage students to make friends with students of different races.
.71	Teachers encourage students to make friends with students of different races.
.70	My principal and assistant principals think than all students should be friends.
.68	Teachers here like for students of different races to understand each other.
.67	Teachers here like for students of different races to get along.
.50	This is a school in which everybody is encouraged to be friends.

.46	My teachers feel good when people of different races become friends.
.45	Teachers think students ought to get along with both blacks and whites.
.42	If students of one race were being mean to students of a different race, our principal would try to help them solve their problems.
.39	Black and white teachers at this school work well together.
	Factor 3: Association
.64	I talk to students of different races only when I have to.
.53	My friends would think badly of me if I ate lunch with student of a different race.
.46	I often go through a whole school day and never say more than a few words to a student of a different race.
.43	You have to be a particular race to get any privileges at this school.
.42	People of different races just *don't* like being together.
.41	My teachers think that students should sit only with other students of their own race.
.40	Students *don't* like for other students to include people of different races in their activities.
.40	Students of different races *don't* have much to do with each other at this school.
.37	White students dislike other white students who spend too much time with their black friends.
	Factor 4: Equal Status
.60	Teachers at this school are fair to both black and white students.
.59	All students at this school are treated equally.
.52	Teachers at this school pay attention to both black and white students.
.51	I don't know of any race that gets special treatment at this school.
.47	The principal and assistant principals treat students of all races fairly.
−.45	Some students at this school get more opportunities to do things because of their race.
−.43	Students of one race get special treatment at this school.
−.37	Teachers treat me badly because of my race.
.36	Each student here has an equal chance to get into the most important student activities.

Table II. Correlations Between the SICS and the Construct Validation Measures

		Correlation
1.	Number of other race friends	.89
2.	Cafeteria racial interaction	.77
3.	White/black school attitude differences[a]	.44
4.	Classroom racial balance	.43
5.	School multiculturalness	
	Are multiethnic texts used?	.61
	Are there special projects dealing with intergroup problems?	.14
	Are there class discussions on race?	−.20
	Is there a class on minority group history or culture?	.33
6.	Teacher attitudes	
	Is desegregation working?	.60
	Is there contact between black and white pupils?	.57
	Are any teachers unfair to blacks?	.65
	Are any teachers unfair to whites?	.97
	Are school activities integrated?	.88

[a]Negative correlation was predicted.

Measures

Contact. A measure was derived from the School Interracial Climate Scale which assessed the number of contact dimensions present for each individual. Each student's scores on the SICS subscales (equal status, interdependence, supportive norms, and association) were calculated by summing the responses to the individual items and dividing by the number of items per subscale. The median subscale score was found, and individual scores were compared with the median. If a student's subscale was above the median, he or she was assigned a score of 1 for that subscale. If the subscale score was below the median, a score of 0 was assigned. The new scores for each subscale were summed, creating a contact score that ranged from 0 (below the median on all four subscales) to 4 (above the median on all four subscales). This procedure was used to assess the number of contact theory criteria the student perceived as being relatively present in his or her school. A sum of all subscale scores could be affected by extreme scores on one dimension; this measure provides, in a straightforward manner, information about the number of criteria the students believe is present in their school. Students were nearly evenly distributed across the five levels of the new contact variable.

Quality of School Life. Students were asked two questions pertaining to the quality of life they perceived at their school. The first question was, "Is this a good school or a bad school?" and the second question asked, "Is this a friendly school or an unfriendly school?" Both questions were answered

on a 5-point Likert response continuum that ranged from very good (friendly) to very bad (unfriendly).

Friend Ratings. Students also were asked to rate both a white friend and a black friend on a series of traits (cooperative/uncooperative, energetic/lazy, sloppy/near, pleasant/unpleasant, dependendable/undependable, trustworthy/untrustworthy, intelligent/slow, friendly/hostile, resentful/helpful, and clean/dirty). Responses again were measured on a 5-point continuum, then summed for each friend. Other-race friend ratings were subtracted from same-race friend ratings so that a difference score was obtained. Positive difference scores indicated that the same-race friend was rated more positively; negative difference scores indicated that the other-race friend was rated more positively. A score of 0 represented equal ratings for the two friends.

