

Sociometric Assessment of Social Integration of Students From Culturally Diverse Backgrounds at a Nonresidential University

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ABSTRACT. First-year dentistry students performed a series of structured sociometric activities. The purpose of these exercises was to facilitate social integration of these groups. Because of the high level of cultural diversity in the student groups, the initial activities were designed to address this issue of diversity and difference. The subsequent activities addressed cultural similarities and then progressed to address social differences and similarities at more personal and intimate levels. The effectiveness of the intervention was assessed by measuring sociometric differences between the experimental and control groups, using a computerized sociometry program named COMP-SOC. With the measures used, the therapists determined that there was no significant difference between the groups on measures of social, gender, cultural or academic integration, or persistence/withdrawal behavior. Although there was not a greater number of relationships among the students, there were suggestions of a stronger quality in these relationships.

THE LIKELIHOOD OF STUDENTS' PERSISTING with their studies at postsecondary, nonresidential institutions has been described in terms of a person-environment fit by Spady (1970) and Tinto (1975). This model suggests that matching a person's background characteristics (e.g., family, educational, cultural, individual attributes, secondary-school achievement, academic aptitude) to the characteristics of the teaching institution (environment) influences the student's initial commitment to the institution and to his or her academic and social integration. Other things being equal, the higher the level of academic and social integration on the part of the student, the greater the student's subsequent commitment to the institution and the goal of graduation. In other words, this integration has a positive influence on persistence.

Later investigations by Pascarella and Terezini (1985) found that an even more significant factor in persistence behavior was the quality of the students' interactions with the college environment subsequent to enrollment.

The Aim of This Research

The purpose of our research was to assess whether an intervention of structured sociometric activities assists social and cultural integration of tertiary students at a commuter educational institution. The significance of this research is that as social integration correlates positively with persistence behavior in students, it might then be established that certain structured activities can improve social and cultural integration. These procedures could be of significance in the improvement of the resource efficiency of tertiary institutions and their attractiveness to students, both local and overseas.

Overview of the Research Plan

Social and multicultural interventions were carried out with 1st-year dental students during the first two teaching sessions in 1991. This group was compared with the 1992 3rd- and 5th-year dental students by means of a sociometric analysis of each group.

The sociometric analysis was performed by using a computerized program for processing sociometric data. The program, called COMPSOC, originally was written in 1975 by J. R. Naugher, modified in 1983 by R. E. Martin and T. W. Treadwell for a main frame computer, adapted in 1988 by J. Steinberg, L. Bert, and T. W. Treadwell for use on an IBM PC, and rewritten in 1993 in DOS version by T. W. Treadwell and M. Saxton.

Method

The Intervention

The structured sociometric intervention was designed to assist students to become progressively better acquainted with one another. The progression involved four hierarchical stages of social interaction in the following order: stereotypical, typical, personal, and intimate. These stages were developed from a framework presented by G. Parry and T. Williams (1990). The presentation of the structured interactions in their hierarchical order provided an opportunity for safe exploration at these different levels and assisted the students in their transition from one stage to the other. Each level must be explored in some depth before progression to the next stage can be made. Because of social shyness or lack of confidence, many people never make the

progression to the intimate level and may remain at the more superficial levels. The task of the facilitator is to assist social curiosity by giving an official stamp of approval to it and to provide a safe environment for it to take place. The purpose of assisting students to progress to the deeper levels of social engagement is to increase the rate and level of social integration within the group.

The topics of cultural diversity and similarity were addressed within this framework in order to promote learning and appreciation of the social skills within the various cultures. Bochner (1986) established that coping with unfamiliar cultures is essentially a learning process.

The Four Stages of the Intervention

During interaction at the stereotypical social level, the focus was on a person's superficial or most obvious characteristics, for example, his or her cultural background, gender, age, and socioeconomic status. When people interact at this level, their focus is on these physically obvious attributes, and they relate to each other as representatives of a group and not as individuals. A conversation at the stereotypical level would involve questions such as: What country do you come from? Are there many dentists in your country? Structured activity focusing on this level provided students with the opportunity to explore their cultural differences and similarities.

At the next level, typical social interaction, the focus narrows a little to include topics that relate to the individual's way of life, and in particular, to a person's thought level and not to his or her emotional level. For example, at this level, the students' conversations involve queries about occupation, location of living quarters, marital status, means of getting to work, hobbies, and type of car. In a typical conversation at this level, the questions might be phrased thus: What work do you do? Where do you live? What sort of car do you drive? Where do you go for holidays?

During personal-level social interaction, the focus is on the expression of feelings as well as the thoughts about various aspects of the lives of the people involved in the interaction. For example, the conversation might revolve about such questions as: How do you feel about being a dentist, or what is it about your favorite movies or books that you enjoy? How do you typically behave when you have a deadline approaching? What, at the present time in your life, are you doing well?

