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Managing Group Discussion: Problem-Solving Tasks

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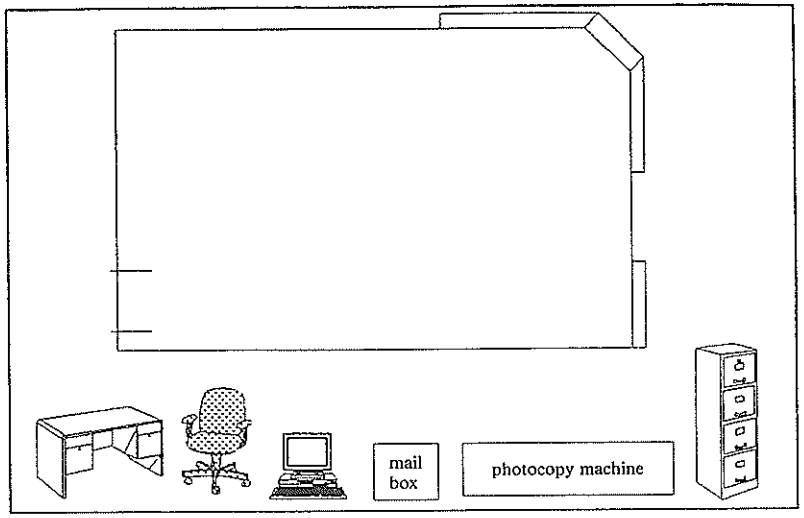
There is an increasing number of studies on the importance of the idea of "task" in learning and teaching. Essentially, the studies find that teachers plan and prepare lessons and units of work focusing on the tasks that will be done, and that learners view lessons as made up of tasks giving most importance to the outcome of each task (Doyle, 1983). This article looks at problem-solving tasks. It uses an analysis of the features of speaking activities (Nation, 1989) which it adapts to become a procedure for making unlimited numbers of these tasks.

Examples of problem-solving tasks

Here are three examples of simple problem-solving tasks.

1. Your class is going to organise a program to help classmates who are getting behind in their study. Get together in groups of three or four people and suggest ways to give help. Here is an example to start you off.
   — Find who takes the best notes in the class and make copies of their notes.
2. Most Thai males who are Buddhists spend a period of a few weeks as Buddhist monks. Their heads are shaved, they wear orange robes, and they spend time meditating and learning about the nature of life. This time in the monkhood can occur at any time in their life, for example, when they are eight or nine years old, when they are teenagers, when they are adults, when they experience some difficulty in their life, or when they near the end of their life. Get into groups of three or four people and decide when would be the best time for a man to enter the monkhood.
3. The secretary of the organisation is going to move to a new office located in a sunny corner of the building. Work together in groups to arrange the office furniture in the best possible way. In the plan, the room and furniture are all drawn to scale. While you do the arranging you should cut out the pieces of furniture and place them on the plan to see if they will fit where you want them to go. You should also be careful about the following things.
   — The computer should not be in direct sunlight and its screen should not reflect light.
   — The computer should not sit on the desk.

— Many people come into the office to use the photocopier and collect mail.
— The photocopier is a little noisy.
— It should be possible to move easily from working at the desk to working with the computer.



Let us now look at how similar and more complicated tasks can be made.

Steps in making problem-solving tasks

There are four steps that can be followed in making problem-solving tasks. These are (1) focusing on a learning goal and a topic, (2) deciding on the problem and its type of outcome, (3) specifying the context, and (4) splitting the information and assigning roles.

1. Focusing on a learning goal and a topic

Tasks in the language classroom can focus on language, content, skills, or discourse goals. Problem-solving tasks have a very strong content focus. They help those involved clarify their ideas about topics in terms of the values they hold and the range of options open to them. One way to find topics is to have the learners think of the typical problems they will have to deal with in their daily life, such as deciding what courses to take at school, deciding how to spend a holiday, deciding how to prepare for a test, deciding how to raise money and so on. Another way is to look at newspapers, consumer magazines and textbooks, or to watch the television news and current affairs programmes. These will suggest problems like deciding what directions health care should take, planning hurricane-proof villages, dealing with rising crime or road deaths, encouraging people not to smoke and so on.

