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A Comparison of Interactions in Student Dominated and Faculty Dominated Classrooms

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Introduction

In an address to the American Educational Research Association, Joseph Barclay stated that teachers presently labor under two serious limitations; namely, a lack of integrative information about the behavioral and social skills of students and a lack of knowledge about those characteristics in the classroom that foster a learning environment (Barclay, 1971). The present study is an attempt to examine a few characteristics of the second limitation. In order to accomplish this task the following two assumptions have been made: first, the most important components of a learning environment are the persons who constitute it--namely, the learners and teachers; second, these persons form an entity known as a group, the basic elements of which are purpose, structure, process and content.

Having made these assumptions, it is necessary to explain them in the context of this study. In an academic setting, the purpose of a class-group is usually the dissemination and acquisition of knowledge. Structure implies the fixed positions or roles within a group that remain largely unchanged. A classroom traditionally has two fixed roles, instructor and student. Process refers to the interchange and communication between different parts of the social structure. This element accounts for how members act toward one another as well as the informal normative system which controls relevant group behavior. Content signifies the substance of the communication process and in a classroom situation often refers to the subject matter of the course. Some researchers believe that structure and process can be linked together in studying small group behavior because "structure represents the more persistent and pervasive regularities in the process and arises out of the same measures" (Dunphy,

(1972). In brief, this study assumes that the most important characteristics of a teacher-learning environment are the group members whose interactions are interdependent upon the norms they create, the roles they accept and the communication patterns which they establish.

Given this set of assumptions and the meanings attached to them, it is possible to examine a number of elements about classroom characteristics in order to get a perspective about which of them actually do foster learning. One method of doing this is to design a system which categorizes verbal communications along specific dimensions and observe the group's interactions with this system in mind. A familiar example of such an approach is Flanders' interaction analysis categories (FIAC) which many supervisors use to analyze teacher behavior in the classroom (Flanders, 1970). The present study employed a different system. It attempted to observe and analyze the verbal interactions of two classes of college students utilizing the following six categories: control and subordination; task and expression; support and disagreement. The particular classes studied had different origins; therefore, it was anticipated that they would create dissimilar structures and patterns of interaction. One class was initiated by teachers who wanted to conduct a team teaching experiment; the other was begun by students who wished to design their own learning experience.

Method

Subjects

Both classes consisted of juniors and seniors who were enrolled in the elementary education program of the University of North Dakota's Center for Teaching and Learning during the spring of 1975. The teacher initiated class (Group A) was begun by three professors who hoped to avoid unnecessary compartmentalization of their subject matter. They recruited a teaching assistant and fifteen female and five male undergraduate students to meet with them three hours a day,

four mornings a week for an entire semester. The professors proposed to team teach mathematics, science, communications and social science in an informal manner which would allow for a great deal of individualized instruction. Some days were entirely given over to informal discussions.

The student initiated class (Group B) consisted of eight male and seven female students, a teaching assistant and six professors who served as resource persons. The core of their program was a weekly discussion period in which they came together to talk about their individual and small group projects, to assess their progress, and to give and receive feedback.

The points of similarity between the two classes were Group A's informal discussions and Group B's weekly meetings. No data was formally collected about the background and personalities of either group of students, but informal contact pointed out some obvious dissimilarities. The majority of Group A were residents of North Dakota attending their state's university, while the majority of Group B were out-of-staters who came to North Dakota precisely to attend CTL because they believed it offered a more open and flexible program of studies than they could find elsewhere. Second, the professors, the teaching assistant and virtually every student in Group A were present at the three meetings which this writer observed. In contrast, three fourths of its students and none of its resource persons were present at the three weekly meetings of Group B which this writer observed. An exception to this pattern occurred when a professor was requested to attend part of one meeting in order to respond to some of the students' specific academic concerns. Third, Group B's students referred to themselves as "the community of learners" whereas Group A's students merely referred to themselves as "being in Mr. Smith's class."

