Patterns of racial segregation in university residence dining-halls

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Social psychologists have long been interested in the effects of 'contact' between racial groups. The conditions under which this contact can manifest have usually been experimentally manipulated in order to determine optimal combinations. A shortcoming of this approach is that it constructs contact situations that are unnatural and contrived. Some researchers have proposed an approach that examines contact as a natural phenomenon (Dixon & Durrheim, 2003). The present research adopts this approach, and reports on a naturalistic, observational study of 'contact' between students in university residence dining-halls. Seating patterns of students were observed for one month and analysed along dimensions of spatial variation. The results show high levels of informal segregation and that the segregation manifests as a specific spatial configuration. Such results, which occur despite the presence of apparently favourable conditions, illustrate how this approach may lead to different conclusions to those achieved through experimental manipulation.

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Social psychologists have a long-standing interest in the effects of contact on intergroup relations. According to the contact hypothesis, 'regular interaction between members of different ethnic or racial groups promotes intergroup harmony and must therefore be facilitated' (Dixon & Reicher, 1997, p. 361). Contact researchers tend to insist that interaction (contact) should occur under certain ideal conditions. Originally posited by Allport (1954), these conditions include that the groups should be of equal status, should work in co-operation towards common goals and should have the support of institutional authority (cf. Pettigrew, 1997).

These so-called optimal conditions have attracted a large amount of attention from researchers over the years since Allport's original pronouncement. Although early contact studies examined contact in natural settings (Brophy, 1946; Deutsch & Collins, 1951), most methodologies have either manipulated contact in a laboratory setting or elicited self-reports of contact using standard questionnaires. Many researchers have attempted to test and refine Allport's (1954) classic version of contact theory. Others have identified a range of further conditions for promoting favourable contact, resulting in an open-ended and still-growing 'laundry list' (Pettigrew, 1998, p. 69) of optimal conditions.

Since these conditions are studied primarily through experimental manipulation, their relevance to concrete processes of interaction within everyday settings is questionable. The forms of contact examined in experimental settings are arguably rare in everyday life (Amir, 1969). Moreover, experimental research may mask everyday obstacles to social change. For example, within the laboratory setting, the context is typically engineered to ensure that interaction between members of different groups is extensive. In everyday life, by contrast, people may choose to maintain racial boundaries and distances, thus limiting the extent of their interaction with others, even within apparently desegregated contexts (e.g., see Schofield & Sagar, 1977; Dixon & Durrheim, 2003). The behavioural and psychological processes that underlie this form of 'preferential segregation' are clearly central to the success of programmes for promoting racial integration. However, with a few exceptions, they have not featured prominently in psychological research (see the introduction to the special focus section of this issue for further discussion of this theme).

The present study consisted of a naturalistic and observational study of intergroup contact in an everyday setting, namely, a university residence dining-hall. The aim of the study was to shed light on some of the processes that help to regulate contact, enabling structures of informal segregation and/or integration to emerge within the intimate arenas of everyday life.

Our focus was on how the social space of the dining-hall was occupied, used and organised. Although it is often treated as the inert background (Dixon, 2001), we believe that the spatial organisation of everyday relations is central to understanding the nature of contact *in situ*. Along these lines, for example, Sibley (1995) notes 'how dominant groups are able to regulate their relations with others by controlling the design and use of social space' (p. 599).

This idea is powerfully illustrated by the history of South African society, where the partitioning of space was fundamental to the practical logic and psychology of apartheid. Formal segregation did not merely serve to separate races: it also inscribed racial meanings and identities within the concrete organisation of social space. Group members were encouraged to identify with some social spaces, where they could relax and feel at home, and to dis-identify with others, where they were foreign or 'out of place'. Intertwined with the formal legal apparatus of apartheid was a supporting psychology of boundary construction whose grip on South African society has not been eradicated.

