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Effectiveness of “7Cs of communication” in the teaching of mathematics at elementary school level

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Abstract

This paper is a study of presence of 7 C's of communication in Elementary Mathematics class. Communication is a process in which meaningful information of thoughts is exchanged between two or more person. Being a mode of communication and transferring information, English plays an important role in classroom. Some teachers teach fluently in English but fail to connect with the students and at that moment teachers are supposed to know the usage of the 7 C's of communication.

Within the time frame of 30-40 minute teacher need to transfer best and useful knowledge to his/her students, in fulfilling this aim, 7 C's of communication can play a vital role.

Collected 7 random videos of elementary class of Mathematics and analysis of those videos on the basis of 7 C's of communication has been done. The used tools were: Checklist and Observation. We analyzed that during teaching learning process, "Consideration" is very low in teacher's communication due to which students start feeling bored in class and develop phobia for math.

Knowingly unknowingly teachers are using 7 C's of communications but not that effectively. Although they try to be complete and correct in their communication with the subject yet they somewhere lack either in concreteness or in clarity. If teacher will be taught about 7 C's of communication during their training period it will help them to be more effective and reflective teacher.

Keywords: teaching, mathematics, school level, 7Cs of communication

1. Introduction

1.1 Aim

To study and analyze the effectiveness of the 7 Cs of communication in teaching of mathematics at elementary level (with special reference to teaching skill).

1.2 Communication

Communication is a process in which meaningful information of thoughts is exchanged between two or more persons.

1.3 Role of Communication in Mathematics

Mathematics can be thought of as a language that must be meaningful if students are to communicate mathematically and apply mathematics productively. Communication plays an important role in making mathematics meaningful; it enables students to construct links between their informal, intuitive notions and the abstract language and symbolism of mathematics. It also plays a key role in helping students make critical connections among physical, pictorial, graphic, symbolic, verbal, and mental representations of mathematical ideas. When students see that one representation, such as an equation, can describe many situations, they begin to understand the power of mathematics. When they realize that some ways of representing a problem are more helpful than others, they begin to understand the flexibility and usefulness of mathematics.

1.4 According To NCF (National Curriculum Framework- 2005)

Language education is not confined to the language classroom. A science, social science or mathematics class is *ipso facto* a language class. Learning the subject means learning the terminology, understanding the concepts, and being able to discuss and write about them critically. Effective understanding and use of languages(s) enables the child to make connections among ideas, people and things, and to relate to the world around.

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1.5 According To NCTM (National Council of Teachers of Mathematics)

Through communication, ideas become objects of reflection, refinement, discussion, and amendment. When students are challenged to think and reason about mathematics and to communicate the results of their thinking to others orally or in writing, they learn to be clear and convincing. Listening to others’ explanations gives students opportunities to develop their own understandings (NCTM, 2000, p. 59). {1}

1.6 What Are 7 Cs of communication?

- **Completeness:** The communication must be complete. It should convey all facts required by the audience.
- **Conciseness:** Concise message is more appealing and comprehensible to the audience. It should be short and crisp.
- **Consideration:** Emphasize on “you” approach.
- **Clarity:** Clear message makes use of exact, appropriate and concrete words.
- **Concreteness:** Concrete communication implies being particular and clear rather than fuzzy and general.
- **Courtesy:** Courtesy in message implies the message should show the sender’s expression as well as should respect the receiver.
- **Correctness:** Correctness in communication implies that there are no grammatical errors in communication

1.7 History of 7 C’S: 7 C’s of communication was first introduced in the field of public relation. It was first mentioned in a book named “effective public relations, 1952” by two professors Scott M. Cutlip and Allen H. Center of the university of Wisconsin. {3}

1.8 Journey of 7 C’S: The concept of 7 C’s of communication came into existence in the education world through the field of public relation of marketing.

1.9 Rationale

- English is used as a communication language in schools and it is highly motivated. Text books are in English and teaching learning processes are dependent on English.
- Some teachers teach fluently in English but fail to connect with the students and at that moment teachers are supposed to know the usage of the 7 Cs of communication.
- Communication is important in mathematics. So, in order to know and analyze the impact of this concept, we would like to do this study

2. Methodology

Collection of 7 videos of elementary classes of mathematics and analysis of those videos on the basis of 7 Cs of communication.

2.1 Tools

Checklist: Seven different checklists were made to analyse all 7 Cs of communication in teaching learning process. These checklists have been shown in this paper.

Observation: In order to observe the mathematics teaching learning process of various classes, observations were done.

2.2 Data Collection

Sample Size:-7 videos of elementary classes of mathematics subject.

Duration: - Approximately 30 MIN of each lecture. Actual time is 25 min.

