Introduction

Research (Brophy and Good 1970; Good and Brophy 1972) has revealed that there is a certain pattern of classroom interaction which could be discerned from studies of any of the following areas:

- instructional talk;
- verbal discipline;
- the direction and organisation of classroom activities;
- questioning;
- differential treatment of high and low achievers; and
- a system of giving feedback and evaluation.

These six areas have generated a tremendous amount of research which has shown that they could have an effect on the teaching-learning process.

In this study attempts are made to map out three patterns of classroom interaction behaviour. These are derived from observations of (a) the amount of time spent on instruction; (b) questioning – what kinds of questions are asked and to whom they are directed; and (c) classroom discipline – when and to whom it is meted out. Each of these three areas will be dealt with independently first.

Amount of Time Spent on Instruction

Adams and Biddle (1970) concluded from their study of first, sixth and eleventh grade teachers that teachers were the most popular actors in 84 per cent of classroom communication episodes and that less than one half per cent of classroom verbal behaviour was spent in discussion of feelings and interpersonal relations. This seems to reinforce Flanders’ (1963) “law of the two-thirds which operates in almost every classroom”.
According to Flanders, teachers spent two-thirds of their teaching-learning time either disciplining or organising classroom activities, hence leaving students little opportunity to participate actively in their own learning process. But studies by Jackson and Wolfson (1968) and Burkhart (1969) showed that teachers were generally not aware of this pattern, nor did they want to monopolise classroom learning. They believed that teachers perhaps behaved in this way because they simply did not know how to involve students in discussion. Brophy and Good (1970, 1972) said that in most cases, teachers grossly underestimated the amount of time they talked in the classroom. They also showed that teachers were unaware of certain aspects of classroom behaviour.

**Questioning Technique**

A survey of a sample of studies concerned with classroom questioning techniques (Borg 1970) revealed that the types of questions teachers asked pupils have not changed in more than half a century, despite an increased emphasis on the need for teachers to ask a variety of questions. The studies Borg cited included that of Stevens (1912) who found that two-thirds of questions asked in high school classes were factual-recall questions, while Haynes (1935) reported that 77 per cent of teachers’ questions requested a factual response from sixth grade students studying history. Gallanger (1967) who had studied teachers of gifted students, found that they also asked many factual questions. Fifty per cent of these were cognitive memory questions. Davies and Tinsley (1967) indicated that roughly 50 per cent of the questions asked by student teachers teaching high school social studies were factual recall questions. Finally, Guszak (1967) found that 14 per cent of the questions in reading groups merely asked students to locate information from books. Another 57 per cent of the questions were short-answer factual questions. These studies show that teachers are probably more directive than they realise.

But when teachers do allow students to speak, which ones do they call upon? Davies and Levine (1970) and Mendoza and others (1972) found that teachers called on low achievers less often to respond to questions. Teachers tended to be more demanding with high achievers than low achievers (Haskett 1968; Bozsik 1982).
The seating arrangement of the class appears to be related to achievement, for Rist (1970) found that low achievers were seated further away from the teacher.

Classroom Discipline

The sex of the student appears to determine the amount and type of teacher-student interaction, although the nature of the communication is an equally important factor. A number of researchers (Jackson and Lahaderne 1967; Martin 1972) have found males to be more salient to the teacher, that is, they receive much more disciplinary exchanges than females.

Rationale of the Observation Task

The classroom is a complex, busy and fast moving place, such that much of what happens escapes the attention of the participants in the learning-teaching situation. Hence this study attempts to:

(a) observe and then examine a variety of classroom environments to see what patterns of classroom behaviour exist;

(b) explore whether these patterns cut across schools; and

(c) whether these patterns have any implications for teaching and learning.

The Study

A total of 663 lessons were observed in secondary schools in Singapore in 1983. 370 IE trainees carried out the observation. The aim was to expose teacher trainees to classroom practices and to make them aware of the classroom patterns that influence the teaching and learning process. The objectives of the observation task were (a) to find out whether classroom activity is mainly dominated by teacher talk; (b) whether high achievers are always called on to answer questions; (c) whether closed-ended questions were asked more often than open-ended questions; (d) whether the seating positions of students determine the number of times they are called upon to answer questions; and (e) whether boys are disciplined more often than girls.
Findings

Each of the patterns of classroom interaction is presented in a table, from which a number of implications for teaching and learning could be teased out. These implications would be examined in a subsequent section.

Table 1. Classroom teaching behaviour: teacher talk

<table>
<thead>
<tr>
<th>Sex</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Teacher</td>
<td>3</td>
<td>2</td>
<td>10</td>
<td>17</td>
<td>19</td>
<td>32</td>
<td>36</td>
<td>40</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Female Teacher</td>
<td>8</td>
<td>5</td>
<td>16</td>
<td>29</td>
<td>53</td>
<td>64</td>
<td>114</td>
<td>116</td>
<td>60</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 1 shows that in general lady teachers talked more than men teachers. For instance, there were 115 lady teachers as against 38 men teachers who talked for 70–80 per cent of each lesson. (This is obtained by adding the figures in columns 7 and 8 and dividing the sum by two – two lessons per teacher.) The table also shows that a majority of teachers tended to talk slightly more than two-thirds of their lesson time, hence illustrating Flanders’ observation that the law of the two-thirds operates in almost all lessons.

