

Interpersonal communication in construction management engineering

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Abstract

The professional life of an engineer on a construction site generates many confessions. The ability to communicate is helpful in solving everyday problems. The ability of effective and efficient interpersonal communication in construction management engineering is a guarantee of a successful investment process. Each participant in the construction process should know how to talk, how to solve problems related to the construction implementation and how to discuss when these opinions are divided.

The article presents the basics of interpersonal communication and the areas of its application in construction management engineering.

Keywords: interpersonal communication, management engineering, building, construction

1 Introduction

Construction management engineering combines three areas of knowledge: management, engineering and construction.

Management in the colloquial sense of the word means achieving a goal with the help of people and means. In construction, the goal may be to design, build or maintain a building object or part of it. The construction law regulates the activities related to the design, construction, maintenance and demolition of buildings and defines the rules of operation of public administration bodies in these areas. [23]

Engineering according to Kasprowicz is an expanding branch of practical sciences in which the laws concerning a specific fragment of reality are researched and formulated in the technological, organizational, economic and environmental aspect, treating it as a decision-making process for the preparation and implementation of a project [10].

Management engineering in construction practice is based on the right selection of people, assigning them appropriate tasks, obtaining capital and appropriate resources (tools, materials) to achieve the planned goals at a specific time. At the same time, along with the division of tasks, employees should be assigned appropriate powers and responsibilities. Each construction worker (management, workers) must define the scope of duties and hold them accountable for their performance, regardless of whether he is employed in a managerial or a worker position. The use of engineering issues in construction management should lead to a situation in which each activity in the construction process is carried out in the most effective way and together with other parts creates a uniform whole [14].

The easiest way to construction site is the space where construction works are carried out. To carry out construction works, a construction project and resources are necessary: people, materials and equipment. Prior to the commencement of construction, it is recommended to prepare an executive design in order to facilitate the construction works, which supplement the construction design [18]. The detailed design is helpful in selecting a contractor for construction works, quality control and acceptance of construction works. The basis for the development of the detailed design may be the Environmental Principles for the Valuation of Design Works [24], including the design of technology and organization of construction works, thanks to which it is possible to determine the necessary human resources (R), Materials (M) and equipment (S) and to design the appropriate management staff for construction management.

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On a construction site treated as an organization where the success of the whole determines the success of the part and the success of the part - the success of the whole, the most important role is played by people who, using appropriate (designed) resources, carry out construction processes [9, 16].

Construction people are workers who carry out construction works in accordance with the design under the supervision of the construction management and in cooperation with operators of tools, machines and technical devices. In this way, they create construction personnel [12, 13, 15, 23].

Communication and management are closely related. Communication refers to the process of information exchange between construction personnel (workers, operators and management). Based on the construction design, the construction management plans, organizes, performs and controls the course of the construction process. On the basis of the developed plan, which defines what needs to be done (identification of works occurring in the construction process), how to perform individual works (works technology), when (organization of works in time), the construction management organizes the necessary resources at the scheduled time and controls them course so that the planned construction process is carried out in the right way, at the right time and at the right cost. To achieve this, inter-personal communication is necessary, i.e. the exchange of information between construction participants. You can meet many managers at a traditional construction site. They perform different tasks, have different competences and different responsibilities. These are:

- first line steering wheel,
- middle-level managers,
- top managers.

Front line managers represent the lowest level in the construction organization where responsibility for the work of others is assumed. They only supervise the contractors; they are not the superiors of other managers. Examples of managerial positions at this level include foreman or construction master, often referred to as a construction foreman.

Middle-level managers are construction works managers or subcontractor managers. The main task of works managers is to control activities in the field of performed works and to balance the requirements of their superiors with the capabilities of their subordinates. Top managers are site managers responsible for overall construction management. They coordinate all construction tasks and interact with the environment. An example of the organizational structure of the construction site is shown in Fig. 1.

