

DESIGN OF THE GAME CHAIN.COM, A PROPOSAL TO TEACH COMMUNICATION

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ABSTRACT

Communication is a process that takes place daily in the lives of all people and is essential and critical in everyday situations. A poor communicative process can confuse the message that is transmitted and may not meet the ultimate goal. Thus, a management game is developed, in which it is intended to show, identify and teach how communication becomes a critical process in teamwork, and the barriers that impede or distort the correct functioning of the process. Then a process of validation is made.

Key Words: Management games, game design, team work, verbal communication, not verbal communication.

1. INTRODUCTION

Communication is the transmission of signals by a common code to the sender and the receiver, and is a daily activity in personal and organizational levels.

Since communication is a complex and critical process within organizations and even in people's daily life, a poor communication process can lead to confusions and misunderstandings between the subjects involved, producing discussions and bad environments to develop daily activities, at work or in personal life.

Communication also depends on the place it is originated, on the signals or ways used to practice it, on the actors and variables involved. There are physical and verbal barriers that directly influence the efficiency and effectiveness of the process.

As stated above, the necessity of designing a game oriented to develop management skills is identified,

focused on teaching the factors that affect the communication process and the identification of actors and variables involved in the process. Similarly, the central objective of the game is to show how the different communication channels, the extension of the texts, the common signals and others, become key successful factors for effective teamwork.

2. COMMUNICATION PROCESS

Communication as a fundamental process in a person's life and in their daily activities has been broadly defined and characterized by different authors. This way, more than 160 different definitions for communication could be found in literature [3] as it is understood differently depending on the field of study it is applied, for example: communications in technology, in social sciences or in engineering, have different definitions and interaction processes.

Communication is defined [3], as the transfer of information; that is, a communicator sends a stimulus, a message, some data or information to a receiver. In social sciences, communication is defined as a way of social interaction. Additionally, communication is conceived as *"the lifeblood of any system of human interaction as without it, no meaningful or coherent activity can take place"* [8].

But in teamwork, communication is the way to transfer information. This refers to some instruments as performance reports, recommendation of corrective actions, organizational processes and updating [6]. All of these are necessary for good internal relationships between team members and external relationships with the environment, to maintain the possibility of a continuous feedback.

Communication process could be a lineal process, that is, unidirectional, causal, privileged and restricted flow of information. Communication process is unidirectional because the person who transmits the information (The source or transmitter), is the principal actor of the process. It is causal because the transmitter is the person that causes an effect on who received the information, and not the other way around. Is privileged because the transmitter is the owner of information and who determines the amount of information or detail to be

transmitted. Finally, the flow of information is restricted because not all the team members can access to the same information and in the same amounts. This use of the information is for the reason that transmitter has access to more and better information than the other members [4].

2.1 Communication elements

In Figure 1 Communication process and its elements are shown:



Figure 1. Communication process.

Some communication elements are described below:

Source: Is the transmitter, subject that produces the communication act.

Encoder: It refers to the set of signals or symbols in which message is transmitted. Encoding is the process of constructing a stimulus with a meaning [2]. Encoding can be speech, nonverbal signals or writing [5].

Message: To have a communication process, an intention is needed; it means information or a message to be transmitted. It is the result of encoding and contains information that is transmitted [2].

Channel: Is the physical environment in which the message is transmitted [2].

Decoder: Is the process of converting sensations into meaningful interpretations or codes. Decoding can be listening, reading or interpretation of nonverbal signals [3].

Receiver: Is the subject who received the information [2].

Noise: Unanticipated disturbances or barriers that destroy or alter the information [2]. It is present in communication processes.

When analyzing the elements in the context of teamwork, encoding and decoding information are two key phases in the achievement of objectives. The leader efforts are concentrated in clarifying and establishing common agreements, communication patterns and behavior rules

between team members to have the correct communication processes, as it influences directly the satisfaction and performance of the team.

Communication adopts multiple ways, but the most common are verbal and nonverbal:

Verbal communication: It can be done in two ways: oral, through words or writing, through the representation of graphic symbols.

For the correct interpretation of the message, is necessary to know the meaning of the symbols and the code which have to be common to transmitter and receiver. For example, to read a message in some language you have to know that language to understand it, if you don't understand is because you don't know the common code.