In contemporary South Africa, in spite of vast social and political changes within the country, racial segregation continues to occur (Christopher, 2001), often taking the form of informal and seemingly 'voluntary' practices (e.g. Dixon & Durrheim, 2003). Why is this the case? Clearly, this is an extremely complex question, requiring an analysis of wider historical, economic and institutional conditions. However, we believe that the concept of spatial identities may help to provide a partial answer, an idea to which we shall return in our conclusion. As we have implied above, this concept designates a racialised 'zone of comfort', a region of social space in which racial and spatial boundaries are recognisably intertwined, serving to demarcate 'us' and 'them'. How much contact groups have with one another may sometimes depend on their willingness to venture beyond these secure and familiar 'comfort zones'. Although such spatial identities may operate at varying geopolitical scales, our study focused on relations located at a relatively intimate scale; that is, relations expressed, reproduced and maintained within the micro-ecology of seating arrangements over time in a student dining-hall.

METHOD

The observed population

University students dining at two of the largest dining-halls among the catering residences of the University of Cape Town were observed. MT and FT will denote these dining-halls in this article, each hosting greater proportions of male and female students respectively. These students are neither limited to any specific academic field nor level, nor race group. The MT and FT dining-halls host three and four residences, respectively, for meals. The proportions of racial groups that dine in each of the dining-halls can be seen in Table 1.

The distribution (Table 1) reflects a disproportion in numbers among various racial groups, with black and white racial groups predominating. In this study, the focus was therefore limited to students belonging to these race groups. Disproportion in numbers of white (minority) and black (majority) students was borne in mind when results were interpreted, as this may have affected the observed level of interaction. However, such numeric inequality may on the other hand highlight interesting dynamics of the minority-majority utilisation of space.

Table 1. Distribution of race group of students who are zoned to dine in MT and FT

Race group	MT	FT
White	183 (0.31)	254 (0.32)
Coloured	20 (0.03)	54 (0.07)
Black	360 (0.6)	454 (0.56)
Indian	36 (0.06)	42 (0.05)
Other	0 (0)	2 (0.003)

Note: Numbers are frequency counts; proportions of total are in parenthesis

Design

An unobtrusive, observational study was implemented. Students' seating patterns were observed in order to reflect the organisation or spatial arrangement of the racial groups in the dining-halls. Other observational studies (Schofield, 1979; Schofield & Sagar, 1977) have implemented a similar design.

Apparatus

The data-capturing tool utilised for the study was a simple approximate sketch of the dining-halls (see Figure 1 for an example). The main advantage of utilising such a tool was that it aided observers in speedy recording and reduced the error of overlooking or recording students more than once. It also facilitated the tabulation of various frequency counts. Moreover, it provided a visual depiction of results, this being the use of space by the two groups in focus, before the actual analysis, thus adding richness to the results and subsequent interpretation thereof.

Procedure

The observations were carried out during the students' dinner period (17:30 to 20:00), as this period was included in all the meal options available to students. In accordance with an earlier pilot study, in which the observational interval was determined, the sampling domain for the study included twelve possible, ten-minute observation intervals (17:40 to 19:30) during the dinner period. The last half an hour of the dinner period was excluded as too few students had dinner during this period. Thus, for a four-week period, the total number of possible observations that could be carried out equaled 336 observations (12 observations per dinner period x 28 days).

It was decided, however, that with such a method being relatively time-consuming, 50 random observations at each of the observation sites (MT and FT both have two separated wings) would be sufficient to reflect the degree of contact between the students. Before such a random sample was selected, certain 'popular periods', also established in the pilot study, were weighted more heavily in the selection of specific times. The 'popular period' extended from more or less the beginning of dinner, 17:40, to about 18:50. This period constituted two-thirds of the 12