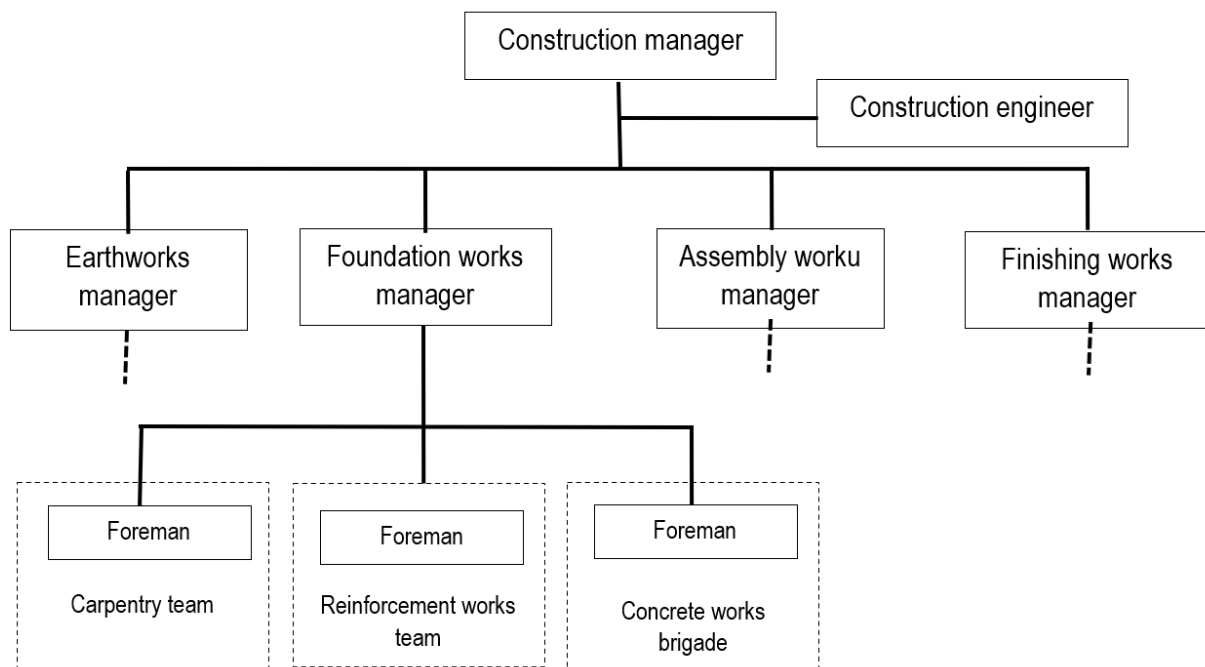


Figure 1. Sample construction structure

Every manager, regardless of his position in the organizational structure of the construction site, should be able

to plan, organize, lead and control. It carries out these activities at different times and in different ways. These differences may be due to the type of construction, the type of tasks he has to perform or the skills he has. The literature distinguishes three basic skills that all managers should possess, albeit in different proportions [20]. These are technical skills, social skills and conceptual skills (Tab. 1).

Table 1. Managerial skills needed for effective operation at various levels of construction organization 21 [20, 21].

Top management Construction manager	Middle management Site managers	Frontline management Foremen / foremen
Conceptual skills Interpersonal and social skills Technical skills	Conceptual skills Interpersonal and social skills Technical skills	Conceptual skills Interpersonal and social skills Technical skills

Technical skills are the ability to use tools, methods and technology in a specific specialty. Foreman or foreman must have technical skills in the areas represented. The manager needs technical skills to the extent that he can cope with the "technical side" of the task for which he is responsible.

Social skills (interpersonal skills) are the ability to communicate with other people, understand them and motivate them, both for individuals and groups. A manager needs social skills sufficient to enable him to communicate with other construction workers and lead his own work team.

Conceptual skills are the mental ability to coordinate and integrate all the interests and activities of construction personnel. It is the ability to perceive the construction organization as a whole and the ability to see the interdependence of its parts, as well as understanding how a change in any part of the organizational structure will affect the overall construction. A manager needs conceptual skills that allow him to see the relationships between various factors causing a specific situation and, consequently, to act better for the whole organization or its part depending on its position in the organizational structure of the construction site. All three types of skills are essential in the process of interpersonal communication for management to be effective.

Technical skills are the most important at the lower levels of management. They lose their importance when moving up the management levels. The higher the position of a manager in the hierarchy, the more he will be involved in general decisions aimed at long-term goals, such as deadlines, materials or construction costs. For a construction site manager, conceptual skills are perhaps the most important.

Social action skills are important at all levels of the construction organization as managers work through others. Great technical or conceptual skills are not worth much if they cannot be used to inspire or influence other members of the construction organization.

Practically, managers of various levels devote a different amount of time to performing tasks. It depends on the type and size of the construction being carried out. An example of the amount of time spent on basic activities at various levels of construction management is shown in Tab.2.

Table 2. Basic activities at various levels of construction organization [20, 21]

Top management Construction manager	Middle management Site managers	Frontline management Foremen / foremen
Planning Organization- organizing Controlling	Planning Organization- organizing Controlling	Planning Organization- organizing Controlling

Practical tests,[1, 12, 20, 21] have shown that all managers act similarly. They all have formal authority over their organizational units, and their position on the construction site results from this authority. This position causes managers to use formal authority and their position to enter into interpersonal relationships with subordinates, colleagues and superiors, who in turn provide them with the information they need to make decisions.

Each member of the construction management should have formal authority and appropriate standing among construction personnel. As a well-mannered, polite, tactful, easy-to-establish, communicative person, showing a great ability to cooperate with people and respecting the dignity of employees and people with whom he has contacts outside, representing construction matters, he should properly fulfill the entrusted role in construction management.

