

Problem Solving in Groups

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Additional Resources from Mike Robson

Quality First - the innovative multi-media training package on implementing a Total Quality initiative in your organization. Based on a concept called the CARE model, **Quality First** covers the 4 steps essential for the introduction of Total Quality:

- Customer/supplier chains - establishing who your customers are
- Agree requirements - agreeing with customers what their requirements are
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- Evaluate, measure and improve - establishing performance

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Problem Solving in Groups (paperback and hardback) - Mike Robson first introduces the concepts and methods involved in typical group problem solving. Then, after setting out the advantages of the group approach, he examines in detail each of the eight key problem-solving techniques. The final part of the book explains how to present proposed solutions, how to evaluate results and how to ensure that the group process runs smoothly.

Available from Gower Publishing Limited

Quality Circles, A Practical Guide (second edition, hardback) - This book was the first full-length treatment of Quality Circles in the UK. After explaining the concepts involved, the author outlines an implementation programme and shows how to organize the necessary training and follow-up activity. In a key section of the book he draws on his experience of Quality Circles schemes in a wide range of industries to help the interested manager decide: is this for me?

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Quality Circles in Action (hardback) - has brought together in the form of case studies, the experience of a number of organizations where Quality Circles have become a way of life. Between them they cover manufacturing, finance and distribution, and include large companies and small, from both the public and private sectors. The case studies, each of them written by someone personally involved, illustrate and illuminate every important aspect of the Quality Circles programme not omitting the problems and drawbacks.

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Mike Robson and MRA International

Problem Solving in Groups is presented by the internationally renowned organizational development and problem-solving expert, Mike Robson.

Mike's company, MRA International was established in 1981 and has become a prominent international consultancy having conducted assignments in over 30 countries around the world, and opened offices in the USA, various European centres and South Africa.

MRA International is a specialist organization which focuses on the development of organizations and their people. It is widely regarded as Britain's leading Total Quality consultancy and has its own unique model which has been described as 'the best Total Quality Management System anywhere in the world'. It is the only system that offers a truly comprehensive, coherent and integrated way of running an organization.

For more information about MRA International please contact:

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PROBLEM SOLVING IN GROUPS

HELPLINE

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If you have any questions arising from
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Section 1

Introduction

The role and importance of group problem solving

Organizations everywhere need effective ways of tackling problems and addressing opportunities and group working has an important role to play in this process.

Not all problems are suitable for group working though, and so it is important that your organization does not allow itself to become so entranced with the power of this approach that you end up establishing groups to tackle issues that would be better dealt with by individuals. However, there is a wide range of problems that can be tackled more successfully in groups than by individuals.

In particular group problem solving is well suited to tackle problems that:

- Might affect or concern a number of people in your organization or
- In situations where there is no straightforward single answer or
- Where it is important that those involved in the problem are committed to the solution

Where this is the case, the techniques provided in this programme will provide your people with the skills and understanding to address the problem effectively. Although these techniques are designed primarily for group problem solving, many can also be used to good effect by individuals.

Developing effective problem-solving groups

Problem solving in groups is not new, but it is often approached in such a way that groups are unable to achieve their true potential. There is often an implicit assumption amongst people both inside and outside the group that we know how to work together to solve problems without any additional knowledge or training, as if we were born with these skills. These assumptions can both frustrate and constrain the group members.

This programme is designed to provide the members of your problem-solving groups with two essential elements: a coherent problem-solving process and the ability to understand and manage the dynamics of the group successfully.

The benefits of group problem solving

Applied correctly, the techniques of group problem solving offer a number of benefits:

- Having a number of minds attuned to the problem will often improve the discussion and the resulting decision. A balanced group of people will contain a powerful combination of analytical and creative thinkers who can apply both logic and creativity to give you the best chance of an effective solution

- The solution to the problem at hand may require some form of action by a number of your people. Involving them in the group problem-solving process will capture their interest, help them to understand and ultimately (if the solution is of their own devising) to commit themselves to the required action.
- Group problem solving is a process in which any member of your organization, at any level, can play a part. Equipping your people with the skills and the confidence to take part will allow you to exploit to the full the experience, knowledge and talent that exist in your organization.

The aims and use of the programme

Problem Solving in Groups is designed:

- As a training programme in group working
- To provide practical guidance to new and existing problem solving groups
- To facilitate self-development

The main aims of the programme are:

- To train your people in the skills of successful group problem solving
- To help your organization to improve its performance through a powerful and effective problem-solving process

The contents of the programme

Problem Solving in Groups consists of:

Video 1: Preparing for Group Working

A stand alone 5 minute video that explores the dynamics of group work, highlights the traps that problem-solving groups can fall into and provides 6 guidelines for successfully avoiding them.

Video 2: Problem-Solving Techniques in Action

A 27 minute video covering the 8 steps in the problem-solving process:

- Identifying the problem
- Analysing the problem
- Data collection
- Interpreting the data
- Finding possible solutions
- Cost benefit analysis
- Presenting solutions
- Follow up

Trainer's Guide

An accompanying Trainer's Guide including:

- Guidelines for using the two videos for group training
- Session plans and OHP transparencies for running training sessions in the group problem-solving techniques described in the second video
- Advice on establishing and administering problem-solving groups
- Notes on the key roles of 'leader' and 'facilitator'
- Guidelines for using the two videos for self development

NOTE:

To prevent your group(s) falling into the traps described in the first video, it is essential that you establish the ground rules for good cooperative working covered in Video 1 before you provide the group with the 8 step problem-solving process covered in Video 2.

