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Intuitive communication versus rational communication among students of computing at the Algebra University College

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Abstract - **Communication is not just what is said, it is also what has not been said; its efficacy reflects in the response we get. In formal education, cognitive processes and problem-solving are taught through the prism of rationality with an emphasis on logic and rational approach, according to which everything must be justified and argued. It also prevails that communicative skills can be learned if certain rules are followed. However, it is active listening, empathy and connecting with an interlocutor, that makes possible to influence the behavior of those we communicate with. The intuition is based on an inner feeling that enables us to make decisions without logical resonance, it represents wisdom that we often can not explain how we possess it. The aim of the research conducted among the students of computing at the Algebra University College was to determine whether students rely on the „ratio" or on the "inner voice" while they communicate. The results showed that although students consider intuition should be taken with a dose of reservation due to possible non-objective influences and give priority to rationality in business-related actions, they also opine that the best results are achieved when intuition and rationality are combined.**

Keywords – communication, intuition, rationality, inner voice, ratio

I. INTRODUCTION

The ability to communicate has made us human and every day, either consciously or unconsciously, that ability helps us to reduce the "distance" between us and others. The fulfillment of our private lives, as our business success, is often the direct result of our communication skills. The noun „communication" is derived from the Latin term *commūnicāre*, meaning "to share, to make common"[1]. Our communication skills are influenced by a number of factors, but their success is reflected in how much of 'ourselves' we have been able to share and make in common with our interlocutor. Communication is not just what is said, it is also what has not been said; its efficacy reflects in the response we get. Therefore, it is no surprise that today's attention is increasingly devoted to the development of our communication skills.

The attempt to understand the progress of humans to solve problems in an advanced and intelligent way intrigues researches from multiple disciplines, and it can be traced all the way back to Aristotle's era (384-322BC).

Some of the approaches include finding a solution based on already known solutions i.e. *direct facts*, adopting the most possible solution or the rule of thumb, i.e. the *heuristic approach*, reducing a new problem to an existing or to similar, already known solutions i.e. *analogy*, making moves which bring us closer to the goal step by step i.e. *hill climbing*, while applying already known and well-defined solutions i.e. *algorithmic deduction*, using a systematic search of possible solutions i.e. *exhaustive search*, solving a problem via decomposing the whole problem into subproblems i.e. *divide-and-conquer*, reducing a problem to a known category and finding the particular solutions i.e. *analysis and synthesis*[2].

Those approaches are usually the base of formal education and they are taught through the prism of logic and rational mind according to which everything must be justified and argued. Also, it often prevails that all skills can be learned if certain rules are followed, including communication. However, it is active listening, empathy and connecting with an interlocutor, that makes it possible to influence the behavior of those people to communicate with. The intuition is based on intuitive mind, on an inner feeling that enables people to make decisions without logical resonance, it represents the wisdom whose presence within them they often cannot explain.

Many authors today also consider the role of leaders in education, inviting on „evoking greatness" i.e. bringing out the best in educational leaders, because evocative coaches are not afraid to tune into the intuition channel, to bring imagination, inspiration, and integration into the coaching process[3]. The basic questions that should be answered, according to Timothy Gallwey, which appear when we put ourselves in the shoes of the person are: 'What am I thinking? What am I feeling? What do I want?' The answers to these questions allow us to have a richer picture of the three primary levels of the other person: thinking, feeling and will. It is important to remember that at best we can make an educated guess about how other people think and fees, and it is also important to keep ourselves open to feedback and new information and to be willing to adjust our picture of the other person's reality. The purpose of that skill, called *transposing*, is not just to gain insight, but to be more effective in our communication[4].

II. COMMUNICATION STYLES

Individuals use different types of communication styles to convey their messages to others. Communication styles are the subject of consideration for many authors and researchers, and in this chapter, we will list some of the basic styles they are used in:

A. *In the book Peoplemaking, first published in 1972, Virginia Satir brings five styles of communication*[5];

- *Placating* – earliest method of communication that a child learns. A person says 'yes' though he/she wants to say 'no', in order to be accepted by others and agrees and the needs of other people, life, desires, and demands are more important than their own, which underscores the lack of self-esteem.

- *Blaming* – a second way of communicating a child learns ('he made me do it'). A person puts their own desires in front of the desires of others and the situation they are in while does not take responsibility or transfer responsibility for his/her own life and feelings to others.

- *Computing* - a person says "I'm calm, cool, and collected", live in their own head, do not show emotions nor reactions and have an intellectual, reasonable and authoritative approach through which they lecture others. He/she is inclined to be alone and although he/she has friends, the relations are superficial.