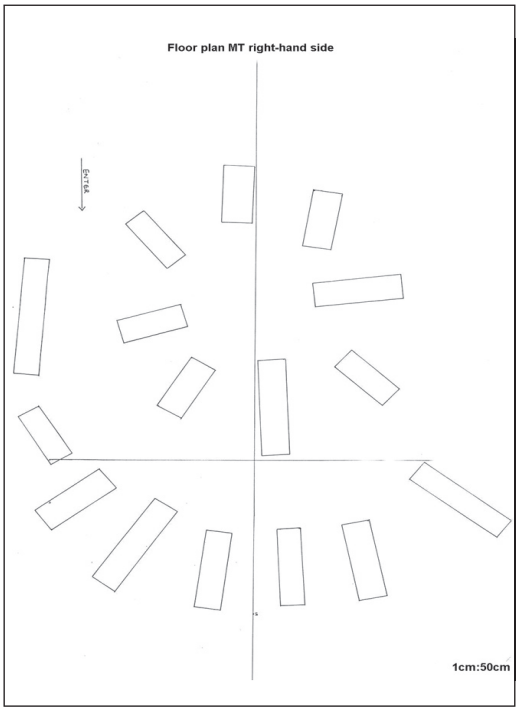

Figure 1. Example of sketch used for collecting data on seating patterns (right-hand side of MT residence dining room)

observations per dinner period and thus two-thirds of the 50 observation periods (33) were randomly sampled from all possible observations in this time period. The remaining one-third (17) of the observations were randomly sampled from the remaining observation periods.

Four observers were required to record the seating patterns for each observation – one for each of the two wings of the two dining-halls. The race and gender of the students at each table was recorded, as well as the table they were sitting at and their specific location at the table.[1] The great majority of students in the space was either black or white, and tables which had students sitting at them who were Indian or coloured were not taken into account when calculating indices of segregation.

Method of analysis

The dimensions of spatial variation, as presented in Massey and Denton's (1988) landmark article, were used to analyse the data. According to these authors, the measurement of segregation is best achieved on five dimensions of spatial variation. These include evenness, exposure, concentration, centralisation and clustering.

In their survey and analysis of 20 indices of segregation, Massey and Denton (1988) recommend a specific index for each dimension: 'D for evenness, xPy* for exposure, RCO for concentration, SP for clustering, and ACE for centralization' (Massey & Denton, 1988, p. 309). A custom-designed piece of software was used for the calculation of the indices. However, we will report only the results for the indices *D* and *xPy**.

RESULTS

Descriptive statistics

Table 2 shows frequency data for the presence of black and white students in the dining space. The numbers of black and white students, relative to each other (66.3% vs 33.7%), are proportionate to the overall number of students who are 'zoned' to dine in the space (64% vs 36%, see Table 1). However, when the dining-rooms are broken into left- and right-hand sides, the numbers are no longer proportionate. Specifically, the right-hand sides in each of the residences are occupied by a disproportionately high number of black students relative to white students; white students constituting only 22.67% and 10.32% of the total number of students for MT and FT, respectively, across the 50 observations.

Table 2. Frequency counts of black and white students over 50 observation periods

	Black			White		
	Total	**Mean**	**%**	**Total**	**Mean**	**%**
MT left-hand side	1 492	29.84	66	775	15.50	34
MT right-hand side	1 265	25.30	77	371	7.42	23
FT left-hand side	1 482	29.64	58	1 070	21.40	42
FT right-hand side	1 060	21.20	90	122	2.44	10

Frequency counts for racial homogeneity and heterogeneity at tables in the dining-hall were computed by counting tables that were populated by (a) members of one race group only (i.e. either black or white), (b) members of more than one race group (black and white), and (c) single representatives of a race group (either black or white). The results (shown in Table 3) reflect the tendency for black and white students to sit at tables in same-race groups. This is shown by the low number of tables occupied by both black and white students, that is, mixed tables, this figure averaging 0.85 of a table, per observation session. This contrasts with the high level of tables with racially homogeneous groups (9.5), and tables with single people (1.04). The picture presented in Table 3 represents on average what one would expect in an observation period. For the left-hand sides of both MT and FT, there would be, on

average, six tables hosting homogeneous groups of black students, three tables with homogeneous groups of white students, and one mixed table. On the right-hand sides, bearing in mind the clear rarity of white students on this side of both the dining-halls, one could expect an average of five tables of homogenous groups of black students, and a possibility of one table occupied only by white students, and no tables occupied by a mixed group of students.