The following sections of this Trainer's Guide provide you with help and advice on a number of different options for using these two videos:

For general problem-solving training

Using Video 1

- With problem-solving groups (page 10)
- With existing groups (page 12)

Using Video 2

- For general problem-solving skills training (page 15)
- For training a problem-solving group (page 17)

For training on specific problem-solving techniques

Session plans on

- Defining the problem (page 20)
- Analysing the problem (page 23)
- Data collection (page 25)
- Interpreting the data (page 27)
- Finding possible solutions (page 29)
- Cost benefit analysis (page 31)
- Presenting solutions (page 34)
- Follow up (page 36)

Problem Solving in Groups

A paperback copy of Mike Robson's bestselling book on group problem-solving.

(Note: This book provides participants with a practical workbook to accompany the training, as well as a useful manual to help them put the group problem-solving techniques into practice. You may obtain extra copies from: The Customer Service Department, Gower Publishing Ltd, Gower House, Croft Road, Aldershot, Hants GU11 3HR (Phone 0252 331551 Fax 0252 344405).

Administration of problem-solving activities

There are a number of useful guidelines which will assist the overall administration of problem-solving groups in organizations.

If the process of establishing and managing problem-solving activities is not handled well, it will inevitably affect the performance of the groups and the motivation of the members, so it is important that this issue is thought through carefully.

Different types of group

Although all problem-solving groups should use the organized and systematic approach which is detailed in the videos, there are a number of different formulations of group which need to be understood.

Chapter 2 of **Problem Solving in Groups** covers the subject of the different types of group that can be formed and should be referred to at the outset. Many organizations fall into traps at an early stage, which may affect the success of the venture. It is important to recognize that there are significant differences in the make up of any group. These include:

- The selection of leaders and members
- The decision as to who should identify the problems to be tackled
- And the role of the group - as an ongoing mechanism for improvement or merely a 'one off' problem-solving activity

Frequency and duration of meetings

In most circumstances, organizations will want people at all levels to be involved in problem-solving activities as a normal part of their job. This means that the frequency and duration of these meetings must take into account the fact that most people are busy and that day-to-day business must not be adversely affected.

The experience in organizations from around the world is that people can spare an hour a week for such work, without it affecting their other priorities. In most cases, this should be the format used.

In some situations, however, this may be inconvenient or impossible. For example, if group members come from different locations. In such circumstances, other arrangements will need to be made to ensure the best use is made of people's time. This might involve less frequent but longer meetings as the group works its way through the problem-solving process.

Location

There is no doubt that the appropriateness of the location has a big influence on the effectiveness of meetings. Meeting rooms should be light and airy, and large enough to accommodate the group easily.

There should be ample wall space so that working sheets of flip chart paper can be posted round the room. The layout should be with chairs in a circle or a square so that members can see each other easily. Flip charts and an overhead projector should be available.

In many organizations meeting rooms are at a premium and so groups should make sure that the room is booked out to them well ahead. For this reason, and to avoid wasting time having to co-ordinate diaries, meetings should be scheduled from the start on the basis of 'same time, same place, next week'.

Training of group members

For group members to be able to use the problem-solving techniques they will require training. This is usually best done when the group is ready to use the particular technique in question. You should use the videos in this pack to give group members a clear overview of the process from the outset. You can use them again (supported by the additional material and OHP transparencies) to help focus on the individual techniques.

An alternative approach is to train all those who will be involved as members on a two or three day course. It is important to time such programmes so that members can put their new found knowledge into practice soon after the course, whilst the detail of how to use the techniques is still fresh in their minds.

Further advice on establishing problem-solving groups can be obtained from MRA International, The Clock House, Grove Street, Wantage, Oxon OX12 7AA, UK (Phone 0235 770067 Fax 0235 771167).

Leader and facilitator roles

There is no doubt that problem-solving groups benefit significantly from having leaders who are trained in the task as well as skilled facilitators to assist the leader and the groups. In fact, it is hard to see how such activities can really achieve their potential without there being trained people in these roles.

Leaders and facilitators are responsible for different aspects of the work of the group.

The leader role

The leader of a problem-solving group can come from any part or level of the organization. It is not necessarily the most senior person who should be given the job. Indeed, there is often a good case for training and developing effective group leaders from different levels since this will give more flexibility and will make it easier to set up problem-solving groups to deal with different types of problem.

It is often inhibiting for junior members of staff to work in the same group as a senior manager, especially if he/she is the leader. This problem can be overcome if there are leaders trained from amongst their peers.

The leader role involves being an active member of the group, and contributing to the tackling of the task rather than simply orchestrating the work of the other members. The leader is also responsible for training group members in the detail of the problem-solving techniques (usually with the help of a facilitator); and for preparing and running the meetings effectively. It is a complex role and one that requires training if people are to fulfil it successfully.

The facilitator role

The facilitator's role is different from that of the leader. If the leader is responsible for working with the group on the task, the facilitator is more concerned with the process or the way the group is working.

The vast majority of difficulties that groups get themselves into are caused by not managing the way that they are working. Either they do not know how to, or they become so 'task mesmerised' that issues of group process simply pass them by. One of the facilitator's main tasks is to ensure that the dynamics of the group are managed successfully since this will be critical to the overall result that is achieved.

Facilitators also often help the leaders they are working with to train group members in the different techniques. Experience dictates that this is achieved most effectively when the training in a particular technique is given at the time the technique is needed, so that the learning is reinforced immediately by practice.

Facilitators do not 'own' the groups that they work with; they are there to help and support the leader, and it is important that this is reflected in the way that they go about the job.