These tasks can take on a skills focus if careful thought is given to the sources of information which are used as input to the tasks. If, for example, the topic of the discussion is about the care of the elderly, learners can prepare for the discussion by interviewing elderly people, by reading about care possibilities like retirement homes and pensioner flats, or by making notes about how the elderly are cared for in their family and community. This preparation will bring the content and much of the language needed for the discussion task within the learners' control, thus allowing for the development of the speaking skill.

There are several ways of giving the task a language focus. One way is to choose the topic according to language goals. Vocabulary lists which are classified into topics (Nation, 1984; West, 1960) are a useful source of ideas (see the appendix). Another way is to make sure that wanted vocabulary is put in the statement of the problem and in the requirements and restrictions.

2. Deciding on the problem and its outcome

Although there are hundreds of problem-solving tasks that could stimulate discussion in the classroom, there are only a few kinds of solutions and these usually fall into two groups.

a. *Suggest, choose, rank* These three kinds of solutions can occur individually or as a series of two or three items in the order given above. When learners are asked to *suggest* solutions they are given a problem and are told to find one or as many as possible solutions. Here is a typical example.

Dear Joan,

My son will soon be old enough to get a driving licence. He has been asking me to teach him how to drive. I am very worried about this because I know that most traffic accidents are caused by young men. I have been trying to encourage him to wait for a few years and then I will teach him, but he wants to learn now. If I teach him to drive now he may kill himself and others. What can I do?

Worried parent.

Other problems could ask learners to suggest what buildings should be added to their school, what criteria they would follow when buying a house or choosing a job, or what course of action they would follow if they wanted to entertain their young niece for an hour.

When learners are asked to *choose* solutions they are given a list of

items. This list might be made by the teacher or it could come from suggestions from the learners as just described. For example, the learners are given a menu and have to choose a set meal for a group of people. A description of the likes and dislikes of each person in the group is given to the learners and they must choose one set of dishes that everyone can eat. The possibilities are endless and such choosing activities are the basis of many published role plays and simulations (Jones, 1984; Rogers, 1985). Here are some more examples. (i) The learners are given several travel brochures, some information about how much time and money they have and they have to choose one place for a holiday. (ii) The learners are given descriptions of several books taken from publishers' handouts or copied from the back cover of paperbacks. They have to choose which book they will publish. (iii) The learners have just been studying about computers. They are given a list of computers with data about them and a description of a company's needs. The learners must choose the computer which is most suited to the company's needs.

When learners are asked to *rank* solutions they have a list of items which may come from the teacher, which they have chosen from a bigger list, or which comes from their own suggestions. They must rank the items according to the criterion they are given. For example, after they have studied a unit on ecology, the learners can be given a list of proposals for using a large piece of land. The learners must rank the proposals according to their negative effect on the ecology of the area.

b. *Decide, locate, arrange* These three kinds of solutions can occur individually or in the following series, *decide-locate, decide-arrange.* When learners *decide* on a solution, they make a yes-no decision. Should a new shopping mall be built in the town? The learners are given information about the proposed mall and the town and must make a decision. After studying the animal life of a certain area the learners are shown a proposal which will definitely increase the survival rate of one of the declining species in that area. Should the proposal be implemented?

When learners are asked to *locate* something, they usually work with a map or a plan. For example, as a part of their Economic Studies course the learners are given a map and some information about the area. They are told that a new factory will be located in that area. They must decide where to locate the factory, giving consideration to how far workers will need to travel, distance to the port, distance to raw materials, pollution, disturbance to local residents etc. Other examples include locating new roads, a prison, a community centre, a pop festival etc. in relation to a town or locating an event like a test, a party, a performance in a series of happenings.