Table 3. Race homogeneity and heterogeneity of tables in the dining rooms

	Number of tables with a single student, per race group		Number of tables occupied by a single race group, per race group		Number of tables occupied by multiple race groups
	Black	White	Black	White	
MT lhs	63 (1.26)	41 (.82)	308 (6.16)	167 (3.34)	57 (1.02)
MT rhs	73 (1.46)	29 (.58)	257 (5.14)	57 (1.14)	33 (.66)
FT lhs	55 (1.1)	33 (.66)	317 (6.34)	196 (3.92)	72 (1.44)
FT rhs	48 (.96)	13 (.26)	244 (4.88)	34 (.68)	14 (.28)

Note: Entries in parenthesis are mean number of tables per observation period

The indices of spatial segregation

Earlier we introduced five dimensions of variation, as discussed in a classic article by Massey and Denton (1988), and an index measure for each of these dimensions. Only two of the indices are used in our analysis.

As reflected by the valid *Ns* (see Table 4), the indices could not be computed for all the observations. Some observation periods yielded too minimal a case range, that is, only a few students, to permit calculation of indices and were thus excluded. Table 4 presents summary statistics for the indices, broken down by spatial region.

Evenness and the Index of Dissimilarity (*D*)

D represents the degree of evenness in the spread of black and white students seated in the dining-halls. The quantity that this index returns is the proportion of minority members that would have to move to different seats in order to achieve an even distribution. Ranging between 0 (integrated) and 1 (segregated), the results in Table 4 reflect that on average, there is a highly uneven spread of black and white students in the space. D varies between 0.6 and 1.00. With regards to the left-hand sides of the dining-halls, specifically, results range between 0.79 and 1.00, and 0.74 and 1.00, for the MT and FT, respectively. All these are very high levels of segregation in terms of the interpretive criteria set out by Massey and Denton (1989).

Table 4. Summary statistics for indices of spatial segregation, as applied to seating data

	Valid *N*	Mean	Minimum	Maximum	Standard deviation
D					
MT lhs	47	0.94	0.79	1.00	0.06
MT rhs	29	0.96	0.80	1.00	0.05
FT lhs	45	0.92	0.74	1.00	0.08
FT rhs	21	0.88	0.60	1.00	0.12
*xPy**					
MT lhs	47	0.05	0.00	0.20	0.06
MT rhs	29	0.05	0.00	0.18	0.06
FT lhs	45	0.07	0.00	0.23	0.06
FT rhs	21	0.14	0.00	0.33	0.13
ACE					
MT lhs	47	-0.17	-0.85	0.46	0.22
MT rhs	29	-0.19	-0.69	0.39	0.20
FT lhs	45	-0.14	-0.86	0.19	0.21
FT rhs	21	-0.01	-0.56	0.83	0.39
SP					
MT lhs	47	0.61	0.46	0.86	0.12
MT rhs	29	0.61	0.45	0.86	0.12
FT lhs	45	0.57	0.41	0.90	0.12
FT rhs	21	0.68	0.42	0.87	0.13

Exposure and the Interaction Index (*xPy**)

This dimension 'refers to the degree of potential contact or possibility of interaction, between minority and majority group members' (Massey & Denton, 1988, p. 287). Also ranging between 0 (segregation) and 1 (integration), however, this time with reversed implication, the index 'measure[s] the extent to which minority and majority members physically confront one another' (Massey & Denton, 1988, p. 287) or, in this study, share a table. Bordering on zero (see Table 4), the results add to the already clear evidence of segregated patterns of seating amongst the students. The range at each site begins at 0 (evidence of no exposure) and in general, does not exceed a maximum of 0.34 for this spatial index. In addition, the highest average score for this index is 0.14, this being for the right-hand side wing of FT. As *P* values are strongly influenced by the relative proportion of black and white occupants of a given social space, the observed *P* values detailed in Table 4 were subjected to inferential analysis using a Monte Carlo simulation (for further discussion see Dixon & Durrheim, 2003). This

suggested that, in all cases, the likelihood of obtaining such low levels of interaction by chance were statistically remote ($p<0.05$).