Nonverbal communication: Is estimated that between 60% and 70% of the communication is done by nonverbal language; these are gestures, appearances, posture, gaze and expressions of the face, the hands or the body of persons.

Nonverbal communication is done by a variety of signals as sensorial images (Visual, auditory, olfactory, and others), sounds, gestures, corporate movements, and some others, represented or captured by some body parts. . In Figure 2 some facial gestures are shown, with which people express feelings and desires without saying anything.

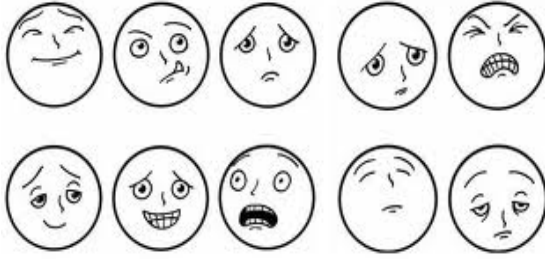


Figure 2. Facial gestures.

Richness of communication media is the capacity of a communication channel to transmit effective information and in the correct moment [10]. This way, communication channels can have a special emphasis, depending on the way of communication and the necessities of the parts and actors involve.

3. TEAMWORK

A problem present in organizations is to link a set of different persons to achieve an organizational purpose or firm's goals; this is difficult because every person has necessities, interests, knowledge, and experiences, expectative and different motivations that form a diverse team [4]. The functions of a leader are consolidated this variety of expectations into a common one, and link the members into a team with the same goals, objectives and horizons, through a solid and clear communication mechanism that allows the correct information flow.

Is important to differentiate between group work and teamwork. Group work is a group of persons that realize activities and have a manager that directs and indicates what to do, how to do it, the time to do it and communicates the expected results; Group members do what they are told separately and in an individual way. Teamwork is a "group of persons that work together in a synergic way to achieve a common goal" [9].

Efficient teams have [7]: (See Table 1)

Table 1. Characteristics of effective teams.

Mutual interaction with an integral mutual recognition.
Common goals
Conformation of Behavior rules
Achievement of objectives
Establishment of roles
Interaction limits for personal and labor relations
Different leadership patterns between the members.

Problems in communications process in teamwork are common, generally because of different personalities, behaviors and temperaments of the members. These

individual and group difficulties have to be identified by the leader, who has to analyze them and develop corrections if it is necessary, to maintain a comfortable work environment.

4. METHODOLOGY

For designing of a game with educational purposes, the methodology of [1] is used. It is composed by 10 fundamental steps:

- (1) Identify the theme of the game;
- (2) Establish the game purpose;
- (3) Identify the instructional objectives of the game;
- (4) Identify and define general concepts of the theme;
- (5) Select candidate techniques;
- (6) Select the appropriate technique(s) according to characterization;
- (7) Incorporate specific knowledge to the game;
- (8) Develop of initial tests;
- (9) Develop the final version of the game;
- (10) Elaborate and evaluation inquest.

In Table 2 design of the game *Chain.com* and the results obtained with the mentioned methodology are shown.

Table 2. Design of the game Chain.com

Theme	Communication process as critical factor in teamwork.
Purpose	Teach roles, variables and barriers present in a communication process, in teamwork.
Instructional objectives	<ul style="list-style-type: none"> • Identify the importance of verbal and nonverbal communication, at the time of unifies concepts and teamwork. • Establishment of the importance of raising strategies that leads to a successful teamwork. • Identify the existence of different roles and factors in communication process. • Show the influence of the channel, message and barriers in the communication process.
Candidate techniques	(1) role game and (2) Lottery.
Select appropriate technique	An evaluation of the candidate techniques is done; following the methodology purposed [1], to determinate which technique fits better to necessities of the game <i>Chain.com</i> . The technique of role game is chosen.
Initial test	To verify the compliance of the game objectives, preliminary tests are performed, with which failures are

	<p>detected and subsequently the final version of the game is corrected and refined.</p> <p>An initial test is applied to a group of 5 persons and an inquest is made.</p> <p>As a preliminary result a good performance of the game is obtained, also some failures are detected by observation and feedback with participants, and the corrections are made to adjust the final version of the game.</p>
Evaluation Inquest	<p>With the objective of obtain suggest from participants, an inquest is applied. There participants evaluate the game and suggest possible changes. By the answers of participants is possible to identify if the instructional objectives of the game are achieved.</p>

5. INCORPORATION OF SPECIFIC KNOWLEDGE

From the characteristics of the candidate technique of role game, a technique list of the game *Chain.com* is developed, in which all details, characteristics, materials, rules and elements from the methodology and the design phase of the game are added, in order to serve as a guide for the game coordinator.