Academic Efficacy. Students were asked 12 questions pertaining to their perceptions of the academic climate in their school. The questions were used by Brookover et al. (1978) in their studies of students' sense of control over their academic achievements. The questions related to student norms for doing well or for doing poorly in school, individual sense of control over academic performance, and students' sense of teacher support for doing good schoolwork. The items were measured on a 5-point response scale; the responses were summed and divided by 12. A score of 5 indicated the highest sense of academic efficacy and a score of 1 corresponded to the lowest sense of efficacy.

Analyses

Separate 5 × 2 (Contact × Sex) factorial multivariate analyses of variance were performed for black and white students with the two quality of school life questions, the difference in friend ratings, and the academic efficacy score as dependent measures. Analyses were done separately for the two race groups because of the desire to examine qualitative as well as quantitative differences between them. Sex was included as an independent variable because of the numerous findings that sex differences are important in understanding school desegregation processes (Schofield, 1982). Information pertaining to differences among the five schools is reported by Damico, Bell-Nathaniel, and Green (1981).

Results

White Students

A 5 × 2 (Contact × Sex) factorial multivariate analysis of variance (based on Wolk's criteria) for white students yielded a significant main ef-

Table III. Dependent Variable Means for Each Level of "Contact" for White Students

	Number of Climate Scale subscales on which students scored above the median[a]				
	0	1	2	3	4
Good/bad school[b]	2.39_a	2.88_b	3.11_b	3.34_b	3.88_c
Friendly/unfriendly school[b]	2.66_a	3.08_b	3.19_b	3.44_b	3.80_c
Perceived differences in same and other race friends[c]	1.06_a	$.72_b$	$.44_{bc}$	$.33_c$	$.24_c$
Sense of academic efficacy[b]	3.66_a	3.76_a	3.91_b	3.84_{ab}	4.09_c

[a]Within rows, means with different subscripts are significantly different from each other at $p < .05$, Duncan's Multiple Range test.
[b]Larger numbers indicate more positive responses.
[c]Smaller numbers indicate fewer perceived differences.

fect for contact, multivariate $F(16, 1604.5) = 14.88, p < .001$, and for sex, multivariate $F(4, 525) = 5.94, p > .001$. The interaction of contact and sex was not significant, multivariate $F(16, 1604.5) = 1.31, p < .201$.

In order to identify the sources of the significant multivariate effects, separate Contact × Sex univariate factorial analysis of variance were performed on each of the four dependent variables. Follow-up means tests were done using Duncan's Multiple Range Test.

Significant effects for the contact variable were found for all four dependent measures (Table III). Those students who saw more of the contact criteria present in their school also perceived that their school was a good place rather than a bad place, $F(4, 528) = 31.19, p < .001$, and a friendly place rather than un unfriendly place, $F(4, 528) = 27.21, p < .001$. Higher contact scores were associated with perceiving fewer differences between white and black friends, $F(4, 528) = 17.37, p < .001$. Students with higher contact scores also had a greater sense of academic efficacy than students who reported their school met fewer of the contact criteria, $F(4, 528) = 14.32$, $p < .001$. There was a monotonic increase in each dependent measure across the five levels of contact, indicating that for every additional contact criterion perceived to be present in the environment, there was a corresponding increase, not always statistically significant, in positive responses to the dependent measures.

Gender differences were found for the two quality of school life questions. Females were more likely to see their school as a good place than were males (3.45 vs. 2.91), $F(1, 528) = 18.14, p < .001$. They also believed their school to be a friendlier place than did their male classmates (3.48 vs. 3.08), $F(1, 528) = 13.03, p < .001$.