Design

Perhaps the most popular model yet devised for

the observation of group processes is Bales' (1950) interaction process analysis, a two dimensional scheme embracing twelve categories. Dunphy (1972) has modified this scheme so that it includes three bi-polar dimensions. The dimensions and poles of this model and the categories for interpersonal analysis are as follows:

<u>Dimension</u>	<u>Poles</u>
1) Dominance	dominance vs. submission
2) Goal Direction	work vs. expression
3) Affectivity	affiliation vs. hostility

Although Dunphy's system is simpler and easier to work with than is Bales' scheme, it was not adequate for the observation and analysis of classroom interaction. It is a system primarily designed to measure interactions of problem solving groups and therefore built for situations more intense than those commonly found in classroom discussions. Consequently, the present writer modified the categories in such a way as to make them more appropriate to the types of interactions which take place in classrooms among learners and teachers. The resultant scheme is as follows:

Authority

Control: statements which tend to command, dominate, initiate, issue directives, advise, permit, allow, define, or authoritatively explain.

Subordination: statements which submissively agree, or tend to go along with, seek permission or advice, yield, submit, downgrade self or admit confusion.

Goal Direction

Task: statements which exhort to task, ask or offer information, reinforce group goals, or continue in the work at hand.

Expression: statements which express tension or excitement, engage in out-of-field activity such as story telling, or include

laughter, giggling or crying.

Relationships

Support: statements which support others, indicate affection or acceptance, greet and acknowledge.

Disagreement: statements which avoid or ignore others, or tend to scold, reject, criticize, attack or disagree with others.

These six categories were broad enough to cover all of the communications which the writer observed each time he visited both groups. At the same time they were simple and discrete enough to allow the statements to be recorded on two instruments, the sequential transcription of interaction chart (STIC), and the input-output matrix for sequential analysis (Matrix). These instruments will be explained below.

The writer collected data by visiting each group three times between March 1st and April 4th, observing their interaction processes, taping their verbal communications for one hour during each visit and taking notes to complement the tape recording and assist in recall. Shortly after each session, the writer re-played the tape and with the aid of an assistant engaged in the following three step process. First, they interpreted each group member's verbal statements and labelled them according to the categories defined above. Next, they transcribed each statement onto the STIC in order to chart the pattern of interaction. They then transferred the STIC scores onto the Matrix in order to measure the frequencies of interactions for both groups. Perhaps an example from a segment of one tape will help explain both the instruments and the procedures which were used.

The first instrument, STIC, is simply a flow chart which enabled the researchers to categorize statements made by group members and record them in sequential form. An analysis of a small segment will be sufficient to illustrate both what the chart is and how it is used. Notice that an inference was made as to the

intended meaning of each speaker's communication. This was necessary in order to categorize the various interactions. In the example which will be used, the inference, or categorization, has been placed in parenthesis following each statement.

Teacher: You have all been teaching for three weeks now. Will someone please share with the rest of us some of the problems you have experienced.
(control)

Female Student #1: I have been having a problem. Would it be okay to discuss it? (subordination)

T: Yes, I believe the class will find it interesting and informative. (control)

FS#1: Well, I have a fourth grade boy in class who is always bumping into me. It's obviously a sexual thing. I've never been molested by a ten year old kid before. (task)

Class: Laughter. (expression)

Male Student: How do you feel when it happens?
(task)

FS#1: How do I feel? (short pause) Oh, just like now, a little embarrassed. (expression)

Female Student #2: I know how you feel. (support)

This interaction was transcribed onto the sequential transcription of the interaction chart in the following manner.

UNITS	1	2	3	4	5	6	7	8	9	10
Control	T		T							
Subordination		FS								
Task				FS		MS				
Expression					C		FS			
Support									FS2	
Disagreement										

The above example contains eight distinct, rather brief statements which were immediately preceded and succeeded by another person's statement. Occasionally during a discussion someone would speak for five minutes or longer and alter the type of statement he or she was making. For instance, an instructor might begin by supporting a student (support), continue by

giving advice (control), and conclude by an interesting anecdote (expression). Such an instance would be recorded as three sequential units in three different categories: support, control and expression. If, on the other hand, the teacher spent the entire time giving advice (control), his statement would be scored as one unit in the control category.