Facilitators, like leaders, can come from any level of the organization. Since the role represents an excellent and practical management development opportunity, as well as being essential for the success of problem-solving groups, there is a good case for nominating a wide range of people as facilitators over a period of time. As with leaders, training is required to equip people to be able to perform the facilitator role successfully.

The MRA International facilitator and leader training courses are renowned all over the world and are run both in house and as public programmes. For further information about these courses contact MRA International, The Clock House, Grove Street, Wantage, Oxon OX12 7AA, UK (Phone 0235 770067 Fax 0235 771167).

Section 2

Introduction to Video 1: Preparing for Group Working

This short video introduces some of the important traps that groups fall into as they go about their work. Unless these are avoided they will adversely affect the group and will make it very difficult to achieve real success.

The issues raised affect groups everywhere in all levels of organization. They are not confined to problem-solving activities, but are equally relevant to any group that meets regularly in the course of work, so this video has a useful role in exposing the subject to Boards of Directors, management teams and natural working groups as well as to different kinds of problem-solving group.

The video summarizes some of the main traps that groups fall into as follows:

- A failure of members to listen to each other and to hear what others are saying
- A reluctance to disrupt the apparent cohesiveness of the group by introducing ideas that are different from the majority view
- A tendency to limit the discussion to a few alternatives
- Exhibiting selective perception in accepting or rejecting new information
- Rationalizing the initial preferred solution too quickly rather than continuing the search for viable alternatives

The guidelines for avoiding these traps that are proposed in the video are:

- Leaders should actively encourage criticism of their own judgements to encourage the group to share all possibilities, including any controversial ideas
- Support by leaders and other influential members for the problem-solving process, and an initial impartial stance from them, to encourage the widest possible sharing of views and possibilities
- Actively gathering and using expert opinion from outside the group to challenge the views of members
- Institutionalizing the use of the 'Devil's advocate' role
- Sharing all residual doubts openly before coming to a final conclusion
- Conducting process reviews at the end of every meeting to help the group manage the way it is working

Using Video 1 with problem-solving groups (1.5 hours session plan)

Introduction to the session

- Welcome the group and introduce the session.
- Introduce the idea that any problem-solving group needs to manage the way it works, as well as using a coherent problem-solving process.
- Say that this session covers this first requirement.
- State that many of the difficulties that face groups are more to do with the way members work together than what it is they are working on.
- Elicit and answer any questions that members have at the outset.

5 minutes

Goals of the session

- Establish that the goals of the session are:
 - To explore the traps that groups can fall into
 - To agree a code of behaviour for the work of this group

5 minutes

The video

- Introduce the video as a useful tool to provoke thought and to offer suggestions for a code of behaviour for this group.
- Play the video.

10 minutes

Discussion

- Elicit the traps covered and record on a flip chart.
- From the group's previous experience of such activities elicit how common these traps are.
- Elicit other traps that the group have experience of and record on the flip chart.
- Ask the group to volunteer their own experiences (either from within or outside a problem-solving group) of the effects of falling into these traps.
- Agree the importance of avoiding these dangers.
- Review the guidelines suggested in the video and record on a flip chart.

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- Establish an understanding of the traps that the guidelines are designed to avoid.
- Discuss and agree the code of behaviour that the group wishes to use in its work. Add further guidelines to those suggested as necessary.
- Record these for display and reinforcement at all group meetings.

60 minutes

Conclusion

- Reinforce the importance of managing the way that we work together.
- Review the agreed code of behaviour.
- Make the link to the second video which covers the problem-solving process.
- Conduct a process review of the session listening carefully to all comments and suggestions.
- Thank the members for attending the session.

10 minutes

NOTES

Using Video 1 for existing groups (1.5 hours session plan)

Introduction

- Welcome the group.
- Make the point that groups often fail to manage the way they are working and that this can cause them to under-perform.
- Establish the importance of an open sharing of views if the group is to take this opportunity to improve the way it works together.
- Elicit and deal with any concerns or queries.

5 minutes

Goals of the session

- Establish that the goals of the session are:
 - To review how the group members currently work together.
 - To help the group to become even more effective.

5 minutes

The video

- Position the video as a useful mechanism to facilitate the discussion.
- Play the video.

10 minutes

Discussion

- Elicit the traps mentioned in the video and record on a flip chart.
- Discuss the extent to which the organization falls into these traps.
- Elicit other similar traps that the organization falls into and add to the flip chart.
- Discuss why the group believes people fall into these traps.
- Review the guidelines proposed in the video and record on a flip chart.
- Discuss how these could help the group to become more effective.
- Elicit additional suggestions and add them to the list.

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- Discuss and agree the guidelines that the group will use in future. Record them for display at future meetings.

60 minutes

Conclusion

- Establish the commitment of members to using the guidelines.
- Agree how progress will be tracked and monitored.
- Thank the group for their involvement.
- Conduct a process review of the session.
- Close the meeting.

10 minutes

NOTES

Introduction to Video 2: Problem-Solving Techniques in Action

The second video in this pack covers the 8 step problem-solving structure that is recommended for use by problem-solving groups. It is designed to 'stand alone' as a description of the stages that a group should go through in its work, and it contains enough detail of the different techniques for groups to be able to see the process in operation. The examples that are given are deliberately chosen to be generally relevant to all organizations.

Although additional material is provided to enable trainers to teach groups the fine detail of the different techniques, there is sufficient information in the video itself for groups to be able to practise the different stages of the process.