Table IV. Dependent Variable Means for Each Level of "Contact" for Black Students

	Number of Climate Scale subscales on which students scored above the median[a]				
	0	1	2	3	4
Good/bad school	2.04_a	2.56_{ab}	2.98_{bc}	3.28_{bc}	3.76_c
Friendly/unfriendly school	2.74_a	2.85_a	3.49_b	3.52_b	3.73_b
Sense of academy efficacy	3.38_a	2.48_a	3.52_a	3.61_a	3.92_b

[a]Within rows, means with different subscripts are significantly different from each other at $p < .05$, Duncan's Multiple Range test. Larger numbers indicate more positive responses.

Black Students

A Contact × Sex factorial MANOVA (based on Wilk's criteria) for the black students yielded a significant main effect for contact, multivariate $F(16, 660.5) = 5.76$, $p < .001$, and for sex multivariate $F(4, 216) = 5.09$, $p < .001$. The Contact × Sex interaction was not significant, multivariate $F(16,660) = 1.46$, $p < .11$.

In order to identify the sources of the significant multivariate effects, separate Contact × Sex factorial univariate analyses of variance were performed on each dependent variable and Duncan's Test again was used to specify differences among cell means.

Analyses of the responses of the black students indicated that there were significant effects for contact for three of the four dependent measures (Table IV). Those students who saw more contact theory criteria present in their environment also perceived their school as a better place, $F(4, 219) = 13.33$, $p < .001$, and a friendlier place, $F(4, 219) = 8.36$, $p < .001$, than those students who saw fewer criteria being met. There was also a significant effect for academic efficacy; those students who were above the median on all four contact subscales also were higher than all other students in their sense of control and support academically, $F(4, 219) = 8.33$, $p < .001$. No differences for contact were found for patterns of rating black and white friends.

Two gender differences were found among black students. Males' ratings of their black friends were only slightly more positive than their ratings of their white friends (difference score = .04). The ratings of the females showed greater in-group bias (difference score = 0.14), $F(1, 219) = 10.48$, $p < .001$. At the same time, black females had higher academic efficacy scores than black males (3.72 vs. 3.53), $F(1, 219) = 6.97$, $p < .01$.

The SICS provides evidence to support the Allport–Cook version of contact theory. Both Allport and Cook predicted that the conditions under which interracial contact takes place would have an important impact upon the nature of the interracial behaviors and relationships that would develop. Amir's (1976) review of the literature generally supported this view of interracial contact; circumstances of contact are important in determining its effects.

DISCUSSION

The scale development analyses indicated that the School Interracial Climate Scale is a reliable and valid instrument that can be useful in the study of school desegregation. The validation results show that the scale correlated with the proportion of students' other-race friends, the multicultural orientation of the school, teacher perceptions about the success of desegregation at the school, a good distribution of black and white students throughout the school's classrooms, and the relative integration of black and white students in the school cafeteria at mealtime. The validation measures represent a variety of constructs, measured in a variety of ways, which increases confidence in the construct validity of the scale. However, because there is no accepted standard against which to compare the results of the SICS, concurrent validity cannot be assessed. In addition, the sample of five schools is very small, and the scale needs to be tested in other locations.

The use of the scale to predict individual students' attitudes illustrated the transactional nature of environmental climates; there were differences not only among schools but also among students within schools. The SICS can be used to summarize global perceptions within schools, and compare the average responses from one school to average responses at another school. It can be used to compare the perceptions of different groups within a school. The attitudes of individual students also can be measured so that personal beliefs and experiences can be better understood.

The SICS was predictive of a number of conceptually different dependent variables. General attitudes toward school, ratings of same- and other-race friends, and sense of academic efficacy all were affected by students' perceptions of their school's interracial climate. The effects of those perceptions are not limited to scope; one's views about interracial climate are associated with many important aspects of one's schooling. It is important to note that this is true for both white and black students. White students who perceived a relatively negative interracial climate were less positive in their views of their school as a good or a friendly place. They also were much less egalitarian in their ratings of white and black friends. Those white stu-

dents with a contact score of three or four rated their friends with significantly less regard for race than did thier peers with contact scores of zero or one. The perceived interracial climate also affected perceptions of the academic climate for black and white students. This suggests that in desegregated settings the academic performance of all students is related to successful integration in the school.

