# Effective Communication Skills For Engineers

## Introduction

Communication as we all know is the connection or the link between people and it is the largest and biggest part of our life, because of living together as no one can live alone, so we all spend almost 70% of our life sending and receiving messages. The most important dimension of communication is language, some people thinks language is everything, of course language is important, but if we scrutinized when you send a message to the receiver you talk or communicate with you find that only one word may have two or three meanings the meaning receiver recognize and understand depends on the type of encoding the message, the state of mind of the receiver while receiving the message and of course the mode of transmission.

The beauty of communication lies in the nature of it although it is a complicated process.

That complicated process requires some skills to be effective, those skills are very variable, like listening, reading and talking.

In the field of engineering you need some skills to communicate with all people you work with like workers, other engineers, your boss or any one you deal with him if you improved your communication skills like body language, your face expressions and emotions and also your voice tone, they are all skills if you improved them you will be a successful engineer.

In that research I hope I will obtain the types, factors, and principles of effective communication and the problems and barriers of communication.

The importance of communication lies in it is an imperative means that different management and leadership types will be used, and it is an important tool for achieving coordination between administrative work and activities, and it is an important instrument for achieving interaction between the institution and the environment surrounding it and many other things.

Communication has many factors like (sender-receiver or recipient-channel or medium of communication-feedback-situation-purpose-attitudes-knowledge-expresssions-Context or Environment of communication-encoding-decoding).

- Sender: The first main part of the communication process and he is the person who sends the message.
- Receiver/recipient: The second main part of the process and he is the person who receives the message and give the feedback to the sender about it.
- Channel/Medium: The way or the tool which is used by the sender or the source to connect with the receiver and it must be available and appropriate channel to both of them and I has many kinds like writing, talking and facial expressions.
- Feedback: It is the response or the reply of the receiver about the message and he sends it to the sender by talking, writing, changing face expressions or voice tone.
- Situation: This is the location or environment where a communicative event is taking place.

- Atttitudes: The sender and the receiver bring with them such idologies, world views , values, likes , dislikes and aptitudes which are often affected by varying emotional and mental states.
- Purpose: It consists of the sender's purpose or the root of the sourece 's contact objective.
- Knowledge: The sender must pass on sufficient knowledge of the message. Knowledge based on observation, study and personal experience helps the transmitter to effectively communicate
- Expressions: Expression consists of the capacity to communicate or to transmit. Fluent language, consistency and ineligibility pave the way for successful communication. The flow of information, as expressed in the transmitted message, is smooth when the meaning is explicit. This allows the sender and the receiver to avoid communication differences and to achieve consensus and decisions.
- Context/Environment of communication: It is the context in which the message is transmitted meaning the world surrounding it or local national or global culture.
- Encoding: Putting the meaning in the form of symbols (with words, thoughts, views, voices and physical gestures in the translations of the meaning) all make up the message.
- Decoding: A procedure performed by the other party receiving the message to clarify what was mentioned in the message and its answer and understanding.

As we see communication is classificated into eight types based on different concepts.

Based on communication channels: this includes 4 forms of communication.

1. Non-verbal communication
2. Verbal communication
3. Oral communication
4. Written communication

Based on style and purpose: this includes also 4 forms of communication.

1. Formal communication
2. Face to face communication
3. Distance communication
4. Informal communication

There are many types of communication like (Self-contact-communication between cultures-personal communication-collective communication-mass communications)

- Self-contact: it is contained within a single human, it is both the sender and the recipient.
- Communication between cultures: Contacting one or more persons from a specific culture with one or more persons from another culture. The caller must be conscious of the various attitudes, beliefs , traditions and correct behavioral methods.
- Personal communication: that type of communication occurs between two persons like friends or in a small group.
- Collective communication: that occurs in a formal wide events when someone like lecturer talks to a big group of people.
- Mass communication: in this type the person who talks or writes something that thing

arrives to unlimited number of recipients like talking on TV or Radio.

There are about six considerations and principles if you respected and followed you will be a good engineer and a good communication: why, what, who, how, when and where.

- Who: you should identify the person you talk or communicate with and know all his qualities.
- When: you should choose appropriate time to do the communication process.
- Why: you should specify the aims and goals of the communication.
- What: you should choose carefully what you say or what the content of your message is.
- How: you should choose a suitable way to send your message.
- Where: one of the most important considerations is to choose an appropriate place to do the communication process.

Those are all considerations and principles if you followed and respected you will be a good communicator.

The process of communication is not very complicated, but unfortunately the perfection in communication escapes everyone, that happens because of things that are called Communication Barriers: They Problems with some of the communication model’s components can transform into a contact barrier. Such obstacles suggest ways to boost contact.

- Muddled messages: Good communication begins with a straightforward message. Muddled messages are a communication obstacle as the sender leaves the recipient uncertain about the sender's purpose.
- Stereotyping: Stereotyping causes us to typify an individual, a group, an event or something The assumptions, convictions or views are oversimplified.
- Wrong channel: choosing a wrong channel could spoil the communication for example saying “good morning” is more effective than writing it on a board, otherwise giving an order of some editions in a building in an oral channel will cause problems that makes the wrong channel a barrier to communication.
- Language: using different languages between two persons of course will spoil the communication process, because only one word can have a good meaning in a language at the same time it can have a bad meaning in the other language.
- Poor listening skills: It's rough listening. A typical speaker says 125 words per word just minute. The listener typical can receive 400-600 words per minute. So around 75 % of the time you listen is free time. The time off every sidetracks the listener. The solution is to be an active listener and not a passive one.

These are some of the barriers of the communication process, but there are ways to improve communication skills of engineers to face these barriers and problems and skip them. It is believed that engineers are very necessary to assess their information needs, to find the best means to fulfill them, to refine the information, to be able to present their findings and to modify and develop things after obtaining feedback. Only those specialists who can handle the information already available.

Cerri encourages engineers to train to understand The Human Perception Process, Communication and awareness, and a 7-step Successful Process of communication, as follows:

- Understand, and suit, which of the five senses (or method of representation) the listener operates;
- Create an implicit relationship with the listener by. filtering using techniques such as mirroring, matching, pacing, and leading verbal and non-verbal clues;
- Uncover the paradigms of truth from the listener through prompt and elegant questioning;
- Send the message, i.e. present ideas and issues that may not be accepted by the listener, but if the report is constructed successfully, the listener will be able to hear the message unbiasedly;
- Check if the message was received the way it was intended;
- Go back to steps 1-3 if the message is mistakenly received;
- Send a message below.

He also argues that excellent communication is a process and an apprenticeship.

The engineer must be able to write his own CV, and that requires some skills to be done well. The CV should be easy to read and it should contain some important information: - it should contain:

- Personal details: like name, address, e-mail, phone.
- Personal statement
- Objective
- Education
- Skills
- Work experience
- Activities

## References


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