

Introduction

In previous chapters, we have dealt with many aspects of the teacher's role in the open classroom. This chapter deals mainly with the teachers interaction with students. The final sub-section deals with the departmental file of activities.

We shall look in detail at different types of interaction which relate specifically to open working, and consider how best to handle them.

It is assumed that you have given the students some material or introduction as a starting point for their work. It is also assumed that the work has a degree of open-ness, i.e. that the students are required to make some decisions themselves.

The work could be:

- individual or collaborative;
- an investigation or a practical problem;
- an extended piece of work;
- a task you intend them to complete in one lesson.

Types of Interaction with Students

An interaction with a student, may be initiated by you or by the student, and therefore will come about either because the student has asked you a question or because you have chosen to intervene. Interaction initiated by the teacher will be called **intervention**.

When a student attracts the teacher's attention it is usually with a question. Student initiated interaction could be categorised as follows:

- i) *Directly related to the activity engaged in*
e.g. questions about the parameters of the task
asking for your help when stuck
- ii) *Organisational queries*
e.g. asking where equipment necessary for the activity is kept
asking when the lesson ends
- iii) *Extraneous*
e.g. complaining about a peer
asking permission to go to the toilet

The majority of teacher interventions are directly related either to the activity the students are engaged in or to discipline.

✻✻ Exercise

Ask a colleague to come into one of your investigative or problem-solving lessons and to use the *Tally Chart* (p.42), to record every interaction between you and your students.

Tally Chart for Interactions with Students

| STUDENT INITIATED INTERACTIONS | |
|---|--|
| <i>Directly Related to the Activity</i> | |
| <i>Organisational</i> | |
| <i>Extraneous</i> | |

| TEACHERS INTERVENTIONS | |
|---|--|
| <i>Directly Related to the Activity</i> | |
| <i>Discipline</i> | |
| <i>Other</i> | |

Follow-up Points

- How many interactions did you have?
- What proportion of them were interventions?
- Of the student initiated interactions, what proportion were organisational queries?
- What proportion of all the interactions were directly related to the activity?
- Are you happy with the answers to these questions?
- If not, is there anything which can be done about it?

You could use the tally chart again, later in the term, to see if things have improved.

A teacher is a scarce resource. In a class of 30 students, each student can expect two minutes' individual attention per hour, even if the teacher spends all her time dealing with individuals.

If it is always the students who initiate the interactions, the teacher could miss valuable opportunities to intervene.

If a large proportion of queries from the students are organisational it may be that the teacher needs to think about the following aspects of classroom management:

- Do students know what is expected of them in this classroom?
- Do they know where the equipment is kept?
- Are cupboards locked so that students always have to ask for equipment?
- Are students allowed out of their seats or do they have to ask for permission?

If a large proportion of interventions are disciplinary, it may be that the teacher should consider changing the way discipline is enforced so that it has a more lasting effect. If students are very difficult, the problem should, perhaps, be discussed with the Head of the Department.

Responding to Students' Questions

This sub-section deals with responding to questions which are directly relevant to the activity being worked on. Once the organisational aspects of the classroom are running smoothly, the majority of students' questions should fall into this category.

Guiding Questions

When a student is in difficulty with the activity she is working on, there is an opportunity for learning.

The difficulty must first be diagnosed—this is best done by guided questioning.

A good way to begin is to get the student to recap on what she has done so far:

Student: I'm stuck

Teacher: What have you done so far?

Very often the student will solve her own difficulty after she has explained to you what she has already done.

If the student has not started the activity then ask her to state the problem.

Student: I haven't done anything yet.

Teacher: What is the problem about?

The student may have been given material to work from which she can read to you, or, if you introduced the activity orally, she may make a restatement of what you asked her to do. This restatement or rereading of the work can often clarify the problem so that the student may be able to continue without further help. If the student is still stuck, your questioning will depend on the nature of the problem.