The 8 stage process that is described in the video is as follows:

- Define the problem clearly
- Analyse the problem fully and imaginatively
- Collect data about the issue
- Interpret the data from different perspectives
- Generate possible solutions
- Do a cost/benefit analysis of the preferred solution
- Do a presentation of the group's work
- Follow up, monitor, evaluate and improve

The programme can be used as an overview of the requirements for a problem-solving process or to guide a group as it progresses from step to step in addressing a problem.

Where it is used as a general overview, it will be better used in the situation where it is planned to start such activities, so that those attending can see a practical reason for the session. Alternatively the video can be usefully incorporated into broader training programmes.

Using Video 2 for general problem-solving training (2 hour session)

Introduction

- Welcome the group.
- State that however good the group is at the moment, there is always room for improvement, and that the group should explore the possibilities for getting even better without being defensive.
- Establish that further training will be made available for anyone who needs more detailed input on the techniques that are used, to make sure that problems are tackled in a rigorous way.
- Encourage questioning and discussion during the session.

5 minutes

Goals of the session

- Establish that the goals of the session are:
 - To establish an effective group problem-solving process
 - To improve the effectiveness of group problem-solving activities

5 minutes

The current situation

- Elicit from the group how problems are handled at the moment and the experience that people have of working in problem-solving groups.
- Establish in discussion the way that groups typically approach the task at the moment and record the steps on a flip chart.
- Discuss how successful present methods are and establish whether the group feels that they could be improved.
- Ask the group to identify things that go wrong or could be improved and list these ideas on a flip chart including actual examples from people's experience.
- Say that you will return to this list later to see how the recommended structure can help.

15 minutes

NOTES

The video

- Introduce the video as a description of a rigorous problem-solving process.
- Suggest that the group watches carefully and looks for examples of what they currently do, what they do well and other things that they do not do so well.
- Say that you will be discussing the process that is described and be looking for ideas that would be of use in the group's problem-solving activities.
- Play the video.

30 minutes

Discussion

- Ask the group for their initial impressions of the process described in the video.
- Review the 8 steps and record them on a flip chart.
- Return to the list of things that go wrong or could be improved and discuss with the group how the process described could help.
- Include in the discussion any further thoughts that the video has brought to mind about what the group does or does not do currently.
- Ask the group for their ideas about the problems they face in the organization that they could usefully tackle using this process. List them on the flip chart.

60 minutes

Conclusion

- Explain to the group the way that the organization intends to set up and utilize problem-solving groups.
- Establish the level of interest in being a part of a problem-solving group, tackling real issues in the way described.
- Conduct a process review of the session.
- Thank the group for attending.

10 minutes

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Using Video 2 for training a problem-solving group (1 hour session)

Introduction

- Welcome the members.
- Encourage questioning and discussion during the session.

5 minutes

Goals of the session

- Establish that the goals of the session are:
 - To give an overview of the problem-solving process
 - To clarify the main steps
 - To introduce some of the techniques that will be used

5 minutes

The video

- Establish with the group that you all want the activity to be successful and that to ensure this, there is a need for the group to use a complete and coherent problem-solving process. Discuss the dangers of not doing so.
- Introduce the video and encourage the group to listen carefully and to get the feel of the overall flow of the problem-solving process.
- Play the video.

30 minutes

Discussion

- Ask the group for initial views on the video and the process described.
- Ask if any members have used any of the techniques described and if so how they found them.
- Re-inforce the need to use the techniques rigorously if the group wants to be sure of success.

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- Establish that training in the detail of the techniques will be available if needed and that experience shows that it is better to do this at the time the particular technique is being used.
- Elicit any concerns that members have and discuss them openly.
- Encourage everyone to think positively about the opportunity to work on an important problem and to make sure that it is solved.

15 minutes

Conclusion

- Set the scene for the next group meeting when the members will start to work on the problem.
- Conduct a process review.
- Thank the group for attending.
- Close the session.

5 minutes

Section 3

Introduction to training session plans

This section provides detailed session plans for teaching the techniques that are covered in Video 2 to problem-solving groups. This requirement can normally be handled by a trainer or the leader or facilitator of the group though there may be occasions when it is more effective to use a skilled external consultant. Trainers can also use these outlines as the basis of more detailed training in the problem-solving process.

If it is a problem-solving group that is involved, it is important to note that whilst the sessions are structured to last one hour, it may be that some groups need more time to use the techniques and to reach agreement. This is inevitable with different groups and different levels of complexity in the problems being tackled.

The important thing is that the group uses the process rigorously, so do not be concerned if more than one meeting is needed at some of the stages. Do not let the meetings overrun if this is the case; come back the following week and continue from where you left off. An important part of the process is that it must not disrupt the normal functioning of the organization, and this will happen if meetings that are scheduled to last an hour are allowed to become open ended.

Visual aids to illustrate the sessions are included as separate OHP acetates.

You will need the following equipment for each session:

- Video 2: Problem-Solving Techniques in Action
- Video player and television
- Overhead projector
- Flip chart and pens
- Blu-Tack or masking tape
- Note cards

Identifying and defining the problem

*NB It will be useful to refer to pages 45-54 of **Problem Solving in Groups** in preparing for this session*

Stage 1

- Welcome the group and say that this session starts the problem-solving process in earnest.
- Establish the principle that they will learn the different techniques they will use to tackle the problem they are addressing and then put these techniques to use during the same meeting.
- Explain that this is because 'learning by doing' is easily the most effective method of equipping them with the knowledge and skills they need to solve problems successfully.
- Suggest that the first step should be for the group to remind themselves of the guidelines for working together, and agree to use them during all their meetings.
- Post the guidelines and establish that the group is prepared to use them actively.