- *Distracting* – a person changes the topic of conversation, begins to talk about something else, pronounces words that do not make sense and jokes in an inappropriate way. The belief is 'I'm not important', 'you're not important' and the whole situation is not important. He/she is unable to make intimate relationships and is often labeled as the Joker.

- *Leveling* – this style differs greatly from the previous as it is the most integrative communication style. A person expresses what he/she wants, nothing is avoided and hidden and everything is in line with the reality of the situation. Themselves, other people and context in consideration are equally valuable. It is not necessary to be perfect but real.

B. *Some analyst of interpersonal communication divide people's behavior into one or a combination of these five styles (Baden Eunson):*

- *Passive* - people avoid expressing their opinions or feelings. They do not respond overtly to hurtful or anger-inducing situations so once they have reached their high tolerance for unacceptable behavior, they are prone to explosive outbursts, usually out of proportion. After however, they may feel shame, guilt, and confusion, so they return to being passive[6].

- *Aggressive* - people express their feelings, opinions and advocate for their needs in a way that violates the rights of others, and thereby are verbally and/or physically abusive. They try to dominate others, criticize, blame or attack others and speak in a loud and demanding way, interrupt others frequently, and are very impulsive. They use humiliation to control others[6].

- *Manipulative* – individuals that use this style of communication do not take other people's feelings, needs, opinions, wishes, and lifes into consideration, but they act in a manipulative way: they often flatter others, they use lies and other techniques to deceive others so that they can achieve their own hidden agendas.

- *Assertive* – assertiveness can be expressed as 'getting what you want from others without infringing on their rights'[7]. Individuals that use this communication style clearly state their opinions and feelings, and firmly advocate for their rights and needs without violating the rights of others. They value themselves, their time, and their emotional, spiritual, and physical needs and they are strong advocates for themselves while being very respectful of the rights of others[6].

- *Passive-Aggressive* – it may involve intentional inefficiency, moodiness, delay, anger, and similar behavior. Relationship with a person in this style may seem friendly, but indirect and hostile interactions make the environment with these people negative and stressful[7].

C. *Mark Murphy (2015), a recognized expert in organizational leadership and employee engagement, and his team have gone through two decades of research to come to the conclusion that there are four basic divisions of communication styles*[8]:

- *Analytical Communicator* – a person aspires to express information through a particular language and does not like unclear expressions. Usually, has little patience when others express many emotions and feelings. A positive side is that the person gives the impression of a knowledgable individual. The negative side is that a person may act non-emotional and cold to others.

- *Intuitive Communicator* – an individual is prone to looking at a big picture, moving directly to the point and avoiding a large number of details in the conversation that led to the point. The advantage is speed and thinking out of the box. A person sometimes has no patience when the situation requires dedication to detail, i.e there is a risk of missing the point. The most difficult is to agree with a person who is a functional communicator.

- *Functional Communicator* – a person thrives on details, processes, timelines, and plans and to process information step by step so nothing would be lost. The advantage is that no detail is missed. The negative side is potentially losing the attention of others, especially the person who is inclined to look at a larger picture without too many details, such as intuitive communicators.

- *Personal Communicator* – a person seeks emotional language as a way of connecting with others or revealing what other people think. The advantage is the ability to establish deep relationships with others while the negative side is that sometimes may be ridiculed as being too sensitive, especially by people who are reluctant to recognize the emotional aspect of the situation, which may get them upset or angry.

Murphy points out that none of the styles are necessarily better than others, but it is very important to choose the right style when the information is passed to a specific audience. Flexibility in dealing with communication styles helps to transfer information more successfully.

D. *The meaning of your communication is the response you get*[9]*"*, and not what is said!

This is a great presupposition by the anthropologist Gregory Bateson which at the same time points to the complexity and simplicity of communication. It is important to emphasize that alongside what we communicate directly, there is a phenomenon of *metacommunication*. Metacommunication includes all nonverbal cues (tone of voice, body language, gestures, facial expression, etc.) which carry meaning that either enhance or disallow what we say with words. There's a whole conversation going on beneath the surface. Very often meta-communication can be described as*: what I said isn't what I meant*[10].