A manager who knows how to acquire, store, and process information should perform his professional duties by conducting conversations, proper selection of arguments, good knowledge of details, good memory, good preparation and logical course of argument. The construction site manager bears professional liability [23] and disciplinary liability as a member of the professional self-government of construction engineers [22] for breach of professional duties.

The manager also fulfills decision-making roles: makes decisions as an entrepreneur, prevents disruptions, acquires and distributes resources, and negotiates effectively.

2 Basics of interpersonal communication

The term "communication" comes from the Latin "communicatio" and means "communication, conversation, exchange". The Polish term is semantically similar to the English "communication" and "communicate". Interpersonal communication most often should be understood as transmitting and receiving information between the sender and the recipient or in a small group of people in direct contact with each other [5].

According to Nęcki, the full communication process should take place in two directions. On the one hand, the sender forwards his message, and on the other, the recipient reacts by sending the sender's message back [11]. For the process of interpersonal communication, the so-called the unity of time and space of participants in the process [4].

Interpersonal communication (interpersonal communication) is a form of communication, transmission of thoughts and messages. In the literature, you can find the term interpersonal communication as:

- cyclical process of giving and receiving information,
- the process of giving and receiving information at the same time,
- alienating or releasing the feedback process.

The communication tool is language and non-verbal behavior, gestures, facial expressions, pantomimics, inarticulate sounds, handshakes, the way you dress, make-up, certain forms of behavior, etc.

The function of communication is to convey the mental states of one person or group through an agreed code to another person or groups.

The purpose of communication is to influence each other, whether intended or not. The communication process consists of several parts that are interrelated. The immutable elements of the communication process include: sender, message, message encoding, channel, receiver, message decoding, feedback, context. The process diagram is shown in Fig. 2.

The sender is the person with whom the communication begins, the person who has the information needed, the willingness and the purpose to pass it on to other people. At the construction site, the sender is the site manager who provides information, for example, about important deadlines for the execution of works, in order to motivate subcontractors to act quickly.

A message is the physical form of encoding information. It takes on any form that can be read and understood, e.g. hear speech, read written words and see movement.

Coding is the process of transmitting information with various gestures and symbols. The main purpose of coding is to communicate, that is, to choose appropriate gestures and words that have the same meaning.

Channel - it is a means of transmitting information from one person to another, it is an inseparable form of communication. When we want communication to be efficient and effective, we must choose the right channel. Sometimes the choice of such a channel depends on the preferences or habits of the sender, e.g. one person wants to transmit information using the telephone because he does not like to write, and the other person writes his notes by

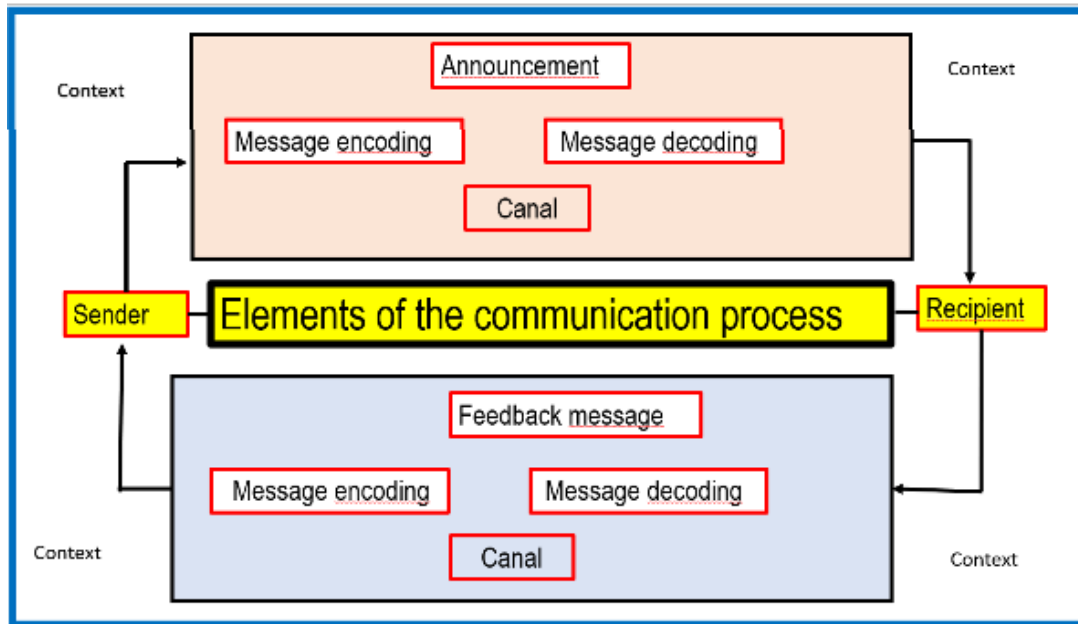


Figure 2. Diagram of the communication proces

hand, which could be done on the computer. Either of these methods may be appropriate in specific cases. If we have a message to be communicated, we must consider which form will be the best.