Basically, the game consists of teams of 4 persons each one, in which information has to be transmitted between the members of the team to achieve a common objective, complete a board with different types of figures. In Figure 3 board of the game *Chain.com* is shown.

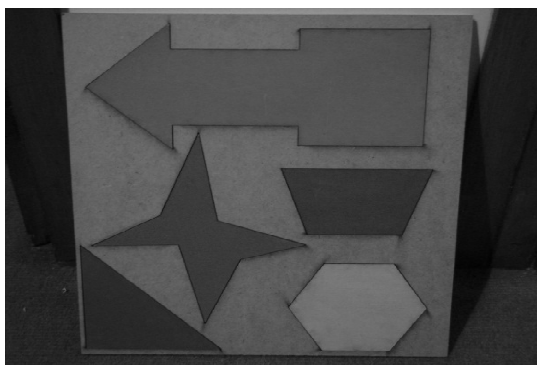


Figure 3. *Chain.com* game boards.

The board has 5 different figures, and each figure has 4 identical options, 3 of them do not fit in the board and only one does. Participants have to communicate correct information to the other members of the team, in an effective and efficient way, to find the figure that fits in the board in the shortest time possible.

During the game, participants have to do some mental tests and mathematical calculations, before transmitting information to the next station, with the objective of influence directly on the concentration of the team members, the stations have different tests that participants have to complete.

- **Station 1:** In this station will be located the only participant who may see the board, is the transmitter of the information. At the beginning of the game, this participant has to decide which figures are going to be transmitted orally, written or by signs (For this will have 2 minutes). When the game starts, the first participant has to go to the second station to communicate the chosen figure to the next team member.
- **Station 2:** The participant located there has to receive the information that is communicated and has to search one word in an alphabet soup game placed in this station, then has to move to station 3 to describe to the next participant the figure required.
- **Station 3:** The participant located in this station, has to receive the information from the person in station 2 and then has to take one paper from a bag, each paper has a different mathematical operation, participant has to find the correct result to move to the next station and transmit the information to the last team member.
- **Station 4:** The last participant has to receive the information from the person in station 3 and has to find the figure that corresponds to the description of the received information; once a figure is selected, it has to be passed through participants.

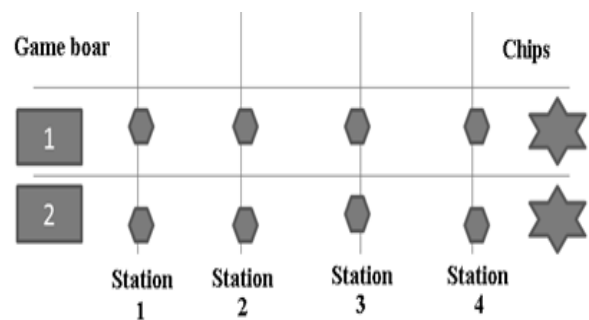


Figure 4. *Chain.com* game scheme.

In Figure 4 a schema of the location of the participants and the elements of the game *Chain.com* is shown.

The selected figure passed through participants to the first station; there the first team member has to measure the figure on the board (For this is not necessary to realize again each station tests). If the figure is not the correct

one, should begin again the tests of each station transmitting the complement information.

Chain.com game can be play by a maximum of 6 teams at the time, each one with a person that coordinates and verify the successful completion of the tests.

The total time for the game is 30 minutes, with a pause of 5 minutes at 20 minutes of game, in which participants have the possibility of a team meeting to propose a new strategy and exchange roles in the communicative chain.

The winner team will be the one that complete all the figures of the board or the one that has more correct figures, in a maximum time of 30 minutes.

6. RESULTS AND CONCLUSIONS

A test of the game in its final version was applied to a group of 20 students of the subject management games of postgraduate programs, in National University of Colombia, Medellin Campus, Minas faculty. The objective was show and demonstrates to participants the importance of communication in teamwork and to validate the game.

5 groups of 4 persons each one are formed and randomly each participant is assigned to a station of the game. When finishing the game, an inquest was made to each participant.