III.   INTUITION AND INTUITIVE COMMUNICATION

A. *According to Diane Brandon, there are eleven types of intuition („sixth sense"), which are*[11]:

- *Presentiment* - people's feelings reduced to focusing their attention on something that can happen, whether good or bad.
- *Drowsiness in the abdomen* - a "weird" feeling coming from the belly. For example, a feeling of mild nausea when thinking about an upcoming obligation or event that creates a sense of discomfort.
- *"Yeah!" Moments of sudden surprise* - the state people find themselves in when an idea suddenly comes to their mind or something becomes perfectly meaningful, often referred to as the "light is turned on".
- *Vision* - the appearance of intuition in visual form. People can look like they actually see something with their eyes, and can be formed figuratively as an image in their mind.
- *Instincts* – although some people would never classify instincts under intuition, they are also one of the ways of reporting it. For example, if a person comes to some animal, instinct will tell her whether or not her to run away.
- *Irritable feeling that does not pass* - the feeling when something works right, but is constantly followed by the irritating feeling that tells them the opposite.
- *Touch* - intuition can also occur in the form of touch, which is called psychometry. Touching an item or another person can be a trigger to receive information.
- *Fragrance* - this form can occur in people when they receive information about a negative subject and may suddenly feel an unpleasant odor.
- *Hearing* - it can occur in the form of a sound or voice (including an inner voice) that can be literal or figurative and can only be in their mind as if they were imagined.
- *Physical signs* - the body has the ability to register and transmit information, so this form of intuition may involve signals such as gooseflesh what sends a message to a person whether something is good or bad.
- *Telepathy* - represents communication between two minds and may be common between two close individuals. For example, when people think of another person, and soon afterward they meet somewhere or call them.

B. *The intuition-rationality tension*

Although, people are rarely communicating in a way that they use only one communication model, the intuitive model, which is based on the inner feeling and the rational model, which is based on facts and logic stand out as the two most common extremes.

The intuitive approach was used until the Renaissance when the scientific community embraced the structured hypothetical - deductive model based on a rational and analytical approach. Afterward, it was abandoned because it was considered to be inferior to the new accepted model. Although that was the case for the following few hundred years, in the mid-20th-century new research appeared in the area of intuition and tried to find a way to harness this aspect of human existence. Areas, where intuition is considered to be valuable, are communication, decision making, knowledge management, leadership, problem-solving and creativity.

A rational and structured approach will undoubtedly yield results that we can predict and measure. The problem is when there is not enough time to consider all of the factors that affect the outcome of one's decision when there is rapid change, and one has not uncovered the unknown, the time is short, and a great deal is at stake, who will take responsibility for the decision? These kind of situations are ideal for recognizing leaders. For the most critical positions in our civilization, people who possess analytical and structured approach based on facts and reality are wanted, but people who know something that others do not, even if they cannot describe how they know it, are also desirable.

The tension between intuition and rationality in decision making is described by some authors as paradoxical[12]. Such paradoxical tension arises when two practices that seem logical individually are 'inconsistent or even absurd when juxtaposed'[13]. Rationality refers to an

analytical, systematic, rule-based, and explicit mechanism for decision making[14]. Rational decision making can be slow, time-consuming, and effortful, because of its systematic and structured nature, so it is not always appropriate for mastering the time pressure, complexity, and uncertainty of innovation decision making. When a decision-making process is based on intuition, decision makers consciously recognize a problem through the perception of relevant cues and patterns, non-consciously activate all the cognitive schemas associated with the problem, non-consciously make holistic associations across cognitive schemas, and consciously generate a solution[15]. The intuitive process includes problem definition, analysis, and synthesis, just like rational information processing, but these stages occur faster and are mostly non-conscious and deeply intertwined. Additionally, intuitive judgment is effectively charged and accompanied by a feeling of certitude and the perception that one's intuitions are correct, despite the lack of rational analysis[16].

C. *Intuitive communication* – is communication model that has the most ability to anticipate future events, situations, feelings, when a person has no clear and firm arguments for a decision but is firmly certain to think and act properly. Certain "unargumented" security in communication is the result of intuitive action[17]. As Murphy stated, those who use the intuitive model of communication are characterized by features such as enthusiasm, creativity, and determination.

D. *Emotional intelligence is a balance between the rational and the emotional brain.* Our style of communication is influenced by numerous factors, but we achieve the most when we combine all the aspects of our mind and establish a balance between the rational and the emotional mind. Emotional intelligence (EI) can be described as our ability to work with emotions (the way we perceive, understand, express and manage emotions). It enables us to accurately perceive other people and to use that information to build relationships with others.