The recipient is the person for whom the message is intended. For example, for subcontractors for construction works at various meetings with a large number of recipients, the information is passed not to one subcontractor, but to all gathered. However, when the site manager meets with one subcontractor, the message is addressed only to one specific person.

Decoding is the interpretation of the message and processing it in an intelligible way. This is a two-step operation: the recipient must first receive the message and then process it. Decoding is influenced by: experiences, own assessment of symbols and gestures, expectations and reciprocity of meanings with the sender. We can say that communication is only effective when it corresponds to the receiver and the intended message of the sender.

Feedback is treated as the recipient's reaction to the sender's message. Feedback involves the same steps as original communication. In the construction process, feedback takes many forms: from direct, such as a simple, verbal confirmation of receipt of a message, to indirect feedback in terms of actions or documentation.

The context is the environmental conditions in which the communication process takes place. The environment of the communication process is everything that may affect the flow of information between the sender and the recipient. For example, these are disruptions in the communication process, which may be external (the external environment of the communication process, e.g. noise or inappropriate temperature), internal (feelings of the participants in the communication process, e.g. headache, fatigue, feeling angry) and semantic (the effect of misuse of the meaning by the sender).

Open and overt interpersonal communication is conducive to good communication and gives satisfaction from contact and allows for more efficient implementation of planned activities. There are several aspects of communication: - physical - shaped by the environment, and more precisely by the external atmosphere, - historical - refers to a communicative situation in which participants relate to episodes from the past, - psychological - refers to the way in which participants of the process perceive each other each other (e.g. the formality or directness of the situation) and how does it affect the meanings that are created in this process, - cultural - knowledge system shared by a large group of people; it merges beliefs, symbols recognized by this community.

3 The process of communicating on the construction site

Interpersonal communication plays a key role in managing human resources on the construction site, and consequently in the smooth course of the construction process. Particularly noteworthy in this matter is the role of the site manager / works manager, foreman or foreman, who should have communication skills that will help him establish contact with another person and maintain it at the appropriate level. The management of each construction company, during the recruitment and selection of candidates for employees who will be obliged to perform functions in the construction management, should thoroughly check the candidate's communication skills, to what extent, in accordance with the intentions, it affects other people, influences their attitude to the works carried out, motivates to actions, understands the intentions of the information sender and stimulates action in the direction expected by the investor [3].

Construction human resource management requires building cooperation of all construction participants in order to properly use their skills and abilities, and to direct their behavior towards the planned course of the construction process. In order to properly manage the construction site, it is necessary for construction workers to communicate properly with each other, as well as with the environment, and to improve communication skills [19].

Effective communication is very important in the implementation of the construction site, because the effects of the work of the site manager, site managers, engineers, foremen, foremen and their employees depend precisely on the ability to communicate with their subordinate employees as well as with their superiors and management of the construction company. Construction management will never be successful if it is not able to communicate effectively, will not be able to explain the purpose and meaning of the undertaken task, will have problems with explaining the duties and tasks assigned to employees [7].

In the literature on organization and management, the term "management by communication" has appeared in recent years, which can be successfully applied in construction management. It consists in building and improving the system of constantly informing construction participants, e.g. the management of subcontractors, about the main goals, plans and problems related to the construction, management's intentions and the current and target position in the implementation of the construction process. The overriding goal of management through communication is to create good relations between the site manager and site managers, foremen, or foremen, which increases motivation and creates a friendly atmosphere at work on the construction site [2].

The construction management has specific roles to fulfill. Communication roles focus on acquiring and disseminating information through communication, while decision-making roles require managers to make rational decisions and pass them on to others [1]. An interpersonally competent manager should be a reliable person, he should be able to communicate correctly with employees, speak clearly, concretely, and also make sure that his message was understood. A manager - a manager should listen carefully to create a safe atmosphere of conversation [6-8]. Interpersonal communication during human resource management promotes employee satisfaction, improves the atmosphere, and makes employees feel good at work [17].

4 Conclusions

Interpersonal skills - in other words, social and communication skills or soft skills are necessary in construction management, because they allow you to create relationships with people. This is due to the fact that a man is a social being, he lives among people and whether he wants to or not - he interacts with them and the better interpersonal skills he has, the better relations he creates with them.

Ease of establishing contacts and proper interpersonal communication allows you to build and maintain good relationships with people and exert the desired influence on people. Therefore, it is worth knowing how to communicate well on the construction site, that is, speak in such a way that people listen to us and listen in such a way that they are willing to talk to us.

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