Teachers tended to direct more questions to high achievers who had twice as many opportunities to answer questions, or who were called upon twice as often. They were found to ask three times more closed-ended questions. And students sitting at the back of the class were asked the least number of times. These observations are evident in Table 2.

Table 2. Teacher pupil interaction

<table>
<thead>
<tr>
<th>Type of Questions</th>
<th>High Achievers</th>
<th>Low Achievers</th>
<th>Front of Class</th>
<th>Middle of Class</th>
<th>Back of Class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Open</td>
<td>98</td>
<td>143</td>
<td>71</td>
<td>64</td>
<td>62</td>
<td>109</td>
</tr>
<tr>
<td>Closed</td>
<td>465</td>
<td>315</td>
<td>276</td>
<td>245</td>
<td>307</td>
<td>249</td>
</tr>
<tr>
<td></td>
<td>1021</td>
<td>656</td>
<td>727</td>
<td>831</td>
<td>696</td>
<td>2254</td>
</tr>
</tbody>
</table>
Table 3 illustrates the negative reactions between teachers and male students who were disciplined twice more often than female students. Teachers seem to begin and end a lesson disciplining students, such as nagging, scolding or insulting them.

Discussion

The observational technique employed to gather the classroom data has failed to consider a number of important underlying factors. These could be classified according to three main areas.

The first is the teaching situation. Instructional talk depends to a certain extent on the subject and style of teaching, whether teachers are beginning a new topic; whether students are working independently on assignments or projects and the time of the lesson.

The second is concerned with teacher-pupil interaction, that is, with the types of questions asked and to whom they are directed. Furthermore criticism can be levelled against the missing information which is important for an assessment of such an interaction. For example, the study did not take into account the sex ratio of the student sample studied. In addition, no distinctions were made between volunteers and non-volunteers to questions asked by teachers, and were the high achievers seated together in the middle of the classroom?

The last aspect relates to classroom management. Here again, data for the sex ratio of the sample were not available. Therefore the percentages derived have to be taken with some caution.

<table>
<thead>
<tr>
<th>Sex of Students</th>
<th>1st 15 mins</th>
<th>2nd 15 mins</th>
<th>3rd 15 mins</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>389</td>
<td>178</td>
<td>208</td>
<td>775</td>
</tr>
<tr>
<td>Female</td>
<td>214</td>
<td>88</td>
<td>50</td>
<td>352</td>
</tr>
<tr>
<td>Total</td>
<td>603</td>
<td>266</td>
<td>258</td>
<td>1127</td>
</tr>
</tbody>
</table>
In spite of these shortcomings, the study did reveal a number of dominant classroom patterns which reveal some critical aspects of the teaching process in Singapore's secondary schools. Some features of the secondary school classroom are outlined below.

- Classroom activity is dominated by teacher talk (Table 1);
- High achievers are more often called upon to answer questions (Table 2);
- Closed-ended questions were asked more often than open-ended questions (Table 3);
- The seating position of a student did to an extent determine the number of times he is called upon to answer questions (Table 2); and
- Boys were disciplined more often than girls (Table 3).

The findings of this study seem to support earlier studies such as those cited previously (e.g., Adams and Biddle 1970; Flanders 1963; Borg 1970).

Recent research (Brophy and Evertson 1976; Greeno 1978; McConnell 1977; and Rosenshine 1977) has also shown that classes which are dominated by teacher talk in the form of lectures have produced good academic results. But distinctions must be made between the process of education and the acquisition of content. It is difficult to measure the former as it involves every aspect of learning, whereas the latter is easily indicated through examination results. However, this could represent a small component of the learning process. This study shows that other areas such as student participation are neglected.

For example, from an observation of 663 lessons, approximately three questions were asked per lesson. Does this mean that student talk is not important? In addition, the types of questions asked were mainly closed-ended. No doubt there could be reasons for asking such questions. To what extent should teachers be concerned about these two issues for these are considered vital in the learning process?

Although some of the important classroom data (e.g., sex ratio of the student sample) were missing, this study did succeed in mapping out some patterns of classroom interaction which have implications for teaching and learning. As noted, the results are not contradictory to major research findings in this area. These
results appear to be universal and not bound by time. And in view of Singapore's emphasis on academic excellence, such patterns of classroom interaction can be expected.

Footnote

1 Some trainees submitted only one classroom report instead of two, hence the data are based on only 663 lessons. The observation task was designed by four lecturers, A. Warren, K. C. Chong, G. T. Low and F. Lee. Each trainee had to do the following: (a) to make two copies of a class seating plan; (b) to observe the same teacher twice in that class; (c) to record the teachers' activity and pupil data using a given coding system; and (d) to record the length of teacher talk and questioning style.

References