At the level of intimate social interaction, both parties express their feelings about each other to each other, and their conversation is focused on the present moment. Exchanges might include comments such as: I am really enjoying hearing you tell me about your great holiday; thank you for telling me

about your struggle with your studies; or I feel a lot closer to you now that I know you better.

Procedure of the Intervention

Session 1: The Stereotypical Level. The students were asked to state the culture with which they primarily identified. The therapist explained that, considering the newness of Australian society and the diversity within it, it was too difficult to define what constituted Australian culture. Therefore, in this exercise, the students' identities would be more accurate if they identified themselves with the dominant culture of their families. For example, although Anglo-Celts are the predominate group in Australian society, they tend to have cultural values that are different from those of the people who have a Greek cultural origin. Therefore, it would be appropriate for those of Anglo-Celtic origin to identify themselves as such and for those of Greek origin to identify themselves as having the Greek cultural values. The Aboriginal students in both the 1991 and 1992 groups, when invited to nominate their cultural heritage, preferred the title of Aborigine to Australian. Even among the Anglo-Celts, the Irish preferred to identify themselves as Irish rather than Anglo-Celts. In the groups, there were representatives of 15 different cultures: Aboriginal, Anglo-Celtic, Argentinian, Chinese, Dutch, Fijian, Greek, Indian, Irish, Italian, Malaysian, Nepalese, Polish, Sri Lankan, and Vietnamese.

Once the students identified their primary culture, they were asked to form groups around the perimeter of the room. Each group was then asked to divide into two and to decide which half would move around the room to meet other groups and which half would stay in place and receive the rotating visitors from other cultures. In this way, each cultural group met all the others. In the case of a single representative, he or she was given the choice of moving or staying put.

The facilitator then asked the mobile half of each group to move and join the adjacent cultural group. He provided them with questions to ask each other that were designed to be at the stereotypical level and arranged in a hierarchy from the general to the more specific and from a focus on differences to a focus on similarities. After each question had been discussed by the small cross-cultural groups, the facilitator asked several of the students to introduce their partners to the larger group, stating the person's name, culture, and what they had learned about the other culture. After each question, the mobile half of the groups moved on to talk with the next group, where introductions were facilitated and new questions were provided. The questions, in order of presentation, involved these topics: food, music, pastimes, literature, sports, schooling, birthdays, weddings, families, parents, siblings, a significant teacher, something the student particularly valued about his or her culture.

(The order of these topics is designed to address stereotypical topics, to move to more typical topics, and then to begin to introduce personal topics.)

Session 2: Sociometric Linking Exercises. The purpose of the second session was to further the process of social integration by assisting the students in relating to each other at a personal level and then briefly at a more intimate level.

The 48 students were divided initially into two groups of 24. Then each of these subgroups of 24 was physically arranged into concentric circles of 12 pairs. Each time the facilitator provided the group with a new topic, the students in the outer circle moved to interact with the next person in the inner circle, moving in a clockwise direction. In this way, each person in the inner circle interacted with each person in the outer circle. The students introduced themselves to their partners and repeated their partners' names back to them. Then they were asked to discuss the following topics, which were given one at a time, that is, one for each new interaction:

1. Where do you live?
2. How did you travel to the university today?
3. What was your first impression of the university?
4. What experiences did you have in locating the dental school?
5. What do you like and dislike about the dental school?
6. What have you been doing during Orientation Week?
7. What are your spare-time interests?
8. Who is a significant dentist for you and why?
9. Where do you see yourself in 10 years?
10. What things do you do best?
11. How do you typically behave when a deadline is approaching?
12. What was your first impression of me?

Assessment of the Effectiveness of the Intervention

Six months after the intervention with the 1st-year students, the facilitator assessed the effectiveness of the intervention in producing increased social integration of the students by using various measurements of the sociometry within the class for each year. These sociometric measurements indicated whether the students in each year's group chose to associate with each other in a way that joins individuals with other individuals and subgroups and whether the variables of gender and culture affected these sociometric choices. The researcher gathered the sociometric data by asking the students to indicate up to five other students in their year with whom they would prefer to work first on a research project and second in a clinical/laboratory exercise. The students also indicated their gender and the culture with which their family identified.

To assess their academic integration, the sociometrist asked the students to comment on two statements, developed by Pascarella and Terenzi (1980), that were measured on a Likert-type response scale. The statements were: I am satisfied with the extent of my intellectual development since enrolling in this university; and My academic experience has had a positive influence on my intellectual growth and interest in ideas.