Blacks' perceptions of the interracial climate affected their general perceptions of school and their sense of academic efficacy as well. Contact had no impact on black students' ratings of same- and other-race peers, however. All black students tended to see their white and black friends similarly regardless of their contact scores, with the similarity being greater for males than for females. It is possible that because blacks made up only 30% of their schools' populations, most of them were forced to become acquainted with white as well as black students. Their smaller percentage would make them more likely than whites to be seated next to an other-race student in class, for example. The "forced" integration may give them less control over the development of their friendships and may in turn permit black students to interact with others with less consideration for race.

There were a few gender differences in students' responses. White females were more positive in their evaluations of the quality of school life than were their male peers. Black males perceived fewer differences between their white and black friends than did black females, which is consistent with other studies that show black males are more likely to have integrated friendship circles than black females (Schofield, 1982). Black females' academic efficacy scores were higher than the scores of black males. This may be related to Felice's (1981) finding that in one community black males were slightly more likely than black females to drop out of school before they received a diploma. His study indicated that black students who drop out of school do so primarily because of their belief that nothing they do in school will improve their chances for a successful life.

In his review of research presented to the Supreme Court in the Social Science statement that was part of the 1954 *Brown v. Board of Education* decision, Cook (1984) reaffirmed his belief that the contrast theory criteria are important determinants of successful desegregation. Our research provides support for Cook's contentions that positive interracial environments do exist in some desegregated schools. Those climates, in turn, are associated with school experience for both black and white children in the ways predicted by contact theory.

The present findings suggest that the School Interracial Climate Scale could be used by researchers in a variety of ways as they study desegregated schools. As in the present study, the perceptions of interracial climate could be used as an independent variable predicting the effects of the perceived

climate on other important measures. The SICS could also be used as a dependent variable in tests of the effectiveness of one or more desegregation strategies. As a reliable, valid, and theoretically based scale it can help researchers come to a better understanding of the social processes that occur within desegregated schools.

REFERENCES

Allport, G. W. (1958). *The nature of prejudice.* Reading, MA: Addison-Wesley.

Amir, Y. (1976). The role of intergroup contact in change of prejudice and ethnic relations. In P. A. Katz (Ed.), *Towards the elimination of racism* (pp. 245-308). New York: Pergamon Press.

Brookover, W. B., Schweitzer, J. H., Schneider, J. M., Beady, C. H., Flood, P. K., & Wisenbaker, J. M. (1978). Elementary school social climate and school achievement. *American Educational Research Journal, 15,* 301-318.

Brown, M. B. (Ed.). (1977). *BMDP-77 Biomedical computer programs, P-series.* Los Angeles: University of California Press.

Bullock, C. S. (1978). Contact theory and racial tolerance among high school students. *School Review, 86,* 187-216.

Campbell, D. T., Kruskal, W. H., & Wallace, W. P. (1966). Seating aggregation as an index of attitude. *Sociometry, 29,* 1-15.

Carithers, M. W. (1970). School desegregation and racial cleavage, 1954-1970: A review of the literature. *Journal of Social Issues, 26,* 25-47.

Cohen, E. G. (1980). Design and redesign of the desegregated school: Problems of status, power, and conflict. In W. G. Stephan & J. R. Feagin (Eds.), *School desegregation: Past, present, and future* (pp. 251-280). New York: Plenum Press.

Cook, S. W. (1969). Motives in a conceptual analysis of attitude-related behavior. In W. J. Arnold & D. Levine (Eds.), *Nebraska symposium on motivation* (Vol. 17, pp. 179-235). Lincoln: University of Nebraska Press.

Cook, S. W. (1984). The 1954 social science statement and school desegregation: A reply to Gerald. *American Psychologist, 39,* 819-832.