5 major components of EI, according to David Goleman are[18]:
- *SELF-AWARENESS* – the awareness of how we feel all of the time, and understanding how those feelings are affecting the people around us.
- *SELF-REGULATION* - the ability to control our emotions and actions, developed by living our values, and by holding ourselves accountable when we make a mistake.
- *MOTIVATION* – the passion for work and meaningful contribution, beyond the material gainings. Highly motivated people put off short-term rewards for long-term success.
- *EMPATHY* - the ability to identify with other people and understand their wants, needs, and viewpoints.

- *SOCIAL SKILLS* – skills which help us work positively with other people, and manage conflict effectively.

E. *The intuition and rationality in higher education*

In order for teachers to encourage students to develop their full communication potential, ie intuitive as well as rational communication, they must first become aware and develop on their own intuition's skills such as self management (creative problem solving, handling conflict, managing pressure and stress, emotional intelligence etc.), communication skills (assertiveness, presentation skills, influencing skills, positive personal impact, dealing with difficult situations, negotiation skills etc.) and management&leadership skills (how to be a mentor, coaching, teamwork, team development, implementing and managing change, managing diversity, effective team briefing, managing people, action-centered leadership, performance management etc.)[19].

IV. THE RESEARCH METHODOLOGY

A. *Research Goals and Methods*

The research conducted among the Algebra University College students was concerned with the use of intuitive communication versus rational communication among computing students at Algebra University College, both in the private, as well as in the professional environment. The general research objective was to determine whether the students of computing predominantly use rational or intuitive communication style.

The research was conducted among the Algebra University College students during January of 2019 through an anonymous voluntary survey. The questionnaire had 9 questions. One of these questions included 8 statements and the students could choose if they considered the statements to be accurate or inaccurate, while for the other questions possible answers were defined with the degrees according to the Likert's scale of frequency.

For the analysis of the research results, a quantitative method was used. The data processing of the survey results was made through the Microsoft Excel tool.

B. *Participants*

Undergraduate Study Program	Applied Computing	Multimedia Computing
Total number of Students per Study Program (N)	111	13
Number of Students by Gender		
Male	98	10
Female	13	3
Number of Students per academic year		
First	100	13
Second	11	0

Table 1. The structure of the participants by Study Program, Gender and Academic year

The population sample included 124 Algebra University College students of undergraduate study programs: Applied Computing (Software Engineering and System Engineering) and Multimedia Computing. The structure of the surveyed students is presented according to the study program, gender and academic year. The majority of participants were Applied Computing (90%), male (79%) and first years students (80%) while among Multimedia Computing students 10 % were female and 8% were second years students.

C. Research Results

The general hypothesis of this research is that students predominantly use the rational communication style, and one of the fundamental questions is whether students also use intuitive communication and to which level, both in the private and in the professional environment.

The research results have shown that students often use intuition in everyday communication (42%) or periodically (40%), while only a few students never use intuitive communication (1%), or they use it rarely (11%). Only 6% of students use intuition every day in their communication.
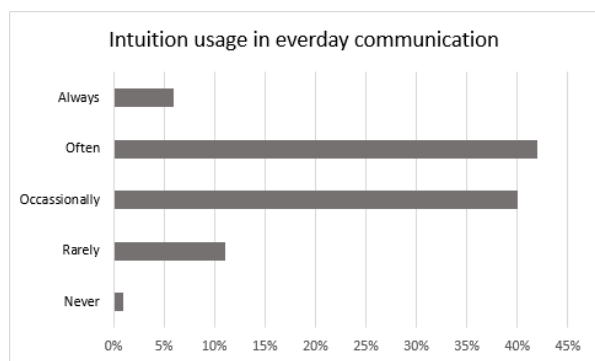

Chart 1. Distribution of the answers to the question: *How often are you using intuition in everyday communication?*

Regarding the question of how much they rely on intuition when contacting unknown people, results show that the highest percentage of participants (43%) do it often or periodically (27%), and always (12%). 15% of students rarely rely on intuition when contacting unknown people, and 3% never do it. The 46% of the students claim that intuition often helps them estimate whether the received messages or information are true (41%) or always (5%). To 37% of them intuition helps periodically, but to 12% rarely or never (5%).

In the professional environment, 52% of the students base their communication on a combination of intuition and rationality, but rationality prevails, while 29% of participants rely on the combination of intuition and rationality to the same extent. Only 9% of participants base their communication in the professional environment exclusively on rationality, and only 1% exclusively on intuition, while 9% use a combination of intuition and rationality, but intuition prevails.

It is interesting to notice that in the private environment, 31% of the students base their communication on the combination of intuition and rationality, but rationality prevails, while 38% base their communication on the combination of intuition and rationality to the same extent. Only 4% of participants base their communication in private life exclusively on rationality and only 1% exclusively on intuition. In addition, 27% use a combination of intuition and rationality, but intuition prevails.

