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ABSTRACT

The effect of organizational characteristics of classrooms on student friendship patterns is examined. Classrooms which vary in architectural settings, grouping procedures and pedagogical techniques are seen to place differential constraints on student interaction and to produce different patterns of relations. A number of hypotheses are tested in cross-sectional data from 51 classroom groups and longitudinal data from 9 groups. The results show that a more uniform distribution of choices with fewer isolates and sociometric leaders is found in the open classroom. Asymmetric dyads and intransitive triads occur less frequently and are less stable in the open setting. No clear differences in patterns of mutuality or group cohesion are detected in the two kinds of classrooms. (Author)

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The effect of organizational characteristics of classrooms on student friendship patterns is examined. Classrooms which vary in architectural settings, grouping procedures and pedagogical techniques are seen to place differential constraints on student interaction and to produce different patterns of relations. A number of hypotheses are tested in cross-sectional data from 51 classroom groups and longitudinal data from 9 groups. The results show that a more uniform distribution of choices with fewer isolates and sociometric leaders is found in the open classroom. Asymmetric dyads and intransitive triads occur less frequently and are less stable in the open setting. No clear differences in patterns of mutuality or group cohesion are detected in the two kinds of classrooms.

Introduction

The single most important factor affecting the formation and development of friendship among children is the amount of interaction in which they engage. Organizational properties of classrooms have a direct effect on variance in interaction. Structural characteristics of classrooms impose constraints on students' behavior and determine, to a large extent, the content, frequency and duration of their interactions. These interactions, in turn, influence the nature of the friendship patterns which form among children.

Traditionally organized classrooms present the strongest evidence of constraints on student interaction. The architecture of traditional schools necessitates separating children into different rooms with limited occupancy. Segregation occurs by age and sometimes by sex. Many classrooms group children homogeneously for reasons of pedagogy or efficiency. Students often are assigned to particular desks in a fixed arrangement. Each of these grouping procedures affects children's interaction patterns by making communication with some students--those who are the same age, sex and proximately located--very likely and with others almost impossible.

Open schools have introduced considerable variation in the organization of classrooms. For the present study, classrooms without rigid homogeneous grouping procedures are designated as open. In most open classrooms children are aggregated by a vertical grouping scheme which permits the inclusion of students of a wide age range in a single room. Functional grouping occurs within this setting, with teacher or student selected subgroups forming to work at similar tasks. The classes are ungraded, which serves to destroy the formal boundaries of grades which separate children. Most open classrooms

have resource centers where pupils may go for large informal discussions as well as carrels where they may isolate themselves from their companions to work alone. The organizational flexibility of open classrooms allows students to interact with a large number of other students and provides considerable freedom in choosing friends within the school setting. Moreover, the pedagogical techniques typically employed in open classrooms encourage frequent and prolonged student interaction on a variety of tasks and activities.

The research reported here attempted to determine to what extent the almost limitless opportunities for interaction in the open classroom affect the children's interaction patterns. Specifically, it investigated how increased interaction affects the hierarchical distribution of friendship choices, the patterns of mutual, asymmetric and intransitive relations and the stability of these patterns over time. Theoretical arguments employed based on Homans (1950), Gouldner (1960) Schachter (1959) Heider (1958) and others were employed to generate several hypotheses. (For an elaboration of the theoretical framework, cf. Hallinan, 1975a). These hypotheses include:

H_1: A less skewed hierarchical distribution of friendship choices is expected in the open classroom than in the traditional classroom.

H_2: A greater incidence of mutual relationships (group cohesion) is expected in the open classroom than in the traditional classroom.

H_3: Asymmetric and intransitive relationship are expected to have a smaller incidence and a shorter duration in the open than traditional classroom.

The Data

To analyze the effect of classroom organization on friendship patterns, and in particular on group cohesion, two sets of data were collected. One

set consists of cross-sectional data (data gathered prior to the present study) from 51 groups of students in grades five through eight in 14 private and public elementary and junior high schools. Twelve of the classrooms were open, 14 were traditional and 25 fell in between. These 25 contained much less structure than the traditional classes but still had some constraints on interaction; for this reason they were designated as semi-open. The age range in the classes was nine through fourteen and the class size varied from 10 to 35. The children were asked to name their best friends, that is, the students they liked very much. They were allowed to choose as many or as few as they wished, a technique designed to minimize measurement error.

A second set of sociometric data was collected for the study over an entire academic year from fourth, fifth and sixth grade classes ranging in size from 18 to 60. Three of these classes were open, three traditional and three designated as semi-open.

Procedures

Hierarchy was examined by comparing the means and variance of the number of choices received in the open and traditional classrooms and by employing Coleman's (1964) index of hierarchization to measure deviation from randomness. The measures of mutuality and asymmetry were the percentage of these types of dyads in the group. Intransitivity was measured by Holland and Leinhardt's (1972) $\tilde{\gamma}$ index and Hallinan's (1974) $\hat{T}$ index. Measures of the stability of asymmetric, mutual and intransitive relations over time were obtained from the parameters of a continuous time Markov model. (For a discussion of this model, see Hallinan, 1975b).

Results

1. Hypothesis 1 received strong support in both the cross-sectional and longitudinal data. A more uniform distribution of choices was found in the open classrooms while choices in the traditional classrooms were more hierarchically skewed and showed greater deviation from randomness in the direction of hierarchy.

2. Fewer asymmetric choices were found and these dyads tended to be less stable in the open classrooms than in the traditional classrooms as predicted by H_2. No clear pattern of differential frequency and stability of mutual dyads was seen.

3. Less intransitivity occurred in the open than the traditional classrooms as predicted and some evidence of less stability of these triads was found in the open setting.

Conclusions:

Sociometric patterns consistently observed in traditional classrooms are seen to be modified in settings with less restricted interaction. Moreno's sociodynamic law of sociometric status appears much less dramatically in open classrooms where fewer stars and isolates are found. Increasing a child's chance to become known and liked and to perform successfully at some task or activity seems to increase the probability of his/her receiving at least some friendship choices. Broadening the bases for choice lessens the likelihood of any single child's receiving a disporportionately large number of choices. A more uniform distribution of friendship choices results.

Social psychological arguments which suggest that open classrooms contain a greater proportion of mutual relationships than traditonal

classrooms were not supported. Perhaps the exposure of students in open classrooms to a large number of potential friends results in more superficial relationships or higher criteria for choosing a person as best friend. On the other hand, increased interaction may make the students more realistic in naming their friends.

The psychologically distressful relationships of asymmetry and intransitivity were found to occur much less frequently in open classrooms. In addition, both asymmetric dyads and intransitive triads were resolved more quickly in open classrooms. These findings may imply that unreciprocated or unbalanced relationships are more uncomfortable in groups where the members of frequently engage in face-to-face interaction and therefore are resolved more quickly. The free interaction also provides greater opportunity for resolution. In the traditional classroom, a child has fewer chances to alter these relationships. It is possible that the resulting anxiety may have a disruptive effect on his work or social growth. Since traditional studies point to the stability of sentiment choices and patterns of relationships over time, these results reveal an important effect of altering classroom structure on children's group friendships.

The discovery that children's friendship patterns are affected by the structure of the classroom adds a new and important dimension to sociometry and to the evaluation of alternative education. The findings that open classrooms are settings which contain few sociometric leaders and isolates and in which unbalanced relationships have occur infrequently and have a shorter duration are of great significance to educators. The failure to find a distinct association between classroom structure and the incidence of mutuality or group cohesiveness points to the need for further research in this area.

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