The second instrument, the Matrix, is a six by six chart used to score the category switches from one verbal communication to another. The columns, or vertical coordinates, record the category from which a statement comes. The rows, or horizontal coordinates, record the category to which a statement goes. The preceding example may again serve as an illustration. Note that the first communication, the control statement by the teacher, had no preceding statement and therefore is not recorded on the Matrix. The following list begins with the second statement, or unit, that is the subordination reaction made by the first female student.

<u>Units</u>	<u>Coordinates</u>
(2)	from control to subordination
(3)	from subordination to control
(4)	from control to task
(5)	from task to expression
(6)	from expression to task
(7)	from task to expression
(8)	from expression to support

This process is transcribed to input-output matrix as follows:

Input-Output Matrix for Sequential Analysis

		FROM					Totals
		C	Sb	T	E	Sp	D for Rows
	Control (C)		(3)				1
	Subordination (Sb)	(2)					1
	Task (T)	(4)			(6)		2
TO	Expression (e)			(5)	(7)		2
	Support (Sp)				(8)		1
	Disagreement (D)						0
	Totals for Columns	2	1	2	2	0 0	7

The purpose of the Matrix was to enable the researchers to tabulate and total all of the verbal interactions of both groups. Table 1 contains the raw, or actual, scores accumulated by Group A. Table 2 shows those scores obtained by Group B.

Table 1

RAW SCORES--GROUP A

		FROM						Totals by Rows
		C	Sb	T	E	Sp	D	
TO	C	33	9	40	15	2	1	100
	Sb	8	0	3	1	0	0	12
	T	38	1	56	20	6	3	124
	E	13	2	20	14	2	0	51
	Sp	4	0	5	0	0	2	11
	D	3	0	1	2	0	5	11
Totals by Col.		99	12	125	52	10	11	309

TABLE 2

RAW SCORES--GROUP B

		FROM						Totals by Rows
		C	Sb	T	E	Sp	D	
TO	C	9	1	7	21	5	4	47
	Sb	1	0	3	3	0	3	10
	T	19	2	40	25	11	4	101
	E	14	2	30	43	11	8	108
	Sp	3	0	10	10	3	6	32
	D	3	3	9	7	4	5	31
Totals by Col.		49	8	99	109	34	30	329

Analysis of Data

A chi square analysis of the frequency of verbal interactions for both groups indicated that there were indeed significant differences between the two groups (c.f. Table 3). First, the individual cells of both groups were compared to each other with the

result that a χ^2 of 81.46 was achieved, showing significance at $<.001$. The data was next analyzed by rows and then by columns. The rows measured the amount of communications that went to a category. This χ^2 was 61.29, demonstrating significance at $<.001$. The columns measured the amount of communications that went from a category. This χ^2 was 62.22 which was also significant at $<.001$.

TABLE 3

CHI SQUARE ANALYSIS OF CLASSROOM INTERACTION PATTERNS

	df	χ^2	Significance Level
<u>To</u> a classroom communication by <u>from</u> a classroom communication (total interaction by cells)	25	81.46	p .001
<u>To</u> a classroom communication by group (rows)	5	61.29	p .001
<u>From</u> a classroom communication by group (columns)	5	62.22	p .001
<u>To</u> a classroom communication by <u>from</u> a classroom communication by group	25	35.43	non-significant
Total	60	240.40	

In non statistical terms this means that the two groups behaved differently and those differences were along specific dimensions. Group A scored high on control and low on expression in relationship to Group B. The reverse was true of Group B; it scored high on expression and low on control. There was no appreciable difference between the groups along the lines of task or subordination. Group B was somewhat higher than Group A in the areas of support and disagreement.

