National Technical and Vocational Qualification Framework

NTVQF

Competency-Based Learning Material

NTVQ Level 1

Operating in Self-Directed Team

Bangladesh Technical Education Board
Agargoan, Shere Bangla Nagar
Dhaka-1207

TABLE OF CONTENTS

HOW TO USE THIS COMPETENCY-BASED LEARNING MATERIAL

Welcome to the module **Operating in Self-Directed Team**. This module contains training materials and activities for you to complete.

This unit of competency, **“Operate in a Self-Directed Team”**, is one of the competencies of any NTVQ Level 1 Occupation, a course which comprises the knowledge, skills and attitudes required to become a Basic-Skilled Worker.

You are required to go through a series of learning activities in order to complete each learning outcome of the module. These activities may be completed as part of structured classroom activities or you may be required to work at your own pace. These activities will ask you to complete associated learning and practice activities in order to gain knowledge and skills you need to achieve the learning outcomes.

Refer to **Learning Activity Page** to know the sequence of learning tasks to undergo and the appropriate resources to use in each task. This page will serve as your road map towards the achievement of competence.

Read the **Information Sheets**. These will give you an understanding of the work, and why things are done the way they are. Once you have finished reading the Information sheets complete the questions in the Self-Check Sheets.

Self-Checks follow the Information Sheets in the learning guide. Completing the Self-checks will help you know how you are progressing. To know how you fared with the self-checks review the **Answer Key**.

Complete all activities as directed in the **Job Sheets and/or Activity sheets**. This is where you will apply your new knowledge while developing new skills.

When working though this module always be aware of safety requirements. If you have questions, do not hesitate to ask your facilitator for assistance.

When you have completed all the tasks required in this learning guide, an assessment event will be scheduled to evaluate if you have achieved competency in the specified learning outcomes and are ready for the next task.

MODULE CONTENT

MODULE TITLE: Operating in a self-directed team

MODULE DESCRIPTOR:

This module covers the knowledge, skills and attitude in communicating and working within a team in an interactive work environment as per the workplace standard. It includes identifying team goals, communicating and cooperating with team members, working as a team member, and solving problems as a team member. It also includes information sheets, self-checks and activity sheets.

NOMINAL DURATION: 30 hours

LEARNING OUTCOMES:

After completing this module, the trainee MUST be able to:

1. Identify team goals and processes
2. Communicate and cooperate with team members
3. Work as a team member
4. Solve problems as a team member

ASSESSMENT CRITERIA

1. Team goals and processes are identified.
2. Roles and responsibilities of team members are identified.
3. Relationships within team and with other work areas identified
4. Effective interpersonal skills are used to interact with team members and to contribute to activities and objectives.
5. Formal and informal forms of communication are used effectively to support team achievement.
6. Diversity is respected and valued in team functioning.
7. Views and opinions of other team members are understood and reflected accurately.
8. Workplace terminology is used correctly.
9. Duties, responsibilities, authorities, objectives and task requirements are identified and clarified with team.
10. Tasks are performed in accordance with organizational and team requirements, specifications and workplace procedures.
11. Team members support other members as required to ensure team achieves goals and requirements.
12. Agreed reporting lines are followed using standard operating procedures.
13. Current and potential problems faced by team are identified.
14. Procedures for avoiding and managing problems are identified.
15. Problems are solved effectively and in a manner which supports the team.

LEARNING OUTCOME 1 IDENTIFY TEAM GOALS AND PROCESSES

CONTENTS:

1. Identify team goals and processes
2. Identify roles and responsibilities of team members
3. Identify relationships within team and with other work areas

ASSESSMENT CRITERIA

1. Team goals and processes are identified.
2. Roles and responsibilities of team members are identified.
3. Relationships within team and with other work areas identified.

CONDITIONS:

Trainees must be provided with the following:

- Personal Protective equipment

Learning Materials

- Books, manuals
- Modules/references

LEARNING ACTIVITIES

LEARNING OUTCOME: Identify Team Goals and Processes

LEARNING ACTIVITIES	RESOURCE/SPECIAL INSTRUCTIONS
Understand the terms used in self-directed teams	• Read Information Sheet 4.1-1 • Answer Self Check 4.1-1 • Compare your answer to the Answer Key 4.1-1

INFORMATION SHEET 4.1-1
Self-Directed Teams

Learning Objectives:

After reading this INFORMATION SHEET, you will be able to identify the terms used in self-directed teams, including team goals and processes.

Self-Directed Work Teams

According to the website www.odportal.com, a self-directed team is a group of self-managed employees working as a team on a continuing basis. It is a specific type of team whose members combine different skills and talents to work without the usual managerial supervision toward a common purpose or goal. Typically, a self-directed work team has somewhere between two and 25 members.

They are responsible for day to day performance of their work area. Wellins and George define a self-directed team as a small group of employees responsible for an entire work process or segment. Kulish and David write that self-directed work teams differ from traditional work groups in that the team, rather than the first line supervisor controls the critical management process of: 1) planning, 2), organizing, 3) directing, and 4) staffing.

Team Goals and Processes

Team Roster

A group of individuals cannot become an effective team until everyone in the group knows who is “really” a member. There are cases when a team is formed intuitively, meaning the members are people you know personally, or who you have worked with before. Other times a team is created randomly, and you do not have any information regarding your fellow members.