Crain, R. L. (1976). Why academic research fails to be useful. In F. H. Levinsohn & B. D. Wright (Eds.), *School desegregation: Shadow and Substance* (pp. 31-45). Chicago: University of Chicago Press.

Cronbach, L. J. (1951). Coefficient alpha and the internal structures of tests. *Psychometrika, 16,* 297-334.

Damico, S. B., Bell-Nathaniel, A. M., & Green, C. W. (1981). Effects of school organization structure on interracial friendship in middle schools. *Journal of Educational Research, 74,* 388-393.

Damico, S. B., Hines, V. A., & Northrop, J. C. (1975). Battle student attitude scale. In S. B. Damico, V. A. Hines, & J. C. Northrop, *The measurement of pupils' attitudes toward school: A handbook for teachers.* Gainesville: P. K. Yonge Laboratory School and Florida Educational Research and Development Council.

Davidson, J. D., Hofmann, G., & Brown, W. R. (1978). Measuring and explaining high school interracial climates. *Social Problems, 26,* 50-70.

Felice, L. G. (1981). Black student dropout behavior: Disengagement from school rejection and racial discrimination. *Journal of Negro Education, 49,* 415-424.

Guertin, W. H., & Bailey, J. P. (1970). *Introduction to modern factor analysis.* Ann Arbor: Edwards Brothers.

Hayes, W. L. (1963). *Statistics for psychologists.* New York: Holt, Rinehard & Winston.

Kaye, S., Trickett, E. J., & Quinlan, D. M. (1976). Alternative methods for environmental assessment: An example. *American Journal of Community Psychology, 4,* 367-377.

Kirp, D. L. (1982). *Just schools.* Berkeley: University of California Press.

Koslin, S., Koslin, B., Paragament, R., & Waxman, H. (1972). Classroom racial balance and students' interracial attitudes. *Sociology of Education, 45,* 386-407.

Moos, R. H. (1973). Conceptualization of human environments. *American Psychologist, 28,* 652-665.

Mulaik, S. A. (1972). *The foundations of factor analysis.* New York: McGraw-Hill.

Narot, R. E. (1973). Teacher prejudice and teacher behavior in desegregated schools. In *Southern schools: An evaluation of the effects of the emergency school assistance program and of school desegregation* (Vol. 2). Chicago: National Opinion Research Center.

Pargament, K. I., Silverman, W., Johnson, S., Echemendia, R., & Snyder, S. (1983). The psychosocial climate of religious congregations. *American Journal of Community Psychology, 11,* 351-382.

Pettigrew, T. F., Useem, E. L., Normand, C., & Smith, M. S. (1973). Busing: A review of "The Evidence." *Public Interest, 30,* 88-118.

St. John, N. H. (1975). *School desegregation outcomes for children.* New York: Wiley.

Schneider, B. (1973). The perception of organizational climate: The customer's view. *Journal of Applied Psychology, 57,* 248-256.

Schofield, J. W. (1978). School desegregation and intergroup relations. In D. Bar-Tal & L. Saxe (Eds.), *Social psychology of education* (pp. 329-363). New York: Wiley.

Schofield, J. W. (1982). *Black and white in school: Trust, tension, and tolerance?* New York: Prager.

Schofield, W., & Sagar, H. A. (1977). Peer interaction patterns in an integrated middle school. *Sociometry, 40,* 130-138.

Stephan, W. G. (1978). School desegregation: An evaluation of predictions made in *Brown v. Borad of Education. Psychological Bulletin, 85,* 217-238.

Trickett, E. J., & Moos, R. H. (1973). Social environment of junior high and high school classrooms. *Journal of Educational Psychology, 65,* 93-102.

Trickett, E. J., & Moos, R. H. (1974). Personal correlates of contrasting environments: Student satisfaction in high school classrooms. *American Journal of Community Psychology, 2,* 1-12.

Williams, R. M., Fisher, B. R., & Janis, I. C. (1956). Educational desegregation as a context for basic social research. *American Sociological Review, 21,* 577-583.