When learners are asked to *arrange* items, they are given a set of items which they must organize to fit into a given plan or to satisfy given requirements. For example, as a part of their study of gardening, learners

are given a diagram of a garden and a list of items they can plant in the garden. They must arrange their garden to suit the light, space and water requirements of the various plants. Ur (1981, pp. 81–83) has an excellent exercise based on the plan of a zoo and the requirements of some of the animals, for example, "Harmless animals should not be put next to predators", "The giraffe is about to give birth". The learners must rearrange the animals. Harmer (1984) describes a useful exercise for teachers in training where they are given a list of classroom activities and they have to choose and arrange them to make up a series of 50-minute lessons. Each activity and the time it takes are written on a card so that the learners can arrange the cards to make up the lessons. Other arranging activities include planning a house, setting out a page or chapter or a textbook, matching boyfriends and girlfriends, placing workers in teams or within a factory, or deciding on the best sequence of actions when dealing with an accident. Notice that arranging activities can include or be preceded by a choosing activity. For example, in the *Front Page* simulation (Jones, 1984) the learners are given several stories each consisting of two or more paragraphs. They must choose the stories and the paragraphs in those stories which are most suitable for the front page of a newspaper and fit them into the space limitations which are given on the layout plan of the front page. *Radio Covingham,* also by Jones (1984), is another choose-and-arrange activity for a radio programme.

3. Specifying the context of the problem

A well-developed problem-solving activity involves a statement of the problem, the type of outcome, requirements and restrictions to be considered when solving the problem, and, particularly in locate-and-arrange activities, a diagram.

Let us choose the problem, deciding how to entertain a younger relative.

The statement of the problem

> Your cousins have come to visit your family. While your parents go out with them, you have been given the job of entertaining their eight-year-old son. You have eight dollars and have to entertain him for five hours.

We now have to decide on an appropriate outcome. This is usually presented as an instruction to the group of learners doing the task. This problem easily fits within the suggest, choose, rank type.

The type of outcome

> Working together as a group, suggest as many possible ways as you can of entertaining the child. Then choose a suitable number of them to fill the required time and to meet the other requirements and restrictions.

Requirements and restrictions add a challenge to the task.

> a. The films which are now showing are *Star Wars, Snow White and the Seven Dwarfs* and *Silverado*. Admission is $3 for adults and $1.50 for children under 15 years old.
> b. The swimming pool is open all day. The entry fee is $1 each.
> c. Your town has a fun park with slides, swings, a maze and an adventure trail. Entry is free.
> d. Your relative comes from a very small town which does not have many shops, restaurants or cinemas.
> e. Your relative is a rather timid child and is afraid of being alone.

Notice how these restrictions increase the puzzle nature of the task. If the restrictions were very severe there would be only one correct answer to the problem and we would have moved from an open-ended problem to a true puzzle. A further challenge is to restrict the time available for the group to reach a solution.

It is possible to use a diagram in this activity to help learners reach an outcome. The learners have to connect up the places they would go to and write the length of time at each place they choose. It is probably more effective for this particular task to get the learners to make an ordered list of the places visited, the time spent there, and the amount of money spent at each place.

4. Splitting the information and assigning roles

An effective way of spreading the participation in a speaking activity is to split the information among the learners in a group so that each learner has a unique, essential piece of information. Each learner should have roughly the same amount of information. The result of splitting the information is that each learner must then tell the others what information she has. For this reason the teacher should distribute the information by giving each learner a slip of paper with their information on it. After the learners have had a few minutes to remember the information,

they return the piece of paper to the teacher. If they kept the piece of paper, they would have no need to speak because they could just put their piece of paper where all could see it.

How could we split the information for problem solving? The most obvious way is to let all the learners see the statement of the problem and the diagram, but to give each learner different items from the list of choices or the list of requirements and restrictions. Another way is to give one learner the diagram, give one the statement of the problem, and divide the restrictions among the rest. A third possibility involves dividing as well.

A useful way of increasing the range of language use in an activity is to introduce roles. If we take the problem of deciding how to entertain a younger relative, each person in the discussion can act a different role.

Roles

> You are the child's parent. You will be happy with anything that keeps the child entertained, but you want to make sure she is looked after well.

> You are the person who has to look after the child. You do not know her very well and are a little unsure if you can easily keep her entertained. You would like to save some of the money.

> You are the child. You are looking forward to enjoying yourself. You are not very keen about activities involving a lot of exercise.