Thus, it is important that a written team roster or list is created first. It is the official act of recognizing each other as members of the team. The roster is often circulated to the rest of the organization, often with a copy of the team charge or an official memorandum, so that everyone knows who is responsible for the project and how those individuals can be contacted.

Team Goals

Once your group of individuals has become a cohesive team, you will be more motivated to get the job done, but success requires another key step: you need to “understand together” exactly what the task is. A lack of goal setting and task definition is one of the key reasons groups fail (Kettlehut, 1991).

If you want to be a good team player, make sure you understand the group’s goals. There are five components to a team goal. To find those, ask key questions like these:

- *Why are we here?* This refers to the goal or job of the team. In order for the goal to be achieved, the team needs to break it down into specific **task steps** or concrete, observable duties, activities or behaviours. The team has to define each task clearly.
- *What is the ‘perfect ending’ to this project?* If the team has to accomplish something, you have to meet the expectations of your client or boss. These **success criteria** maybe the quantity required or the quality of a product. The team needs to identify the outcome in terms of concrete, measurable standards.
- *What is our deadline?* It is important to know the **time frame** or how soon a project or a product needs to be completed.
- *What is our budget?* As a team member, you have to bear in mind the **cost** of accomplishing any project.
- *What* **roles and responsibilities** *will each of us have?* Be clear about what you are there to do. This will help you complete your tasks to the best of your abilities.

An example of a team charter is presented below:

Purpose The goal of the Bangla 7 Team is to implant (“implant” refers to ion implantation, a process for treating silicon semiconductor discs) every wafer (disc) accurately and as quickly as possible for our customers. We will work continuously to reduce costs and improve wafer yields. The Bangla 7 team will be contributing to SMART Corporation, setting new standards for tomorrow’s semiconductors.

Roles & Responsibilities of Team Members

A self-directed work team usually performs many traditional support functions along with routine production or service. For example, they keep records; select, orient and train new members; keep attendance records; control quality; plan work schedules; resolve conflicts; assign jobs; monitor performance; solve technical problems; discipline members; control absences and tardiness; order materials and supplies; prepare budgets; and control inventory.

Self-Directed Work Teams exhibit the following characteristics:

- The team performs specific tasks
- Team members are multi-skilled.
- Team members are interdependent.
- Team members are in control of their daily, monthly and yearly goals.
- The team's focus is on team results, not individual results.
- Team members rotate tasks because extensive cross-training enables them to perform many different jobs.
- Management clearly defines the team's boundaries for task responsibilities and authority (for example, hiring or firing members, or redefining work instructions, may be outside of the team's authority).
- The team monitors and controls both its work quantity and quality.
- Each team understands the need for effective teaming behaviours.

A key factor that sets Self-Directed Teams apart from conventional teams is that all members of the team are intimately familiar with all of the tasks done within the team. All members on a Self-Directed Team must not only understand the variety of jobs and tasks performed within the team, they must also have the capability to perform each of these jobs/tasks.

Bangla 7 Team

Roles and Responsibilities

Administration:

- Takes meeting minutes and makes them available for everyone
- Manages team projects
- Organizes team meetings

Communication:

- Facilitates general communications among team members
- Reads team email and makes sure that other team members are aware of its contents

Production:

- Knows the priority work for production planning
- Monitors constraints and planning to be sure the workload is full

Safety: • Observes general safety concerns • Coordinates facilities request • Conducts safety training Quality Control: • Monitors updates, revisions and changes to operating instructions. • Maintains established standards and limits

Team members must understand why they are participating on the team and how the team fits within their organization. In an effective team culture, team members understand where the work of their team fits in the total context of their organization's strategic plan and success goals.

As a member of a self-directed team, you need to understand why using teams will help your organization attain its business goals. This is because if you understand the context of a team culture so well, you are convinced that teams are the only way your organization will excel.

This implies that you realize where your work fits in the total context of the organization's mission, goals, principles, vision and values. Moreover, you need to build relationships with your fellow members in the self-directed team to accomplish the task and produce the necessary outcome.

Building relationships within the team

In order to build relationships within the team, the following actions are necessary:

1. Discuss team member work styles – Many conflicts on a team arise from the fact that members simply have "built in" differences about how they approach problems or situations. Identifying these work style differences up front can avoid a lot of problems later on. Reach agreements about how people with different styles will accommodate one another.

2. Define the "team personality" – The combination of individual styles will create strengths and weaknesses for the team as a whole. Consider how this combination of work styles may affect decision making, information sharing, leadership, conflict resolution, etc. Discuss how to maximize strengths and compensate for weaknesses.

3. Discuss individual needs, hopes and concerns – Let each team member express their personal views of the project. This often points up potential issues

that had not previously been considered. Any concerns about what will be expected can be addressed at this point. But this discussion should also include positive perceptions about what can be accomplished by the team.

Some useful questions to include in your discussion:

- *What is this group likely to agree or disagree about?*
- *What conflicts might be predicted by our work styles?*
- *What are our natural strengths and weaknesses as a group?*

SELF-CHECK 4.1-1

1. What is self-directed team?
2. What are the five (5) components of team goals?
3. Give two (2) ways to build good working relationships with team members.

ANSWER KEY 4.1-1

1. A self-directed team is a group of self-managed employees working as a team on a continuing basis. It is a specific type of team whose members combine different skills and talents to work without the usual managerial supervision toward a common purpose or goal.