5 minutes

Stage 2

- Establish that the purpose of the meeting is to define the problem clearly and to make sure that everyone has the same perception (OHP 1).
- Ask the group to volunteer an initial problem statement and write it on the flip chart.
- Remind the group of the two main traps that groups fall into at this stage, which are:
 - Defining possible solutions not problems
 - Working on issues that are too broad and general (OHP 2)
- Establish that the 'telltale' signs of a problem statement that is, in fact, a solution are often in the words that are used; for example 'more', 'less', 'new' and so on (OHP 3).
- Similarly, establish the kinds of problem statement that are really too broad to work on successfully. Remember to ask the group to volunteer other examples of problem statements that are too general to be practical (OHP 4).
- Remind the group of the technique called Occam's Razor that is designed to help groups define problems clearly and precisely (OHP 5).

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- Review the technique by playing that section of the video.
- Discuss whether the group believe that their initial statement is either a solution, or is too broad and if so, introduce one of the two mechanisms described below to deal with this:
 - If the statement is a solution the question is 'what is this the answer to?' (OHP 6)
 - If it is too general the question is 'what does this cause?' (OHP 7)
- In either case write the appropriate question on the flip chart and hand out cards or paper for members to record their answers on.
- Remind the group that all possible answers should be written down using a different card for each one.

15 minutes

Stage 3

- Explain the next step is to group the ideas into similar categories (OHP 8/OHP 9).
- Lay all the answers out and involve the members in grouping them into themes.
- Discuss and agree what should be the focus of the group. Write it on the flip chart. Remind the members that they can always deal with other aspects of the problem at a later stage, but that it is vital to be clear and precise about what is being tackled at all stages.

20 minutes

Stage 4

- Explain to the group that the next step is to be sure that we all have a similar perception of what it is that we want to get out of the activity (OHP 10).
- Hand out some more blank cards and ask the members to write down what outcome they would like to see when the problem has been solved.
- Lay the answers out and group them as before.
- Discuss with members any differences of substance in their answers and whether there is a need to amend the problem statement.

15 minutes

Stage 5

- Congratulate the group on having worked through the process well.
- Conduct a process review, remembering that this is about the way the group have worked together, not what they have been working on. Use the guidelines for group working as the basis of the review.
(Process reviews give each member the opportunity to comment on the process, they are not designed to become another meeting in themselves. The leader and facilitator should take careful note of the comments and suggestions that are made, and group members should be thanked for being open and honest, especially if they are critical of some aspects or suggest ideas for improving the way the group is working.)
- Say that the next meeting will be to explore the problem in detail.
- Close the meeting.

5 minutes

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Analysing the problem

*NB It will be useful to refer to pages 57-62 of **Problem Solving in Groups** in preparing for this session*

Stage 1

- Welcome the group.
- Ask if anyone has any thoughts or suggestions following the last meeting. Discuss them if they have.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Remind the group of the guidelines and post them on the wall.
- Say that this week they will be analysing the problem using a technique that was covered in the video called the fishbone diagram (OHP 11).
- Establish that they will learn the detail of the different steps and put them into practice during the meeting.
- Review the technique by playing that section of the video.

15 minutes

Stage 2

- Post up three sheets of flip chart paper side by side and ask the group to write the problem, or effect, on the sheet on the right hand side (OHP 12).
- Illustrate step 2 which is to draw in the main ribs of the fish (OHP 13). Complete this step.

5 minutes

Stage 3

- Remind the group that the technique uses brainstorming as the method for generating ideas and that the rules of brainstorming need to be understood and used rigorously.
- Review and reinforce the rules (OHP 14).

5 minutes

NOTES

Stage 4

- Establish who is going to be the scribe, choosing someone who can write quickly and legibly.
- Remind the group that the ideas should be generated at random and put up on the fishbone in a way that reflects their relationship to each other, with ribs and sub-ribs for ideas that are linked (OHP 15). (Make the point that the scribe can contribute ideas as well as other group members).
- Remind the group that any idea is a good idea and that they will brainstorm for 20 minutes to capture every possibility.
- Start the session by asking 'what are all the things that cause...(the effect/problem)?'

25 minutes

Stage 5

- Congratulate the group on the number of ideas that have been generated.
- Establish the need to incubate the ideas before identifying the important ones about which they will need to collect data.
- Agree where the diagram will be posted to allow members access to it, or agree who will transcribe the diagram so that members can have a copy.
- Say that the first task at the next meeting will be to identify the most important possible causes of the problem/effect.

5 minutes

Stage 6

- Conduct a process review listening carefully for any ideas and suggestions.
- Thank the group for attending and close the meeting.

5 minutes

NOTES

Data Collection

*NB It will be useful to refer to pages 69-81 of **Problem Solving in Groups** in preparing for this session*

Week One

(Note: This part of the process will probably take two meetings)

Stage 1

- Welcome the group.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Deal with any matters arising since the last meeting.
- Reinforce the group's guidelines. Ask the members whether they feel that the guidelines are being used effectively and discuss their comments.

10 minutes

Stage 2

- Display the fishbone diagram created at the previous session and ask members whether they have thought about which are the most important possible causes of the problem.
- Discuss the ideas and circle those that are thought to be the most significant.