Information about each figure was transmitted in a different way between the members of the team, in the following order:

Figure 1: Talking.

Figure 2: Writing, only words.

Figure 3: By signals.

Figure 4: Writing, only symbols.

Figure 5: Talking.

Some of the results and comments obtained during the test of the game are:

85% of participants identified during the game verbal and non verbal communication, 75% identified the necessity of teamwork and 60% identified the elements and roles in a communication process, achieving the instructional objectives of the game. See Figure 5.

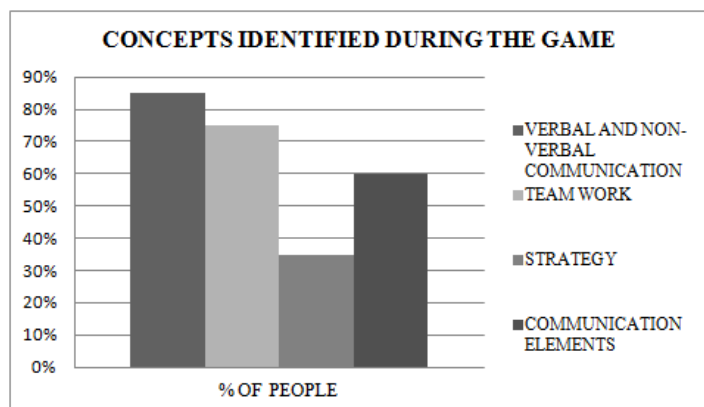


Figure 5. Concepts identified in the game *Chain.com*

30% of participants considered the written communication as the most difficult and 65% the communication by signals. Non participant considered difficult the spoken communication, although in team results is possible to see that most of the teams had to do several attempts before finding the correct figure when team member had to transmit information by talking. See Figure 6.

Participants expressed that spoken communication is not complex, but when transmitting information it is not made in an exact and concisely way, so this form of communication became inefficient and ineffective because team members needed to make several attempts,

taking long time, before transmitting the correct information to find the chips and complete the board.

Written communication is difficult for participants, because they expressed that is hard to understand ideas of other participants and sometimes there are other factors involved that influenced communication in a negative way as different letter types, unnecessary repetition of ideas or the extent of writing, which causes an increase of time and effort and evidences a failure and inability of participants to communicate written ideas in a clearly and concisely way.

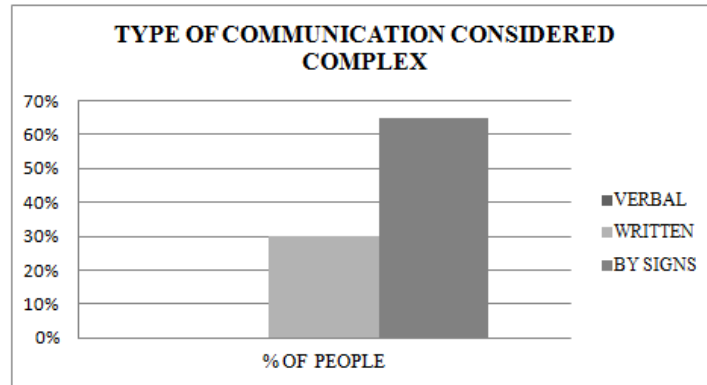


Figure 6. Communication considered complex in the game *Chain.com*.

Communication by signals is difficult for participants, mainly because most of the time it is not used by itself, it is used as a complement to other types of communication as oral, although it is difficult to find a common pattern to use between all participants, because not all of them understand the same things.

The most frequently observed error was at the beginning of the game, because most of the participants measured the chips with their hands or fingers, without taking into account that the measure is different in each participant, demonstrating a failure in obtaining communication patterns. Non-participants used a different object as pencil, paper or other to communicate the necessary information.

With the results and comments it is concluded that the game *Chain.com*, meets its objectives and could be a valuable tool to diagnose and analyze the performance of communication in team work.

7. FUTURE WORK

The next step in the validation of the game *Chain.com*, is the application in different social groups (men, women, students, executives, employees, and some others) to obtain results and conclusions of the way people communicate and a tool to diagnose and improve performance of communication in teams. Then the objective is to create an online game, that can be played anywhere in the world, to obtain results and a pattern of knowledge.

From this research, arises the intention of do a joint job between experimental economics, game theory and management games, with the methodology used in this paper.

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