2. The five components of team goals are:

   a. Tasks

   b. Success Criteria

   c. Time Frame

   d. Cost

   e. Roles and Responsibilities

3. Ways to build relationships within the team

   a. Discuss team member work styles

   b. Define “team personality”

   c. Discuss individual goals, hopes, concerns

LEARNING OUTCOME 2 COMMUNICATE AND COOPERATE WITH TEAM MEMBERS

CONTENTS:

1. Effective interpersonal skills are used to interact with team members and to contribute to activities and objectives.
2. Formal and informal forms of communication are used effectively to support team achievement.
3. Diversity is respected and valued in team functioning.
4. Views and opinions of other team members are understood and reflected accurately.
5. Workplace terminology is used correctly to assist communication.

ASSESSMENT CRITERIA

1. A range of communication or information is dealt with at one time.
2. Appropriate questions are asked and accurate information is provided.
3. Information in written form is presented clearly and effectively and appropriate sources of information are used.

CONDITIONS:

Trainees must be provided with the following:

- Personal protective equipment

Learning Materials

- Books, manuals
- Modules/references

LEARNING ACTIVITIES

LEARNING OUTCOME: Communicate and Cooperate With Team Members

LEARNING ACTIVITIES	RESOURCE/SPECIAL INSTRUCTIONS
Use appropriate forms of communication to contribute to team objectives	• Read Information Sheet 4.2-1 • Answer Self Check 4.2-1 • Compare your answer to the Answer Key 4.2-1

INFORMATION SHEET 4.2-1

Forms of Communication

Learning Objectives:

After reading this INFORMATION SHEET, you will be able to use appropriate forms of communication to contribute to team objectives.

Communication within the Team

Employees typically desire control of their own activities in the work environment. A self-managed team, having received project objectives, functions without management intervention, unless absolutely required. By comparison, a regular employee reports to a supervisor, who directs his work. On a self-managed team, the members plan and execute job tasks. When employees have the skills and experience to work without approval, there is a typical improvement in productivity. Good communication ensures that team members work collaboratively.

Why is communication important for a team to be effective?

Team communication processes that function effectively can:

- increase team motivation,
- foster trust and respect between members,
- greatly improve decision making processes and
- contribute substantially to the overall productivity and performance of the team.

Yet, communication processes that are ineffective can decrease member motivation, lessen team commitment, increase team gossip and lower productivity. Effective communication processes, therefore are vital to team performance.

Modes of communication

Within the work environment, communication can occur through a variety of modes depending on personal preference. Some of the more popular modes for team communication are:

a. Team meetings
b. Email updates

When using these modes it is important to remain mindful of the 3 characteristics that make communication processes effective (i.e. should be regular, transparent and goal focused).

1. Team meetings

One of the primary forums for team communication is the team meeting. When conducted with structure and purpose, regular team meetings can be an effective and productive means of team communication.

Self-managed teams generally need to meet more frequently than other teams because they share leadership. Regular meetings usually include status updates, brainstorming and troubleshooting. Team members take turns leading the meetings, taking notes and facilitating discussions. Administrative work traditionally done by managers occurs at meetings, such as approving vacations, timesheets and project expenditures. A team calendar keeps everyone informed about upcoming events, deadlines and holidays. Regular follow-up team communication may include email messages, instant messaging and the use of social media technology, such as wikis, blogs and forums.

Attending meetings

Whether or not there is a designated meeting facilitator, everyone who attends a meeting plays a part in keeping the group's communication on track.

- Make sure you see the agenda. If the facilitator "forgot" to prepare one, ask that the group make a quick list of the meeting's goals and topics.
- Take meeting notes right on the agenda. This will help you to keep track of what is going on, and you can offer to make the group notes or take the minutes if those jobs aren't being done.
- Keep an eye on the clock. If conversation is getting bogged down, or if conflict seems to be unresolvable, it is proper to suggest that the group "move on, in the interests of time." Unresolved issues should be rescheduled for a better time when information, resources and/or open-mindedness are more available.

After each agenda item, verify that the group is in agreement

- that the agenda item has been adequately covered
- on the decisions that have been made
- on any "new" issues that need to be added to a future research or communication agenda

2. Email updates

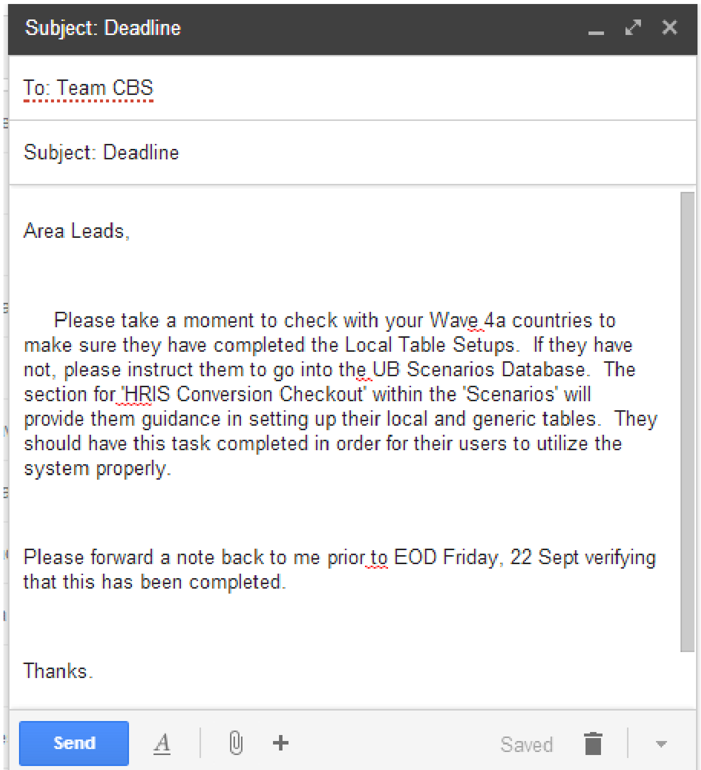
Email has fast become the one of the most widely used mediums for business communication. Mastering email correspondence is one of the simplest and most effective ways of ensuring that your messages are not only read but followed up accordingly.