20 minutes

Stage 3

- Establish that the next step is to collect data about these possible causes (OHP 16).
- Review the technique by playing this section of the video.
- Discuss any information that might already be available and how to get hold of it.
- Review the different types of check sheet that could be used to collect additional data (OHP's 17, 18, 19, 20). This will be influenced by whether the group are interested in when something occurs, or other questions such as 'how much', 'why' or 'where'.
- Establish the most appropriate design of check sheet for the problem being tackled.

25 minutes

NOTE

Stage 4

- Conduct a process review.
- Thank the members for attending.
- Congratulate the group on their progress and explain that you will continue with designing the plan for data collection at the next meeting.
- Close the meeting.

5 minutes

Week Two

Stage 1

- Welcome the group.
- Review and reinforce the guidelines.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.

5 minutes

Stage 2

- Continue to work on the design of the check sheets.
- When complete, discuss with the group over what period they will need to collect data, so that they can be sure to get a full picture.
- Ask the group to agree who will be responsible for collecting the information, remembering that, if possible, it is better to share this among the group members.
- Review the plan so that everyone is clear.

50 minutes

Stage 3

- Conduct a process review.
- Thank the members for attending.
- Close the meeting.

5 minutes

NOTES

Interpreting data

*NB It will be useful to refer to pages 84-89 of **Problem Solving in Groups** in preparing for this session*

Stage 1

- Welcome the group.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Reinforce the guidelines for working in groups.
- Establish that having collected the data the next stage is to look at it and interpret it (OHP 21).
- To ensure that they get the most out of the information they have collected, encourage the group members to use their imagination to explore the data from different angles.
- Suggest that a good technique to use is the Pareto diagram which is covered in the video.
- Play this part of the video as a reminder.

10 minutes

Stage 2

- Establish with the group which dimension of the data they wish to interpret; for example frequency, cost and so on.
- Introduce the group to step 1 (OHP 22) and organize the data into this form on a flip chart.
- Move on to step 2 (OHP 23) and add a cumulative total remembering to group the lesser items as 'others'.
- Illustrate step 3 which is to draw a blank Pareto diagram (OHP 24).
- Draw up the blank Pareto diagram on a flip chart using the cumulative total to establish the axis.
- Add the data to the chart.
- Discuss what the final chart indicates about the main causes of the problem.

30 minutes

NOTES

Stage 3

- Discuss any other Pareto diagrams that the group could draw that would offer a different perspective on the problem.
- Repeat the process or agree who will be responsible for drawing the alternative diagrams.

15 minutes

Stage 4

- Conduct a process review.
- Thank the members for attending the session.
- Close the meeting.

5 minutes

NOTES

Finding possible solutions

*NB It will be useful to refer to pages 96-100 of **Problem Solving in Groups** in preparing for this session.*

Stage 1

- Welcome the group.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Review the guidelines for group working.
- Introduce the next step as being to find possible solutions to the main causes of the problem (OHP 25).

5 minutes

Stage 2

- Remind the group that a good technique for finding possible solutions is Force Field Analysis which was illustrated in the video.
- Play this section of the video to remind the group.

10 minutes

Stage 3

- Post three sheets of flip chart paper side by side and use them to record the following stages.
- Introduce the first step (OHP 26).
- Get the group to define the best and worst situations relating to the problem.
- Display and introduce the rating system for importance (OHP 27).
- Get the group to list all the restraining forces and to rate them in terms of importance.
- Repeat the procedure for the driving forces.
- Display and introduce the rating system for how easy the force will be to influence (OHP 28).
- Get the group to rate all the forces in terms of how easy they will be to influence.

25 minutes

NOTES

Stage 4

- Suggest that the group now looks for the restraining forces that are important and easy to influence, and then the drivers that can readily be affected.
- Get the group to develop a potential action plan based on these views, but remind the members that they will have to evaluate these ideas in terms of costs and benefits before coming to a final conclusion, so they must not become committed to a solution at this stage.

15 minutes

Stage 5

- Conduct a process review.
- Thank the members for attending.
- Close the meeting.

5 minutes

NOTES

Cost Benefit Analysis

*NB It will be useful to refer to pages 111-117 of **Problem Solving in Groups** in preparing for this session.*

(NOTE: This section of the work is likely to take two meetings:

1. To work out the information that needs to be collected in order to calculate the costs and benefits.
2. To draw the actual figures together, to calculate the payback period and to take a view whether the investment is worthwhile).

Week One

Stage 1

- Welcome the group.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Review the guidelines for group working.
- Introduce the purpose of this session as being to evaluate the possible solution in terms of costs and benefits (OHP 29).
- Review the technique by showing that section of the video.

5 minutes

Stage 2

- Explain that the first step is to brainstorm to assess the costs that would be involved in introducing the solution.
- Remind the group that they need to look for all the costs, not just the obvious ones, and that they should express them in money terms as far as possible.
- Review the rules of brainstorming (OHP 14).
- Get the group to brainstorm the items and issues that will incur cost.
- Agree who will be responsible for finding out the actual costs of the different items. Remember that many organizations use standard costs for a variety of things, and if this is the case, they will be available, usually from the accounts department.

25 minutes

NOTES

Stage 3

- Get the group to repeat this procedure for the benefits that will derive from the solution.
- Remember that some benefits will only accrue once, whereas others will continue year after year (OHP 30).
- Remind the group of the idea of the payback period (OHP 31).
- Ask for a volunteer to find out what payback periods the organization uses to evaluate different types of investment.

25 minutes

Stage 4

- Conduct a process review.
- Thank the group for attending.
- Close the meeting.

5 minutes

Week Two

Stage 1

- Welcome the group.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Review the guidelines for group working.
- Establish the purpose of the meeting: to pull together an assessment of the actual costs and benefits and to take a view whether or not such an investment would be worthwhile.