To carry out the sociometric analysis, the researcher employed a computerized sociometry program, the revised DOS version of COMPSOC by Treadwell and Saxton (1993). The COMPSOC analysis provides six pieces of information: (a) an analysis of choices made by each person; (b) an analysis of the choices received by each person; (c) a list of people in rank order by the number of choices received; (d) a summary analysis of up to three variables; (e) an analysis of the group structure; and (f) a sociogram layout, a visual picture of the analysis. Along with these profiles, this computerized analysis also illustrates six matrices that display the raw data, choices made, mutual choices, degree of mutuality, total choices received, and subgroups for the sociometric question.

Results

There were no statistically significant differences between the experimental group (1st-year dental students) and the control group (3rd-year dental students) on any of the various measures of social, cultural, gender, and academic integration. There was a tendency for the 1st-year group to score higher on all the various measures, but this may have been because of a bias resulting from a higher participation rate for the 1st-year group.

Social Integration Measures

Social integration was assessed as positive if students received two or more choices from other students or were involved in a mutual choice (a mutual choice occurs when two persons choose each other, Bill chooses Joe and Joe chooses Bill). The COMPSOC Program indicates the inverse of social integration by providing a measure of "the number of persons receiving one or no choices" and "the number of persons with no mutual choice." There was no significant difference between the various groups of students on either of these parameters ($p > .05$, chi-square test for independent samples).

Degree of Mutuality

This parameter refers to the strength of choice as measured by a weighting scheme ranging from a weight of five for first choice to a weight of one for

fifth choice. If Bill chooses Joe as his first choice (weighting of five), but Joe chooses Bill as his third choice (weighting of three), then the degree of mutuality is 15. There was no significant difference between the student-year groups in terms of the ratio of the number of mutual choices made and the sum of the degrees of mutuality (see Table 1).

Group Structure

The number of subgroups in the student-year groups was very similar for Years 1 and 3, being nine and seven, respectively. For year-5 students, there were only three subgroups, which probably reflected the smaller group size. A "subgrouping" included all persons who were connected by mutual choice on a question. Thus, each subgrouping was mutually exclusive. Some subgroupings had a further subdivision called "a reciprocal set" that consisted of a group of persons in which each chose and had been chosen by each of the others in the set (thus all were mutuals).

These group structures indicated a high level of social integration because there was only a low percentage (approximately 16%) of each group that was not included in any subgroup by mutual choice (see Table 2).

Other Measures of Social Integration—Gender and Culture.

There was no significant difference between the year groups in terms of gender or cultural integration. This was assessed by comparing the proportion of students who made and received cross-gender or cross-culture choices and the number of cross-gender or cross-cultural choices made and received.

Within the gender and cultural group, integration was high, with at least 70% of the students choosing a cross-category in each year group. For the construction of Table 3, the percentage of students was based on the number of participants rather than on the total number in the group.

TABLE 1
Students' Mutual Choices and Mutuality Scores

	Year		
	1	3	5
No. of students making mutual choice	40	28	16
No. of mutual choices	84	58	36
Total mutuality scores	1,186	768	396

TABLE 2
Measure of Students' Social Integration

	Year		
	1	3	5
No. of subgroups	9	7	3
Total no. of students	44	34	18
No. of students with no mutual choice	4	5	3
Percentage of students with no mutual choice	9	15	16

Academic Integration

There was no significant difference between the year groups on the measure of academic integration. There was a significant ($p < .01$) intragroup tendency to score high (50%) for all student groups, indicating satisfactory academic integration for the majority of the students as assessed by this index. There was no significant relationship between low academic integration and low social, gender, and cultural integration for the student group as a whole. As for the 18 students who indicated low academic integration, only 1 received either a single choice or no choices, 3 made no cross-cultural choices, and 6 made no cross-gender choices.

Persistence—Withdrawal Behavior

Because of the small number of students in this study who dropped out, it was not possible to assess the data for significant differences between the Year Groups 1 and 3 in terms of persistence–withdrawal behavior or to explore if there was a relationship demonstrated between social integration and persistence.

Nonrespondents

Students who did not reply to the questionnaire were significantly ($p < .01$) more likely to be socially isolated than the responding students (criterion of social isolation being: receiving one or no choices from other students). That is, 61% of the 23 nonresponding students were judged to be socially isolated, compared with 15% of the 96 respondents from Year Groups 1, 3, and 5. Summary information of categorized variables for 1st-year students and 3rd-year students, respectively, provided the data for the statistical analysis that was carried out by employing the nonparametric chi-square test for indepen-

dent samples. The profile listed the number of persons in a group, total number of choices made and received, the individuals who received only one choice or no choices, the persons with no mutual choices, the number of choices made that were cross-category, the persons who made cross-category choices, the number of choices that were received that were cross-category, and the individuals who received cross-category choices. A sociogram was developed from the data gathered from the 5th-year students (see Figure 1).