Inboxes are often overloaded with numerous messages of varying importance. If you are sending emails as a means of communicating with your fellow team members you will want to ensure that your message gets read and is clearly understood.

Constructing an effective email

To construct an effective email it may be helpful to remember the following key points:

- Make use of the subject line. The subject line provides an opportunity to inform the receiver of the purpose of the email. A subject line ideally should describe exactly what the email is about. An appropriate subject line will maximize the possibility of your message being read.
- Use concise language. Like any written business correspondence it's important to keep business emails concise and to the point. Often the viewing area for emails is limited, so if possible limit messages to a few short paragraphs. Everyone is busy – don't waste their time – be clear and concise.
- Make any required follow up clear. If your email is a request for action or follow up from a team member make this clear in your message. Remember to include any contact details (such as phone or fax numbers and addresses for snail mail) that the receiver may require.
- Respond to emails in a timely manner. Prompt responses to emails not only promotes efficiency but often encourages team members to respond in a similar timely manner.


Subject: Deadline

To: Team CBS

Subject: Deadline

Area Leads,

Please take a moment to check with your Wave 4a countries to make sure they have completed the Local Table Setups. If they have not, please instruct them to go into the UB Scenarios Database. The section for 'HRIS Conversion Checkout' within the 'Scenarios' will provide them guidance in setting up their local and generic tables. They should have this task completed in order for their users to utilize the system properly.

Please forward a note back to me prior to EOD Friday, 22 Sept verifying that this has been completed.

Thanks.

Send Saved

Figure 1. Email

Communicating Clearly

Effective communication does more than just convey information. In an effective communication transaction a message is conveyed with shared meaning. It may be helpful to reflect on the following key areas to assist you in developing or enhancing your communication with other team members:

- The message you think you are sending may not be the same message being received.
- Within a team environment, members still bring their own experiences, beliefs and interpretations.
- When communicating a message, expect to be misinterpreted and make adjustments to your message to account for potential areas of misunderstanding.

Below are some ways to communicate effectively:

- **Seek feedback.** As misinterpretations are common in communication, it is often advisable that you continually seek feedback to ensure that your messages have been received accurately.

- **Make it your priority to express rather than impress.** The aim of communication is to express an opinion, idea or to transfer knowledge. It is important to remember that your primary aim is to get your message across, try not to obstruct it by being focused on sounding impressive or knowledgeable.
- **Choose the right medium.** Effective communication means choosing the appropriate medium for your message. Some information is best conveyed in a team meeting, whilst other information may be received more appropriately in an email or memo, other information should be communicated face to face. Select the medium to suit the message and the person you are communicating with.
- **Be conscious of your non-verbal communication.** Be conscious of what you are conveying non-verbally. Avoid diluting the impact of your message with mismatched or incongruent body language. Where possible, adjust your body language to align with your message.

SELF-CHECK 4.2-1

1. Enumerate the reasons why communication is important for teams to work effectively.

2. Give two (2) popular modes of communication

3. Enumerate three (3) ways to communicate clearly in a team environment.

ANSWER KEY 4.2-1

1.
   a. increase team motivation,
   b. foster trust and respect between members,
   c. greatly improve decision making processes and
   d. contribute substantially to the overall productivity and performance of the team.

2.
   a. Team meetings
   b. Email updates

3.
   a. Seek Feedback
   b. Choose the right medium
   c. Make it a priority to express
   d. Be conscious of non-verbal communication

LEARNING OUTCOME 3 WORK AS A TEAM MEMBER

CONTENTS:

1. Duties, responsibilities, authorities, objectives and task requirements are identified and clarified with team.
2. Tasks are performed in accordance with organizational and team requirements, specifications and workplace procedures.
3. Team members support other members as required to ensure team achieves goals and requirements.
4. Agreed reporting lines are followed using standard operating procedures.

ASSESSMENT CRITERIA

1. Constructive contributions in workplace issues are made.
2. Awareness of organization's code or conduct is displayed.
3. Collaborative decision-making processes are applied.

CONDITIONS:

Trainees must be provided with the following:

- Books, manuals

Learning Materials

- Books, manuals
- Modules/references

LEARNING ACTIVITIES

LEARNING OUTCOME: Work As A Team Member

LEARNING ACTIVITIES	RESOURCE/SPECIAL INSTRUCTIONS
Familiarize with tools in identifying duties, responsibilities and task requirements within team's goals	• Read Information Sheet 4.3-1 • Answer Self Check 4.3-1 • Compare your answer to the Answer Key 4.3-1

INFORMATION SHEET 4.3-1

Organizing the Team's Work

Learning Objectives:

After reading this INFORMATION SHEET, you will be able to use tools in identifying duties, responsibilities and task requirements within a team's goals.