For 15% of students in total intuition is an unreliable communication tool, of which 4% consider intuition very unreliable, while for the 31% intuition is a reliable communication tool, of which 2% consider intuition very reliable. Most of them consider intuition neither a reliable nor unreliable communication tool (54%).
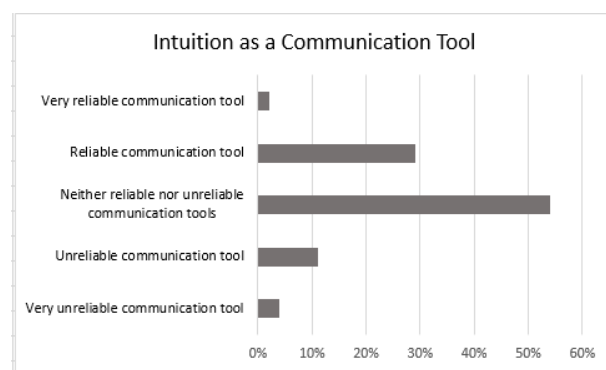

Chart 2. Distribution of the answers to the question: *According to your opinion, intuition is…?*

When it comes to communication in the decision-making process, intuition is more important than rationality only for 17% of students, and 83% of students disagree with this statement. When making any decisions only 6% of students consider that they should and could rely entirely on their intuition, but mostly they think that they should not and cannot rely entirely on their intuition when making decisions (93%).

For 60% of surveyed participants, intuition and rationality have equal importance in communication, but 40% of them disagree with that statement. 52% of the surveyed students always start from rationality, but if their intuition persistently says the opposite - they listen to it, while 48% do not.

When it comes to business, 91% of students give priority to rationality and 9% give priority to intuition. At the same time, 85% of participants consider that the best results are achieved when the combination of intuition and rationality is used, but 15% disagree with this statement.

Almost a quarter of the surveyed students consider that making decisions for the future is impossible to evaluate rationally but only with intuition (24%), while the vast majority (76%) believe that decision making for the future cannot be evaluated rationally but should be evaluated with the help of intuition exclusively.

90% of students estimates that intuition should be taken with a dose of reservation due to the possible

influence of emotions on it, and 10% disagrees with this statement.

Regarding other people, students estimated that they use intuition in communication occasionally (48%), or in most cases (38%), but some students think that other people use intuition rarely (11%), always (2%) or never (1%). According to the students' assessment, other people believe their intuition occasionally (43%), or in most cases (39%), rarely (15%), always (2%) or never (2%). It is not clear why students believe that other people use their intuition in communication more often than they believe their intuition.

Also, it is interesting to notice that although 60% of students consider that intuition and rationality hold the same importance in the communication process, with 85% of them believing that the combination of intuition and rationality gives the best result, 92% of students will still give preference to rationality in a professional environment. But it seems that more than half of the total number of surveyed students will listen to intuition if it persistently contradicts rationality.

D. Limiting elements of the research and recommendations for further research

All answers of the surveyed students represent only their assessment of their behavior, beliefs, and attitudes, and from the results of this research, it is not possible to determine the extent to which their opinions would be consistent with their behavior in real life. Also, the sample of participants is small and the method of distributing the survey was limited to sampling, so a recommendation for future research is to change these circumstances. In addition, in future research, in which more female students would participate, the distinction should be made between male and female students.

It would be advisable to consider longitudinal research of the development of communication styles of students and their integration communication style elements that have not been used so far, but which they have embraced under the influence of targeted education. Another recommended way of monitoring the development of communication skills and styles would be the project approach to solving tasks on courses and focus groups as an additional research method, so that a survey would not be the only method of data acquisition, in order to gain a more detailed insight into the mentioned area of interest.

V. CONCLUSION

The results of the conducted survey among Algebra Univerity College showed that almost half of the surveyed students use intuition in everyday communication while most of the students use it at least periodically. It further shows that they rely on intuition in contact with others and to estimate the truthfulness of received information. It is interesting to notice that half of them consider intuition as neither reliable nor unreliable communication tool that should be taken with a dose of reservation due to possible on-objective influences. When business is concerned, they give priority to rationality in business-related actions.

Although the main disadvantage of rational communication highlights the cold approach while intuitive communication lacks reliability, the research results verified that students think that the best results are achieved when intuition and rationality are combined. While both the rational and the intuitive communication style have their own advantages, by combining the elements of both, one attains the best objectives.

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