> You are the child's teacher and would like her to get a lot of useful experience and knowledge from her visit to the city.

Before the discussion activity, learners who have the same role can get together in a group and practise and talk about their role. When they are ready they then go to their mixed groups.

There are several kinds of roles. We have just looked at roles which involve taking on a different personality. Other roles could involve discussion-helping procedures. For example, one learner has the job of asking the opinion of each person in the group to make sure that all take part. Another learner has the job of summarizing the discussion every

few minutes. Another has the job of keeping the discussion on the problem and stopping digressions. Another has to praise good ideas.

These roles can be known to everyone in the group or they can be hidden roles where only the person with the role knows what it is.

The advantages of problem-solving tasks

Problem-solving tasks have a very important feature that makes them work well in getting learners involved. This feature is the definite outcome to the activity. Because of the importance learners place on outcomes, problem-solving tasks involve a lot of highly motivated goal-directed activity. This can lead to follow-up activities including the writing of reports, oral reports, and the publication and discussion of decisions.

As we have seen, such tasks are highly adaptable. With careful preparation and planning they can become elaborate simulations. They can also be short, relatively simple activities. They are easily adapted to learners at a variety of proficiency levels and can be used to achieve a variety of language learning goals.

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Appendix: Sample topics

The following suggested topics for problem-solving tasks are arranged under the major headings for West's (1960) classification of his Minimum Adequate Vocabulary for speaking. The items under each heading are organised according to the type of solution — suggest, choose, rank; decide, locate, arrange.

A. THE EARTH
Suggest ways of coping with a natural disaster

Choose ways of dealing with pollution
Choose animals for the zoo
Rank ways of using a piece of land
Decide whether a forest should be cleared for a factory
Locate a new road
Arrange the plants in a garden

B. THE SELF
Suggest ways of losing weight
Suggest solutions to personal problems
Choose a way of dealing with a difficulty with a neighbour
Rank the items needed for survival
Decide whether to support a losing cause
Decide whether to have a dangerous operation
Decide whether someone should be on a life support system
Decide on a case for abortion
Decide whether nuclear research should continue

C. THE HOME
Suggest dangers within the house for a child
Choose items from a menu to suit the tastes of the guests
Rank the improvements that could be made to the house
Decide whether it would be better for both parents to get a job
Decide whether to have another child
Decide whether to raise a child as a vegetarian
Locate an addition to the house
Arrange the plan of a house
Arrange the furniture in a room

D. THE INTELLECT
Suggest ways of helping someone with their study
Suggest items for a teacher evaluation form
Suggest rules for the school program
Choose which book should be published
Choose which material to teach
Choose what should be added to the school
Rank learners' answers to a test
Decide whether schools should be under local control
Decide whether a child should go to a co-ed or single sex school
Decide whether to give up a job in order to continue study
Locate the assessment for a course
Arrange the items on the page of a text book
Arrange the parts of a book
Arrange a class's work for the coming week
Arrange the parts of an answer to an exam question
Arrange a timetable

E. BUSINESS
Suggest ways of spending an amount of money

Choose which product you should buy
Rank cars to buy
Decide whether a shopping mall should be built
Decide whether the school should be insured
Locate an advertisement in the newspaper
Locate a fast food business in the town
Arrange the floor plan of an office
Arrange the buildings around a town square

F. RELAXATION
Suggest ways of welcoming a new family to the community
Suggest criteria for choosing which TV programs to watch
Suggest items to go into a fun park
Choose places for a tourist to visit
Choose a hotel to stay in on your holiday
Rank countries to go to for a holiday
Decide whether to buy a TV
Decide whether to put on a play
Locate the time for a holiday in the year's events
Locate the venue for a pop festival
Locate a new pub
Locate a common room in building
Arrange the players in a sports team
Arrange items in a program of entertainment
Arrange guests around a table
Arrange the items in a radio or TV program

G. PUBLIC LIFE
Suggest ways making people appreciate the police
Suggest ways of choosing a leader for a group
Choose the best candidate
Choose the best ways of solving a traffic problem
Rank the options for defending a country
Decide whether to privatise public services
Locate a half-way house or a prision
Arrange the power structure of government