5 minutes

Stage 2

- Ask the different group members who have collected the information to share it, and record it using different flip charts for the costs and the benefits.
- Add up the totals.

15 minutes

Stage 3

- Remind the group of the idea of calculating the payback period (OHP 31).
- Calculate the payback period for this solution.
- Compare it with the figures used by the organization in assessing investments.

15 minutes

Stage 4

- Discuss with the group the viability of the solution.
- Include in this a serious discussion about whether members would spend the money in this way if it was their own.
- If the conclusion is that the solution is not viable, do not let the group become despondent. Many groups have gained credibility by finding a better solution when this happens.

(NB If this is the case, get the group to keep the cost benefit analysis, as they will want to build it into their final presentation as an explanation of why they chose not to recommend that particular solution.)

- If the conclusion is that the solution is viable, establish that the next step is to prepare a presentation of the group's work, and that they will begin working on this at the next meeting.

20 minutes

Stage 5

- Conduct a process review.
- Congratulate the group on its work.
- Close the meeting.

5 minutes

NOTES

Presenting the solution

*NB It will be useful to refer to pages 121-130 of **Problem Solving in Groups** in preparing for this session.*

Stage 1

- Welcome the group.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Review the guidelines for group working.
- Say that the purpose of the meeting is to start preparing for the presentation that the group will make to sell its solution (OHP 32).
- Review the technique by showing that section of the video.

5 minutes

Stage 2

- Establish that the presentation should take the audience through the whole problem-solving process that has been used by the group, so that they can understand the group's thinking at each stage.
- Recommend that the members all play a part in the presentation by taking responsibility for one of the sections.
- Encourage anyone who is reluctant. Many people are nervous of 'public speaking' but find that, after it is all over, they are really glad that they played their part. Don't put too much pressure on anyone who really does not want to speak, there are other roles that people can play to support those who do the presenting.
- Agree who will speak and divide the presentation into that number of sections using the problem-solving process as a guide (OHP 33).

25 minutes

Stage 3

- Say that the presentation should last about 20-25 minutes and calculate approximately how long each person should speak, remembering that the different parts of the presentation do not have to be of the same length.

NOTES

NOTES

- Make the point that visual aids are a very important aspect of a good presentation (OHP 34).
- Discuss the type of visual aids that will be used; for example: overhead transparencies, flip charts or even the actual working documents that the group generated in its work.
- Agree responsibilities for preparing visual aids. This is something that anyone who is not speaking could help with.
- Discuss the need for a report or handout for the audience, to act as a summary and a reminder of the group's work.
- Agree responsibilities for the preparation of the report.
- Discuss and agree that individuals will be responsible for their own preparation and that the group as a whole will be able to comment at a rehearsal.
- Agree how long is needed for preparation.

15 minutes

Stage 4

- Discuss and agree who should be invited to the presentation. Include those who will be genuinely interested or affected by the solution as well as any decision makers.
- Agree responsibilities for arranging the date, time and venue and for liaising with the people who are to be invited.

10 minutes

Stage 5

- Conduct a process review.
- Thank the members for agreeing to play their part.
- Close the meeting.

5 minutes

Follow up

*NB It will be useful to refer to pages 131-135 of **Problem Solving in Groups** in preparing for this session.*

Stage 1

- Welcome the group.
- Ask the group to summarize the results of the last session. Check for agreement and understanding.
- Review the guidelines for group working.
- Establish that the purpose of the meeting is to evaluate how far the group has got with the implementation of the solution and to see if it could be improved further (OHP 35).
- Review the technique by showing that section of the video.

5 minutes

Stage 2

- Establish the current situation.
- Discuss any relevant issues that are influencing the effectiveness of the solution and record them on a flip chart.
- Discuss and list any additional possibilities that could make the solution even more successful.
- Agree how these should be handled.
- Establish the need to calculate the actual benefits that are being achieved and agree how this should be done.
- Agree who will be responsible for any actions that need to be taken and record these together with the agreed timings on an action plan.

50 minutes

Stage 3

- Conduct a process review.
- Thank the members for their efforts.
- Close the meeting.

5 minutes

NOTES

PHOTOCOPY THIS SECTION BEFORE USE

Section 4

Using these videos for self development

Where you have been given the opportunity to watch these videos on your own (perhaps in your organization's training resource or open learning centre) the following guidelines, questions and tasks will help you get the most from the programme.

They are designed to help you expand on the ideas as they are presented in the two videos and to help you apply the problem-solving techniques in your workplace. If you need help with the questions or the tasks, talk to your immediate colleagues, your boss or your training manager.

Before you start

What are your objectives in using this programme; what are you hoping to achieve; and how will you apply what you will learn?

Video 1 : Preparing for Group Work

Before you view the video you should

1. Study the first two chapters of the accompanying book, **Problem Solving in Groups**.
2. Read the 'Introduction to Video 1' (page 9).

Then

3. Watch the video through once without taking notes. Concentrate on everything that is said and the overall message of the video.
4. Watch the video through again stopping it where necessary to consider the following:
 - (a) What other examples can you think of, in the public or business arena (or in your own organization) of teams or groups that you consider to have failed in their task(s)?

- (b) Which of the traps described in the video are they most likely to have fallen into?

(c) List examples of what you might observe to indicate that members of any group are:

Not listening: _____

or

Listening: _____

to what their colleagues are saying.

(d) How might you spot a group where members are becoming more concerned with the cohesiveness of the group than the task at hand?