Direct Answers:

The direct answer should be used sparingly. However, organisational or extraneous queries, unlike questions directly related to the activity being worked on, almost always need a direct answer.

Example 1

Context:

The students have been asked to redesign their school timetable.

Student: Can we have free periods?

Teacher: Yes

The student is asking about the parameters of the problem. The teacher should answer directly.

Example 2

Context:

The students are doing a measurement activity. They have been provided with lots of instruments: some relevant, some not.

Student: Miss, where are the compasses kept?

Teacher: In that cupboard.

Questions about equipment should almost always be given a direct answer.

**** Exercise**

Ask a colleague to use the *Tally Chart* (p.46) in one or more of your lessons, to keep track of how often these strategies enable students to continue with their work:

- Direct answer
- Recap of work done
- Restatement of problem

If further help was required tick where indicated.

Further Help

There are occasions when a direct answer is not appropriate and both a recap of work and a restatement of the problem fail. In these situations your response will depend on the activity and on the student.

DO

- continue to give the student the opportunity to think;
- allow the student to retain control over her own activity;
- praise any positive suggestion the student makes;
- withdraw from the situation as soon as the student has identified something which allows her to carry on;
- take all the student's suggestions seriously;
- be prepared to accept a different interpretation of the activity from the one you had expected;
- try to find out *why* the student is stuck;
- leave silences while the student is thinking, but still needs you there;
- listen to what the student says and try to understand it. Even if the language is mathematically incorrect, the student is trying to express something.

DO NOT

- criticise the student's work;
- tell the student to hurry up;
- tell the student what to do next;
- correct the way the student says something when she has just thought of a way out of her difficulty;
- solve the problem for the student;
- talk to fill silences;
- say a student's suggestion is wrong just because it's not the one you wanted;
- try to steer the student's thinking down a narrow path.

46 **Tally Chart for Responding to Students' Questions**

| | | | | | | | |
|---|--|--|--|--|--|--|--|
| <i>Student's Question</i> | | | | | | | |
| <i>Direct Answer Given</i> | | | | | | | |
| <i>Recap of Work Requested</i> | | | | | | | |
| <i>Restatement of Problem Requested</i> | | | | | | | |
| <i>Further Help Required (tick)</i> | | | | | | | |

| | | | | | | | |
|---|--|--|--|--|--|--|--|
| <i>Student's Question</i> | | | | | | | |
| <i>Direct Answer Given</i> | | | | | | | |
| <i>Recap of Work Requested</i> | | | | | | | |
| <i>Restatement of Problem Requested</i> | | | | | | | |
| <i>Further Help Required (tick)</i> | | | | | | | |

**** Exercise

Write down your comments on each of the following situations, and then discuss them with others in the group.

Situation 1

A student is working on *Lift Regulations* (p.92).

She calls the teacher over and says she is stuck.

The teacher asks her how far she has got. She successfully recaps.

She is stuck on the question:

How many children can fit in the lift?

The teacher prompts her by asking:

'How could you work that out?'

She replies:

'Just by half?'

What should the teacher do now?

Situation 2

The student is starting the investigation *Colours* (p.82)

She asks:

'Can I colour all the spaces the same?'

What should the teacher do now?

Situation 3

Students are working on a problem which involves redesigning their school timetable.

A pair of students call the teacher over to say that their timetable is finished.

The teacher points out that there is no registration.

When the teacher has gone the students dutifully pencil in all the registrations but mutter to themselves

'This is a waste of time'.

Is there a lesson for the teacher in this?

D Exercise

Collect examples from your classroom of situations where a student needed further help.

Reflect on how you responded:

- Are you happy with your response to the student?
- Is there anything you would rather have done differently?

Discuss these situations with colleagues in the next departmental meeting.

Take each teacher's example in turn, letting the teacher 'role-play' her student. The other teachers in turn should give the 'student' the further help which they think is appropriate. After each example, discuss what would have been the best strategy, until a consensus is reached.