The statistical analysis of the data demonstrated that there was no significant difference between the two groups in the task dimension. In the classroom setting the task is often thought to be the core of the learning experience and is usually equated with the teaching of subject matter since it includes the content of the course. In Group A task communications accounted for 40.3% of the total verbal interactions whereas they accounted for 30.4% of Group B's interactions. Even though Group A seemed to spend a greater percentage of its time on the task this was not statistically significant when the total amount of interactions of both groups were compared to each other.

The biggest difference between the two groups was found to be in the control area. Whereas 32.2% of Group A's communications were in this area only 14.6% of Group B's interactions were related to control. The statistical analysis indicated that the most significant differences occurred in this category. This was to be expected inasmuch as the two groups built in role differences and these revolved around factors which have a converse bearing on control. To put it simply, teachers are expected to take control of their classes. Even under the most democratic and informal circumstances the teacher is perceived to possess the most knowledge about the subject matter and to be the students' link with the educational institution. Consequently, the students look to the teachers for leadership in classroom discussions and that leadership often comes across as control. For example, it is the teacher who calls the class to order, directs the discussion, recognizes participants, brings closure and makes institutional announcements. This role was clearly present in Group A but it was almost entirely absent in Group B. There were occasions when Group B looked to someone for leadership but it was taken away as soon as it was given and was constantly made to shift from one person to another. As a result, the control dimension proved to be the area in which the two groups showed the greatest dissimilarity.

The second most significant difference was in the

category of expression. Group B spent about one third of its time in the expression area while Group A spent only about one sixth, or 16.7%, of its time in this area. If time spent within a particular domain can be equated with importance then it appears that expression was the most important level of Group B's interactions. Nevertheless, a reading of the STIC exhibited that there was no regular pattern to Group B's expression communications. On many occasions one expression statement was followed by a second and third, but there were enough instances to the contrary to break this pattern. The point is that expression statements in Group B served the function of facilitating other types of interchanges, especially those in the task category. This point will be taken up below.

There were some dissimilarities in the support and disagreement categories. Group A spent about 3.4% of its time dealing with support issues and about 3.6% of its time in the sphere of disagreement. Group B's participants, on the other hand, supported each other about 10% of the time and disagreed with each other about 9.3% of the time. A statistical analysis of the two groups pointed out that this disparity was not to be expected and was therefore somewhat significant.

Analysis by Individual Cells

The groups were also analyzed and compared to each other by individual cells. Group A achieved significantly high scores in the following three cells:

- 1) the coordinate which measured the interaction going from subordination to control (sb/c);
- 2) the coordinate which measured the interaction going from control to subordination (c/sb);
- 3) the coordinate which measured the interaction going from control to control (c/c).

That these three cells would have scored high might have been anticipated both from the previous analysis by rows and columns as well as a reflection of the type of interaction which takes place in the ordinary

classroom. Teachers are in control and students are subordinate to them. In Group A a typical interaction witnessed a student asking a teacher for advice (subordination) and the teacher responding with an authoritative explanation (control). This was a (sb/c) interaction. Oftentimes the communication which followed was another submissive question by a student (subordination), or a more detailed explanation of the previous answer by another teacher (control). These interactions were (sb/c) and (c/c) respectively.

Group B also had three cells which were determined to be statistically significant. The cells were as follows:

- 1) the coordinate which measured the interaction going from expression to expression (e/e);
- 2) the coordinate which measured the interaction going from disagreement to support (d/sp);
- 3) the coordinate which measured the interaction going from task to control (t/c).

However, it must be emphasized that the first two cells had a positive significance and the third one had a negative significance. In the case of the first two, the cells were used with much greater frequency than was expected. In the case of the last cell, it was used with much less frequency than was anticipated.