Organizing the Team's Work

Once the team is formed, productivity depends on the management of resources to accomplish its task, which by the very definition of "team" work requires productive communication within the group. Teams need to use clear, concise and efficient communication to insure their productivity. Once the team is clear about its charge or mission, the real work begins of figuring out the step-by-step process to accomplish that goal. Because of the team environment, this "organizing" step is necessarily a communication process. The specific steps and standards envisioned by each group member must be shared and confirmed in a feedback process so that the group can productively work collaboratively.

Work Plan

A complete project work plan documents all elements of the team's scope and objectives, as well as the specific phases or steps involved in completing the work. This document will allow everyone in the team to know where it is going, and how much it has accomplished at any given moment, and what remains to be done.

One needs to understand what comprises the work plan. The key information in an effective work plan includes:

Project Steps Every element or step of the project must be listed. Most of the times the steps are in chronological order but there are jobs that involve tasks completed simultaneously. In cases where the tasks are interrelated, a Gantt chart is often the best way to visualize the flow of the project.

Sub-steps and Tasks Each major element of a project is broken down to the level of a task: the work that an individual can accomplish in a single work session.

Task Sequence Each task should be reviewed for elements that must be completed in advance.

Time Estimates The estimate of the time a task will take should never exceed the amount of work one person can do in one sitting.

Task Assignments Productive team work requires that tasks be assigned on the basis of skills, access to resources, and work preferences. In many cases, work assignments are made to minimize the need for extra communication. A person who completes a sub-task, for instance, might be involved in a later step, allowing him or her to use the information learned at the earlier stage of the project. Review the assignments carefully to insure that each individual has access to the equipment, time and skill resources needed to complete his or her tasks.

Project Calendar

A project calendar is created in the same way a personal calendar is created, although accuracy and completeness are more important when several people must coordinate their work.

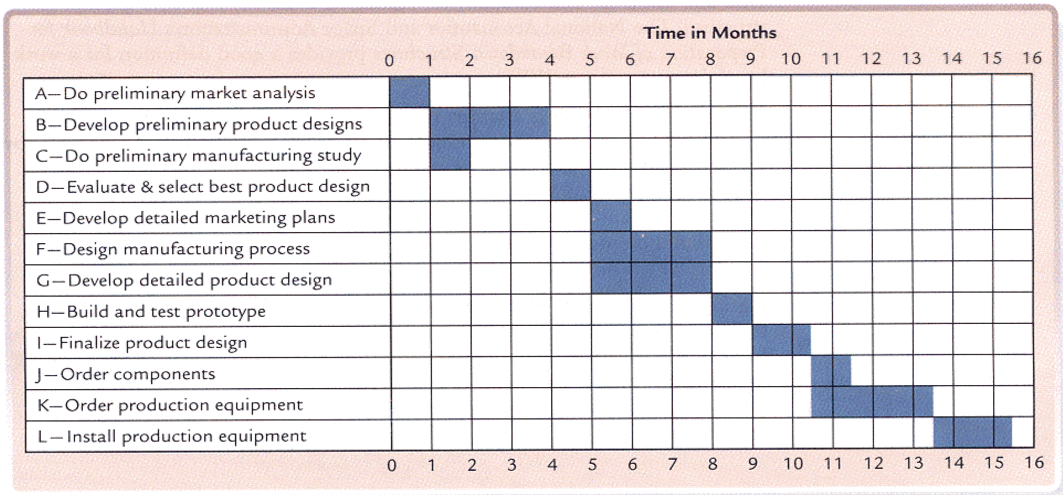
In a complex, multi-phase project, a ***Gantt chart*** is often used, creating a visually intricate calendar that helps the team plan its work. Punch lists, spreadsheets and flow charts all offer advantages for various kinds of projects or processes, and some industries have specialized methods or software packages to facilitate their unique projects.

Whatever the communication technology used, everyone in the team will have access to the project status, and each team member will be able to locate to his or her own well-defined tasks, deadlines, and deliverables.

As planned task steps are identified, the next step is to locate the points at which team members will need to communicate with each other, with the client, with a coach or advisor, and with anyone who will be providing resources to the team. Productive teams communicate about key topics: scheduling and coordinating of task elements, review of team and individual performance, and review of environment.

Regular routine communication is a factor in team success, since the regularity insures that lapses and contingencies are handled, and sufficient interpersonal contact is available to get acquainted, develop norms, and work out differences.

Figure 2. Example of Gantt Chart



Both the Work Plan and the Project Calendar are tools that a team member can use to perform the tasks given to them. It is important that all the team members understand how to use the following tools so as to maximize their time and effort.

Aside from using the enumerated tools, every team member must agree on giving out support to other members of the team. The following are suggestions on how one can be a better team member:

- Support other people on your team by offering positive feedback and providing help if they need it. Your willingness to collaborate and help others will make a good impression on both the group and upper management.

- Share information and resources with your team. Remember, you are all there for one purpose – and by keeping everyone informed, you contribute to that goal. If you have past experiences or knowledge that can help others, then offer it. They will appreciate the help.