(e) In what ways could the leader of a problem-solving group actively encourage positive criticism?

- (f) How might a group leader or a facilitator demonstrate support for an open problem-solving process and encourage creative ideas from all members of the group?

- (g) Who might you (or your work group) turn to for expert advice from outside the group?

- (h) How might you, as Devil's advocate, challenge the position of the majority within your work group, without generating unhelpful conflict within the group?

- (i) What behaviour might a colleague demonstrate if he or she were harbouring doubts about the decision of the group?

- (j) What action(s) will you take, following this video, to improve the dynamics and the performance of your work group?

Video 2 : Problem-Solving Techniques in Action

Note: You may choose to complete individual tasks as you come to them. Alternatively, you may wish to tackle one or more of the tasks once you have completed your second viewing of the video.

Before you view the video you should

1. Read Chapter 3 of the accompanying book **Problem Solving in Groups**.
2. Read the 'Introduction to Video 2' (page 14).

Then

3. Watch the video through once without taking notes. Concentrate on everything that is said and the overall message of the video.
4. Watch the video through again stopping it where necessary to consider the following points:

Identifying the problem

5. What examples of tasks or problems that would be most suited to a group problem-solving approach can you think of?

and why are they suited to it?

6. *Task 1 : Occam's Razor*

Take a problem on which you are currently working and use the technique of Occam's Razor (described in pages 47 to 54 of the accompanying book **Problem Solving in Groups**) to help define the core of the problem.

In place of the brainstorming process described, compile a list of problem statements from any ideas you can think up yourself.

Analysing the problem

7. What examples can you think of, of solutions, ideas, new products that have occurred in your organization as a result of creative thinking?

8. What approach to problems could identify someone as a creative thinker?

or an analytical thinker?

9. ***Task 2 : The Fishbone Diagram***

Use points 1-4 of the techniques for creating a Fishbone Diagram (described on pages 57-62 of the accompanying book **Problem Solving in Groups**) to identify the constituent elements of the problem you selected for **Task 1**.

Data collection

10. What different sources of data exist within your organization and how might you use them to help solve problems?

11. Do you use checksheets to collect data in different parts of your organization? What do they look like and how are they currently used?

12. *Task 3 : Data collection*

Part 1

Using the guidelines given on pages 71 to 81 of the accompanying book **Problem Solving in Groups** design a checklist to gather data relating to the problem you selected for **Task 1**.

Part 2

Use the checklist to collect and fill in data relating to the problem you have chosen.

Interpreting the data

13. What examples can you think of at work – or outside it – of Pareto's 80/20 formula?

14. Check with your marketing department. What percentage of your sales come from the largest 20% of your customers?

Check with your credit control department. What percentage of your customers are responsible for 80% of your overdue invoices?

15. **Task 4 : Pareto Diagram**

Decide which parameters would be the most useful measure of the data you have collected in **Task 3**. Using your chosen parameters (plus the guidance given on pages 83 to 89 of the accompanying book **Problem Solving in Groups**) prepare and draw a Pareto Diagram. What perspective does this diagram give you of the problem?

Finding possible solutions

16. What possible applications for Force Field Analysis can you think of either in your organization or outside it?

17. Change is a fact of life for most organizations. If your organization is experiencing some form of change at the moment, what elements within that change would you list as driving forces?

and restraining forces?

18. ***Task 5 : Force Field Analysis***

Using the facts you have gathered thus far about the problem you selected for **Task 1** (and with the help of the guidance supplied between pages 96 and 100 of the accompanying book **Problem Solving in Groups**) prepare a Force Field Analysis. Which of the driving and restraining forces in your analysis are both easy to influence and most important?

Driving forces: _____

Restraining forces: _____

Cost benefit analysis

19. What examples can you think of, both inside and outside your organization, of valid solutions to problems that are/would be rejected on the grounds of expense?

20. What examples of standard costings can you find that are used in your organization?

21. What payback period(s) does your organization regularly use to evaluate different types of investment?

22. ***Task 6 : Cost benefit analysis***

Read Chapter 10 of the accompanying book **Problem Solving in Groups** for the guidelines on carrying out a cost benefit analysis.

Select one of the possible solutions you should by now have generated to your original problem. Spend 5 or 10 minutes listing all the costs associated with this option. Remember to list direct costs as well as indirect costs (salaries, time etc).

Now spend time estimating the financial benefits the solution will bring, over what period. Complete the cost benefit analysis. What basic conclusions have you come to about the viability solution you have just analysed?

Presenting the solution

23. What are the key elements of an effective presentation?

24. What are the basic differences between the way information is presented in a written report and how it is presented face-to-face?

25. ***Task 7 : Preparing a presentation***

Read through Chapter 11 'Presenting Solutions' in the accompanying book **Problem Solving in Groups**. Now take the solution that you have worked through for **Task 6**. Imagine that you will be presenting it to a group of your colleagues.

List the elements in the problem-solving process that have generated the most convincing arguments in favour of your solution. Now devise an outline structure for your presentation: what information would you include or exclude; in what order would you present the material; how will you handle any data that is less favourable to your solution?

Follow up

26. If your organization has recently established some new procedures, new systems, new production methods or a new approach to marketing, what measures have been put into place to measure the results?

27. What parameters would you set for evaluating the success of the solution to the problem that you chose back in **Task 1**?

and finally:

28. How successfully have you achieved the objectives you set before you started to use this programme? What (if anything) further do you need to do to understand and apply the problem solving techniques advocated in **Problem Solving in Groups**?