DISCUSSION

The aim of the present study was to observe intergroup contact naturalistically, that is, in an ordinary, everyday setting. The setting was two residence dining-halls, where intergroup contact between black and white students was observed.

The results suggest that segregation of an informal type is clearly evident among black and white students in the dining-halls. What is particularly apparent is how the segregation is manifested spatially, that is, through the spatial organisation of the seating arrangements in the dining-halls. The spatial indices used in the analysis, *D* and *xPy**, most strongly depicted this segregation in the dining-hall. The results for these indices reflected a significantly uneven spread of black and white students (*D*), accompanied by a high improbability of mixed-race tables (*P*).

Of particular interest in the observations, although not reflected in the results, is that the spatial pattern of segregation in the dining-halls seems to be consistent. In other words, black and white students regularly occupy the same tables, to the extent that there is a distinct display of 'white' and 'black' demarcated tables in the dining-halls. However, whether it is actually the same students occupying the same tables every day, remains an unanswered possibility.

An additional interesting finding was the tendency for most of the white minority members to frequent, for the most part, the left-hand sides of both the dining-halls. This occurred to such an extent that it created a 'black' wing on the right-hand sides of both dining-halls. Thus, it seems that the segregation in the dining-halls does not only occur in the seating at the various individual tables, but also in the overall organisation of seating in the dining-halls. Bearing in mind the number of observations carried out and the consistency of the patterns across the observations, it is more likely that this is a definite pattern in the dining-halls than random sampling variation.

A limitation of this study should be noted at this point. Although the study is cross-sectional in design, it does not show the formation of the segregation in the dining-halls. In other words, the study failed to demonstrate the process of development of the segregated patterns of seating, for example, whether there was an immediate formation or a gradual construction over time.

Two hypotheses might be posed that would explain the patterns of segregation displayed in our data. The first of these concerns the operation of spatial identities. As introduced earlier, the spatial identity of groups is defined in terms of the spatial zones within which members operate comfortably; it involves knowing one's place and having a sense of who belongs there with 'us'. Such identities may both reflect and reconstitute the broader societal organisation of space. As noted earlier, this is likely to be the case in South Africa. Under the previous system of government in South Africa, each race had its own space, residentially, socially and personally. In

other words, spatial identities were defined for different racial groups, not only as groups, but also as individuals in those groups. The idea of spatial identities would make sense in the case of the dining-halls. If students stick to their own race groups and are possibly occupying the same tables regularly, it is likely that they could have become accustomed to a kind of 'comfortable' spatial range, creating a specific identity within the specific space of the dining-hall. This contention has support in the fact that the space within the dining-halls was quite strongly racialised, both at the level of individual tables and at the level of large sections within the dining-hall. The notion of 'spatial identities' does not necessarily imply that the segregation of the dining-halls is the result of conscious deliberation on the part of diners. It may also designate an implicit or habitual expression of a racialised sense of how space should be organised.

A second plausible hypothesis for the segregation we observed in the dining-halls would be friendship patterns. It is highly likely that students sit with friends in the dining-halls. Bearing in mind that the study was conducted in August, sufficient time would have elapsed for friendships to be established between students. Thus, alternative, or parallel to, the operation of spatial identities may be that of friendship in organising the seating patterns in the dining-halls. However, if friendships were solely responsible for the seating arrangements in the dining-halls, this should result in a less territorial and collective pattern of racial isolation. Also, it would imply that cross-racial friendships are almost non-existent among the black and white students observed in the dining-halls. Either way, the role of friendship in the formation of segregation and integration in informal settings is an important aspect requiring further exploration.

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NOTE

1 A reviewer of this article has commented on the way in which 'race' is treated here as 'unproblematic and self-evident', and doubts whether people could be classified accurately by observers. We agree that race is a difficult concept to define, but previous research has shown high levels of intersubjective agreement when coding race in observational data (e.g. Dixon & Durrheim, 2003; Tredoux, Dixon, Underwood & Finchilescu, this issue).

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