- Keep a positive attitude. If you complain, delay, or give the tough assignments to others, people will notice – and they may start to avoid you. A positive attitude can be a refreshing change, and it will help others stay focused and productive as well.

SELF-CHECK 4.3-1

1. How can a work plan help accomplish a self-directed team's goals?
2. What are the key information in a work plan?
3. How can you be a better team member? Give two examples.

ANSWER KEY 4.3-1

1. A complete project work plan will allow everyone in the team to know where it is going, and how much it has accomplished at any given moment, and what remains to be done.

2. Key Information in a Work Plan
   a. Project Steps
   b. Sub-steps and Tasks
   c. Task Sequence
   d. Time Estimates
   e. Task Assignments

3. Ways to be a Better Team Member
   a. Offer positive feedback and help
   b. Share information and resources
   c. Keep a positive attitude

LEARNING OUTCOME 4 SOLVE PROBLEMS AS A TEAM MEMBER

CONTENTS:

1. Current and potential problems faced by team are identified.
2. Procedures for avoiding and managing problems are identified.
3. Problems are solved effectively and in a manner that supports them.

ASSESSMENT CRITERIA

1. Team problem-solving activities are applied.
2. Workplace issues are sought and responded to promptly and effectively.

CONDITIONS:

Trainees must be provided with the following:

- Personal Protective equipment

Learning Materials

- Books, manuals
- Modules/references

LEARNING ACTIVITIES

LEARNING OUTCOME: Solve Problems as a Team Member

LEARNING ACTIVITIES	RESOURCE/SPECIAL INSTRUCTIONS
Identify procedures for managing problems faced by a team.	• Read Information Sheet 4.4-1 • Answer Self Check 4.4-1 • Compare your answer to the Answer Key 4.4-1 • Perform Activity Sheet 4.4-1 • Refer your work to Performance Criteria Checklist 4.4-1

INFORMATION SHEET 4.4-1

Procedures for Managing Team Problems

Learning Objectives:

After reading this INFORMATION SHEET, you will be able to identify and perform procedures for managing problems faced by a team.

Solving Problems as a Team

Problem solving is one of the keys to a successful self-directed work team because it empowers all of those involved. Problem solving begins by asking the question: “What is a problem?” A good definition of a problem is a variation from a recognized standard. In other words, as a team member you need to know how things should be before you can recognize a possible cause for them not being that way. After a problem has been recognized, a formal problem-solving process should be applied.

Self-directed work teams typically use three problem-solving tools:

1. Plan, Do, Check, Act (PDCA)

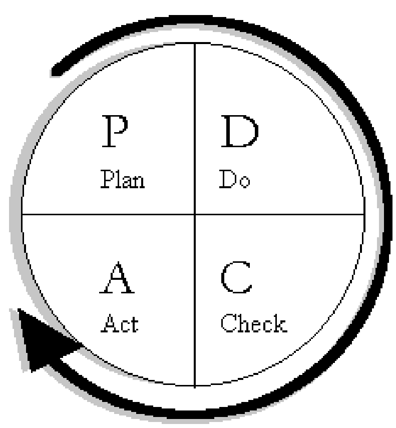
2. 5-Why Analysis

3. Ishakawa (Fishbone) Diagram

PDCA Cycle

The PDCA Cycle is a checklist of the four stages which you must go through to get from `problem-faced' to `problem solved'. The four stages are Plan-Do-Check-Act, and they are carried out in the cycle illustrated below.

Figure 3. PDCA Cycle



Use the PDCA Cycle to coordinate your continuous improvement efforts. It both emphasises and demonstrates that improvement programs must start with careful planning, must result in effective action, and must move on again to careful planning in a continuous cycle.

Also use the PDCA Cycle diagram in team meetings to take stock of what stage improvement initiatives are at, and to choose the appropriate tools to see each stage through to successful completion.

Here is what you do for each stage of the Cycle:

- **Plan** to improve your operations first by finding out what things are going wrong (that is identify the problems faced), and come up with ideas for solving these problems.
- **Do** changes designed to solve the problems on a small or experimental scale first. This minimises disruption to routine activity while testing whether the changes will work or not.
- **Check** whether the small scale or experimental changes are achieving the desired result or not. Also, continuously Check nominated key activities (regardless of any experimentation going on) to ensure that you know what the quality of the output is at all times to identify any new problems when they crop up.
- **Act** to implement changes on a larger scale if the experiment is successful. This means making the changes a routine part of your activity. Also Act to involve other persons (other departments, suppliers, or customers) affected by the changes and whose cooperation you need to implement them on a larger scale, or those who may simply benefit from what you have learned (you may, of course, already have involved these people in the Do or trial stage).

You have now completed the cycle to arrive at `problem solved'. Go back to the Plan stage to identify the next `problem faced'.

If the experiment was not successful, skip the Act stage and go back to the Plan stage to come up with some new ideas for solving the problem and go through the cycle again.

5-Why Problem Solving

When you have a problem, one of the ways to solve it is go to the place where the problem occurred and ask the question “Why” five times. Through this, you will find the root causes of the problem and you can start treating them and rectifying the problem.

5-Why analysis is a technique that does not involve data segmentation, hypothesis testing, regression or other advanced statistical tools, and in many cases can be completed without a data collection plan. By repeatedly asking the question "Why" at least five times, you can peel away the layers of symptoms which can lead to the root cause of a problem.