Discussion

With the assessment employed, there was not a statistically significant indication that the social integration intervention brought about a greater level of social, gender, and cultural integration in the 1st-year students when compared with the control group of 3rd-year students. Although there was not a measurable increase in the number of relationships, there was anecdotal evidence of a higher quality of relationship. This took the form of spontaneous comment by 1st-year students to several lecturers about how pleased they were with their warm peer relationships and comments to the dental faculty that they felt they experienced far friendlier peer relationships than did their fellow medical students. Some possible explanations for these comments are that (a) the social integration intervention was of no benefit, (b) the intervention was of benefit because the social integration of the 1st-year group was not lower than that of the 3rd-year group, which had the advantage of 2 extra years contact in which to develop social integration [if this were the case, the intervention was a positive one in that it accelerated the social integration of the 1st-year group], (c) the instrument used to assess the intervention was too insensitive to measure the change, (d) the level of social integration in small groups of students (approximately 50) is likely to be high, as a function of group size and with little room for improvement by any intervention, (e) a hopeful naiveté regarding sociometric possibility existed in the 1st-year students because of their lack of experience. The only statistically significant

TABLE 3
Percentage of Students Making Cross-Gender
and Cross Cultural Choices

Choice	Year		
	1	3	5
Percentage of students choosing cross-gender	84	70	77
Percentage of students choosing cross-culture	86	70	94

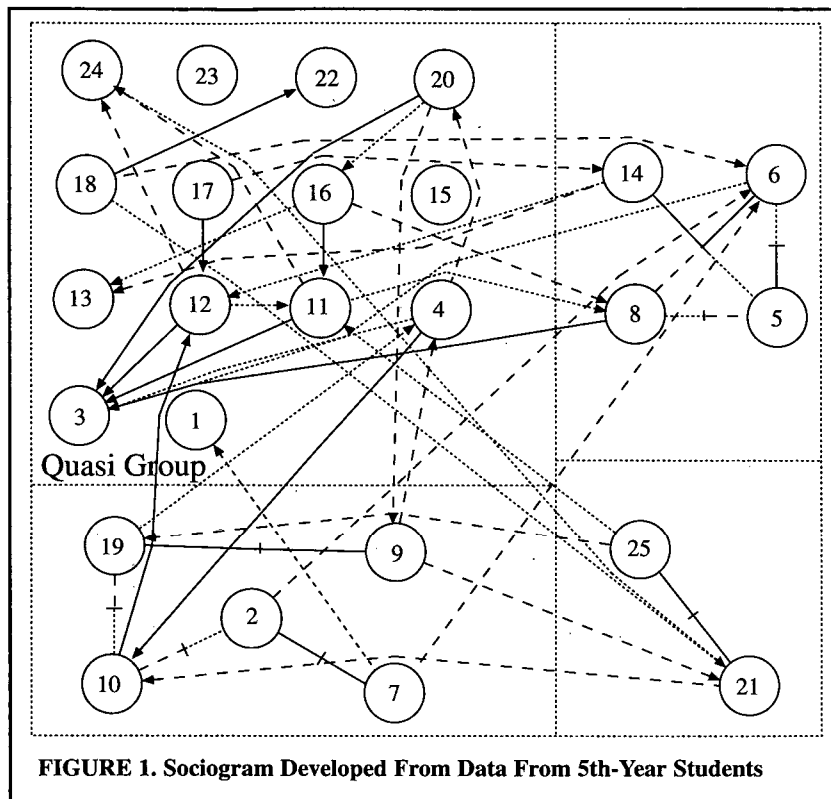


FIGURE 1. Sociogram Developed From Data From 5th-Year Students

finding was that persons who did not participate in the questionnaire tended to be social isolates.

General Comment on All Year Groups

There was a high level of social integration displayed in all the year groups assessed (Years 1, 3, and 5) as measured by the nature of the group structure and the measures of social, gender, and cultural integration. The finding that cultural integration was as high as gender integration suggests that cultural integration was attained at as high a level as possible. This may have been the result of a positive social culture generated at the Adelaide University Dental School by the capable staff. If that is the case, they are to be congratulated. It may also have been a function of the nature of dental training, for dental students have the highest number of contact hours of all university courses (up to 37 hours per week). Such contact may serve to assist the socialization

of both students and staff. The high level of socialization may also reflect the nature of the dental profession and of those who choose to serve in it. Because the practice of dentistry requires substantial social skills, an element of self-selection may predispose dental students to form well-socialized groups.

COMMENTS ON THE COMPSOC PROGRAM

I found the COMPSOC Program easy to use, and it provided excellent summary tables that enabled detailed assessment of the effect of up to three variables to be visualized on one page, something that greatly assisted in the analysis of the data.

The 1993 version provides an additional sociogram that draws on the connections between group members and thus provides an almost instantaneous picture of group structure indicating clearly the various subgroups, reciprocal sets, and the connections between them.

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