Educational Interventions

The situations where a teacher initiates interaction with a student about work being done, are considered by some people to be more important than interactions initiated by the student. In most classrooms there is rarely time to intervene, except to deal with discipline, because the teacher is usually too busy responding to students' demands. However, if you are lucky, you might find that, as your students get used to open ways of working, they make fewer demands on you. This will give you the opportunity to intervene in order to help them get the most out of their activities. You could intervene in the following ways:

1. Read the student material.
Check that everything relevant has been answered—especially important in GCSE coursework or in National Curriculum tests.
2. Ask students to explain their methods of working. This will encourage them to check their own work for accuracy. Encourage them to re-work by another method, if possible.
3. Ask students to check their own presentation for clarity. They could also give it to friends to check.
4. Warn students doing GCSE or National Curriculum coursework to avoid work which goes outside the parameters of the problem, and which will affect the students' marks adversely.
5. When students are going down blind alleys which could frustrate their efforts and not be of any educational value, guide them towards a related, but more fruitful avenue, but do not nip any potentially interesting work in the bud.
6. Ask students to explain to you what they have done. This could lead to correction, clarification or extension of the work.
7. Ask the students what they intend to do next. This could help to improve the direction of the activity and encourage ideas for extensions to the activity.

Building up a File of Activities

It is useful for a department to have its own file of activities which have been tried out by teachers in the department. This sub-section gives you guidance on how to build up such a file.

Method 1: The Same Activity

To begin with, many departments find it helpful if all staff involved use the same activity at the same time. An advantage of this is that the activity can be prepared in a departmental meeting.

Departmental preparation

Choose an activity that all teachers will be able to use. This could be from *Section Three*.

In a departmental meeting, as individuals, spend 10 to 15 minutes doing the activity or, in the case of a longer problem, thinking about how you would go about it. Share your results and, in turn, explain to the group what you have done.

You should notice that there are different approaches to starting the activity. Discuss these different approaches. Each teacher should then decide which class of students to do the activity with. Discuss what students might do with the task. After the meeting, spend one lesson on the activity with the chosen class. Collect and look at what the students have done.

The results can be discussed at the following departmental meeting. Use the questions (p.50) to guide your discussion. A summary of the discussion can be filed with the copy of the students' material for the activity and any teacher material—and this will be the beginning of the departmental file.

The disadvantage of *Method 1* is that it is a slow way to build up a departmental file. It also requires many photocopies of the same activity.



Method 2: Different Activities

If teachers do *different* activities only one class set should be needed for each activity. It is also a quicker way to build up a departmental file of results of the activities. You may find that your department would like to begin with *Method 1*, then move on to *Method 2* when they have more experience of open working.

As before, spend 10 or 15 minutes doing the activity yourself. Decide which class should try it and try to predict how they will tackle it.

Let the class spend as long as necessary on it. Collect the work and look at the results.

Methods 1 and 2

Answer the following questions about this activity:

(NB Not all questions will be relevant to all activities. Ignore those which do not apply)

Use the answers to the questions to build up a departmental file of information about each activity.

Questions

| | QUESTION | ANSWER |
|----|--|--------|
| 1 | How did you present the activity? | |
| 2 | How was it received? | |
| 3 | What did the students ask you? | |
| 4 | How did you help them? | |
| 5 | What avenues did they pursue? | |
| 6 | What results have they generated? | |
| 7 | Have they been systematic? | |
| 8 | What data have they collected? | |
| 9 | What observations have they made? | |
| 10 | Have they noticed any patterns or any generalisations? | |
| 11 | What solutions did they devise? | |
| 12 | Have they attempted to justify anything? | |
| 13 | What mathematical terms have they used? | |
| 14 | What mathematics have they demonstrated that they know/can do? | |
| 15 | How did they present their findings? | |
| 16 | Are there any students for whom you now think the task was not suitable? | |
| 17 | Did you find any useful extensions? | |