Here is a simple example of applying the 5-Why analysis to determine the root cause of a problem. Let us suppose that you received a large number of customer returns for a particular product. Let's attack this problem using the five whys:

1. Question: Why are the customers returning the product?
   Answer: 90 percent of the returns are for dents in the control panel.
2. Question: Why are there dents in the control panel?
   Answer: The control panels are inspected as part of the shipping process. Thus, they must be damaged during shipping.
3. Question: Why are they damaged in shipment?
   Answer: Because they are not packed to the packaging specification.
4. Question: Why are they not being packed per the packaging spec?
   Answer: Because shipping does not have the packaging spec.
5. Question: Why does shipping not have the packaging spec?
   Answer: Because it is not part of the normal product release process to furnish shipping with any specifications.

Using the five whys in this case revealed that a flaw in the product release process resulted in customers' returning of a product.

Ishikawa Diagram

In some cases, a problem can be due to more than one root cause or may have multiple forcing functions that either singularly, or in combination, will result in the problem. The 5-Why process may not provide the ability to address these more complex problems. The pictorial representation of this root cause analysis can be achieved using an *Ishikawa* or *Cause and Effect Diagram*. Because of its shape, this process is also called a *Fishbone Diagram*. This helps people communicate the root cause and the potential contributing factors and/or forcing function in a simple, straightforward graphic format. This method is very clear way of representing the relationship between the root cause of the problem and all of the possible factors that may be associated with the problem.

The Cause and Effect Diagram or Fishbone Diagram is a graphical tool for identifying the relationship between a problem and its potential causes. One of the most effective ways of constructing such a diagram is to brainstorm potential causes in a team environment. For example, a cause and effect diagram might be used to determine possible causes of a recurring defect in a manufacturing process.

The Fishbone Diagram is drawn to resemble the skeleton of a fish, with the issue (problem or process condition) on the right side. The major cause categories are written in the boxes on the left side of Cause and Effect Diagram. Summarize the major causes under the categories. These categories are usually Methods, Measurements, Machines, Materials and People.

Under each category, identify potential causes for the problem relating to the category. For example, if the fact those incorrect parts are being delivered to the assembly is a potential cause for the problem being addressed, that would be listed as a branch under "Materials."

Both Fishbone Diagrams and the Five Why analysis are simple, very useful methods for problem solving.

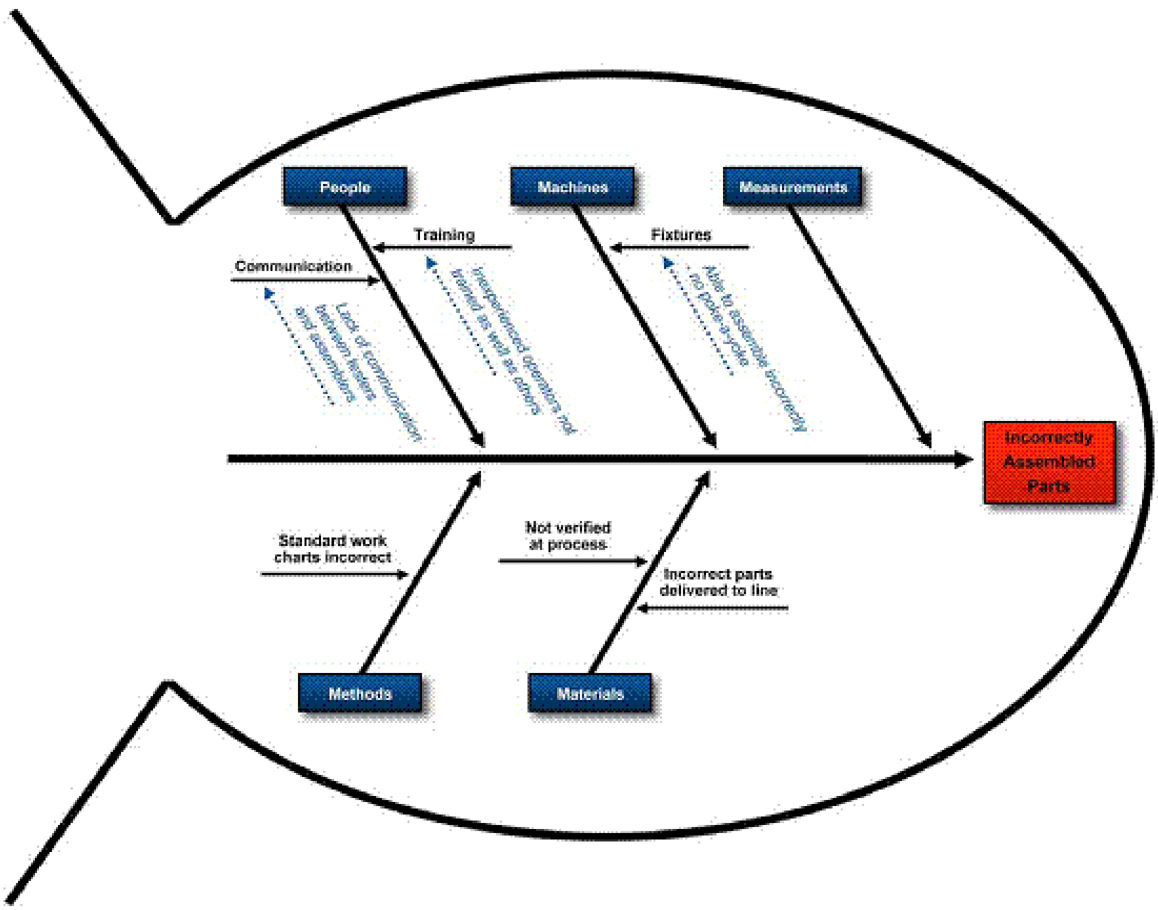


Figure 4. Ishikawa Diagram

SELF-CHECK 4.4-1

1. What are the 3 common problem-solving tools used by self-directed teams?
2. What does the team do at every stage of the PDCA cycle?
3. How can a team find the root cause of a project's problems?