Once again, it might have been foreseen that the (e/e) coordinate would have tallied high in this group. Approximately 33% of its total interactions were in the expression domain so it was logical to assume that the cell which was most central to this category, namely the (e/e) coordinate, would accumulate a high frequency. Even so, it was still used more than was expected and judged to be statistically significant.

The importance of the (d/sp) coordinate was more surprising but in keeping with the group's norms. It had created an environment in which the expression of ideas and feelings were accepted and expected. In such an atmosphere when, as happened in a number of

incidents, one person disagreed with another, a third person often rallied to the support of one of the persons having the disagreement. When the two groups were compared to each other it became evident that interactions of this sort occurred often enough to make the (d/sp) coordinate significant for Group B.

The third cell which rated a high value according to the chi square analysis was the (t/c) coordinate. This was because the actual number of observed statements was considerably lower than the expected amount and the discrepancy accounted for a significant χ^2 score. When the interactions of Group B were compared to those of Group A, it was anticipated that a determined number of communications would go from task to control. Even though the task and control categories accounted for almost 45% of the group's total interactions, a control statement rarely followed a task statement in this group's discussions. A possible reason for this may be that it was an authority-free group and, since no individual was assigned the role of leader, no one felt obligated to summarize or bring closure to a discussion. Hence, control statements infrequently followed task communications.

Conclusions

It is apparent from an analysis of the data that there existed considerable distinctions between the two groups as far as the communication processes are concerned. It also appears that even a cautious interpretation would permit one to conclude that the groups structured themselves in such divergent ways that not only were the roles and role expectations different but the whole environment where learning took place was different.

As mentioned in the introduction, the task of a class-group is often equated with the teaching of subject matter. Moreover, it is fair to say that it is assumed that the instructor is the class leader whose function it is to control the class and that control factors correlate high with task factors. One could go a step further and claim that control facilitates

task. The traditional roles of teacher and student were present in Group A in spite of the fact that the discussions were conducted in an informal, easy going manner. Because these roles were still present, the elements of control and task orientation were manifested to a great degree, accounting, when the categories are combined, for 72.5% of the group's interactions. This writer's observations and his informal contact with the students after the sessions have led him to believe that they felt that the discussions were a productive and satisfying experience. Much of this can be attributed to the fulfillment of their expectations. They expected certain roles to be filled and certain tasks to be accomplished. These expectations were realized because the professors took charge of the class and moved it to where its members wanted it to go.

If it is assumed that control often facilitates task then it is just as often assumed that expression is a time wasting exercise which detracts from task. If this latter assumption is correct, Group B wasted much of its valuable time. The combined categories of expression and task accounted for 68.1% of its time and energy, a combination of categories comparable to Group A's control-task set, but the statistical analysis proved that there was little significant difference between the two groups in the matter of task. It therefore does not seem illogical to conclude that expression did for Group B what control did for Group A. The writer's observations and contact with Group B's students reinforce this conclusion. Expression not only facilitated task in this group but it seemed to open up the areas of support and disagreement so that in addition to an equal amount of intellectual discussion, more emotional interaction transpired in this class. To state it another way, a higher affect level was generated in this learning environment.

It is impossible to determine, on the basis of this study, which was the more productive or satisfying learning experience. It could be argued that the professors were the experts in their fields and that many of the control communications which they issued

contained necessary information which the students were able to translate into useful knowledge. But it could be argued just as forcefully that the personal feelings and ideas expressed by Group B's participants were equally as valuable and useful. There can be no argument that Group A's experience was more systematic and its objectives were more specifically laid out. However, neither can it be contested that Group B's experience forced them to confront a greater number of interpersonal issues.

Perhaps it should be concluded that those characteristics which foster a learning environment, as discussed by Barclay, were different for each group. His criticisms seemed to imply that there were specific and universal characteristics which promote proper learning. The findings of this study tend to refute that implication and suggest that two divergent groups are able to have satisfying and productive learning experiences even though those experiences are significantly different. Part of the reason for this may be attributable to the diverse norms, roles, role expectations and communication processes present in each separate situation.

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