ANSWER KEY 4.4-1

1. Common Tools for Problem Solving:
    a. PDCA Cycle
    b. 5-Why Problem Solving
    c. Ishikawa Diagram

2. PDCA Cycle:
    a. Plan-Identify the problem and come up with solutions
    b. Do- Test or experiment solutions on a small scale
    c. Check-Analyse the output of the experiment and key activities
    d. Act-Implement changes on a larger scale

3. Finding the root cause of problems:
    a. Use the Fishbone or Ishikawa Diagram

ACTIVITY SHEET 4.4-1	
Activity Title	Solve Problems as a Team Member
Purpose	To practice indentifying current problems faced by team, identifying procedures for avoiding and managing problems and solving problems effectively and in a manner that supports the team
Supplies/Materials	Pen, paper
Procedure:	1. Read the case below then use the Ishikawa Diagram to address the problem of the team then prepare an Action Plan to solve the problem/s identified/ 2. Submit your work to your trainer.
Assessment Method:	Performance Criteria Checklist

Suppose you are working as a Team Member from a team of eight workers on a production line in a consumer electronics manufacturing company. Your team is charged with producing spare parts for a cellular phone. However, your supervisor has told you that a number of your products have been rejected by the customers. Upon meeting with your team, each of you enumerated the possible causes of the result. One member of your team mentioned the lack of training of the workers and the bad lighting system in the production area.

Another member of the team said that there seems to be something wrong with the size of the supplies ordered and the machines being used are already outdated. Your team member who is in-charge with safety shared that there is no regulation for using safety equipment and she also noticed that a few of the instruments used are not regularly calibrated.

On your part, you have observed that management has been poor and there is a lack of maintenance in the production area. Finally, one of your team member said that there is incorrect steps in the operation and the materials used are not of the appropriate grade.

Based on your team's analysis, prepare an Ishikawa diagram and an action plan to solve the problems that arose.

PERFORMANCE CRITERIA CHECKLIST 4.4-1

Criteria Did I…	**YES**	**NO**
1. Identify current and potential problems faced by team?		
2. Identify procedures for avoiding and managing problems?		
3. Solve problems effectively and in a manner that supports the team?		

REVIEW OF COMPETENCY

Below is a performance criteria checklist for the module Operating in a Self-Directed Team

Assessment Performance Criteria	Yes	No
1. Team goals and processes are identified.		
2. Roles and responsibilities of team members are identified.		
3. Relationships within team and with other work areas are identified.		
4. Effective interpersonal skills are used to interact with team members and to contribute to activities and objectives.		
5. Formal and informal forms of communication are used effectively to support team achievement.		
6. Diversity is respected and valued in team functioning.		
7. Views and opinions of other team members are understood and reflected accurately.		
8. Workplace terminology is used correctly to assist communication.		
9. Duties, responsibilities, authorities objectives and task requirements are identified and clarified with team.		
10. Tasks are performed in accordance with organizational and team requirements, specifications and workplace procedures.		
11. Team members support other members as required to ensure team achieves goals and requirements.		
12. Agreed reporting lines are followed using standard operating procedures.		
13. Current and potential problems faced by team are identified.		
14. Procedures for avoiding and managing problems are identified.		
15. Problems are solved effectively and in a manner that supports the team.		

I now feel ready to undertake my formal competency assessment.

Signed: Date:

REFERENCES

1. http://smallbusiness.chron.com/characteristics-necessary-make-selfdirected-team-work-16064.html>
2. http://www.odportal.com/teams/effective/chapter1.htm>
3. http://searchcio.techtarget.com/definition/self-directed-work-team>
4. http://philrichardson.co.uk/pa450/teamwork/tm_role.htm>
5. http://www.livetocoach.com/index.php/2009/05/25/effective-communication-within-a-team/
6. http://www.ganttchartexample.com/
7. http://books.google.com.ph/books?id=fExfxCMDJbAC&pg=PA8&lpg=PA8&dq=self-directed+work+team+gantt+chart&source=bl&ots=Qpj_GOyRuY&sig=W5GqucFsXtYL3ZlszhOjnKcqx5U&hl=en&sa=X&ei=qipEUuThJoLWtAa-qIHYDg&ved=0CF0Q6AEwBw#v=onepage&q=self-directed%20work%20team%20gantt%20chart&f=false
8. http://www.reliableplant.com/Read/14690/high-performance-team
9. http://business.uni.edu/buscomm/buscomcourse/ProductiveTeamCommunication.htm
10. http://www.mindtools.com/pages/article/newTMM_53.htm
11. http://www.firmology.com/2013/06/21/workplace-team-building-events-what-you-need-to-know-to-make-them-successful/