Checklist For 7 C’s of Communication

Table 1: Checklist for Clarity in communication

S. No.	Observation	Very Much	Some What	Not really	Not at all
1.	Quantity of ideas in each sentence	4	3	2	1
2.	Use of appropriate words	4	3	2	1
3.	Use of effective sentence	4	3	2	1
4.	Use of effective paragraphs	4	3	2	1
5.	How close was the message to the goal?	4	3	2	1

Table 2: Checklist for Concreteness in communication

S. No.	Observation	Very Much	Some What	Not really	Not at all
1.	Use of Clear words	4	3	2	1
2.	Use of statement-like words	4	3	2	1
3.	Use of vivid, image-building words	4	3	2	1
4.	Use of active verbs rather than passive	4	3	2	1
5.	Use of analogies to make comparisons	4	3	2	1

Table 3: Checklist for Correctness in communication

S. No.	Observation	Very Much	Some What	Not really	Not at all
1.	Use of right level of language	4	3	2	1
2.	Use of Non-discriminatory expressions	4	3	2	1
3.	Use of correctly spelled names and titles	4	3	2	1
4.	Usage of grammar	4	3	2	1
5.	Usage of vocabulary	4	3	2	1
6.	Usage of pronunciation	4	3	2	1

Table 4: Checklist for Completeness in communication

S. No.	Observation	Very Much	Some What	Not really	Not at all
1.	How informative was the message?	4	3	2	1
2.	How many questions of five W's answer?	4	3	2	1
3.	How much Inclusion of "call to action"	4	3	2	1
4.	How many questions were answered?	4	3	2	1
5.	How thorough was the message?	4	3	2	1

Table 5: Checklist for Courteousness in communication

S. No.	Observation	Very Much	Some What	Not really	Not at all
1.	Use of sincere, tactful, thoughtful and appreciative expression	4	3	2	1
2.	Use of Positive expression that are focused at the receiver	4	3	2	1
3.	How friendly the message was?	4	3	2	1
4.	How open the message was?	4	3	2	1
5.	How Honest the message was?	4	3	2	1

Table 6: Checklist for Consideration in communication

S. No.	Observation	Very Much	Some What	Not really	Not at all
1.	How much Focus on "you", instead of "I" or "we"	4	3	2	1
2.	Consideration of Receiver's benefit or interest	4	3	2	1
3.	Emphasize on positive or pleasant facts	4	3	2	1
4.	How much stress on positive words	4	3	2	1

Table 7: Checklist for Conciseness in communication

S. No.	Observation	Very Much	Some What	Not really	Not at all
1.	Use of wordy expression and repetitions	4	3	2	1
2.	Use of least possible words	4	3	2	1
3.	Use of Simple and straight words	4	3	2	1
4.	How brief the message was?	4	3	2	1

3. Analysis

On the basis of videos and checklists, data has been analyzed qualitatively and quantitatively.

Table 8: Rating of all 7 videos on the basis of Clarity

Video	%	Rating
1	75	III
2	80	II
3	65	IV
4	65	IV
5	50	V
6	65	IV
7	100	I

Table 9: Rating of all 7 videos on the basis of Concreteness

Video	%	Rating
1	85	I
2	75	III
3	65	IV
4	60	V
5	80	II
6	45	VI
7	85	I

Table 10: Rating of all 7 videos on the basis of Conciseness

Video	%	Rating
1	94	I
2	81	II
3	56	V
4	75	III
5	81	II
6	69	IV
7	94	I

Table 11: Rating of all 7 videos on the basis of Correctness

Video	%	Rating
1	83	IV
2	88	III
3	92	II
4	71	VI
5	67	VII
6	79	V
7	96	I

Table 12: Rating of all 7 videos on the basis of Consideration

Video	%	Rating
1	50	IV
2	50	IV
3	75	II
4	62	III
5	62	III
6	44	V
7	100	I

Table 13: Rating of all 7 videos on the basis of Courteous

Video	%	Rating
1	80	II
2	75	III
3	60	V
4	70	IV
5	55	VI
6	60	V
7	100	I

Table 14: Rating of all 7 videos on the basis of Completeness

Video	%	Rating
1	100	I
2	90	III
3	90	III
4	80	IV
5	60	V
6	80	IV
7	95	II

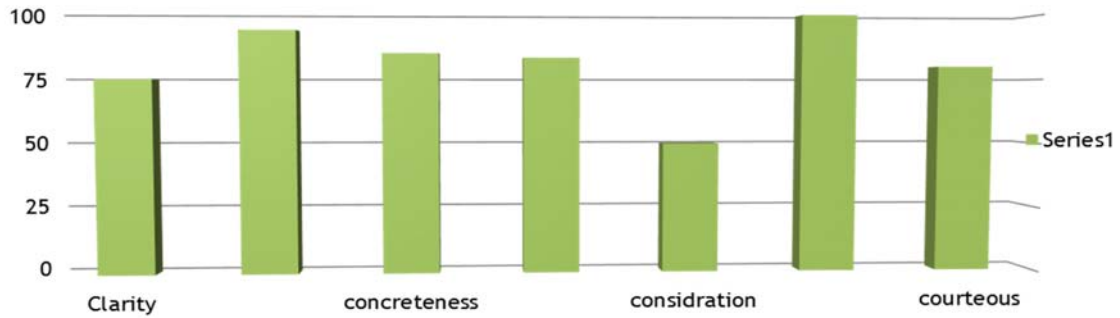


Fig 1: Level of all 7C's in Video 1

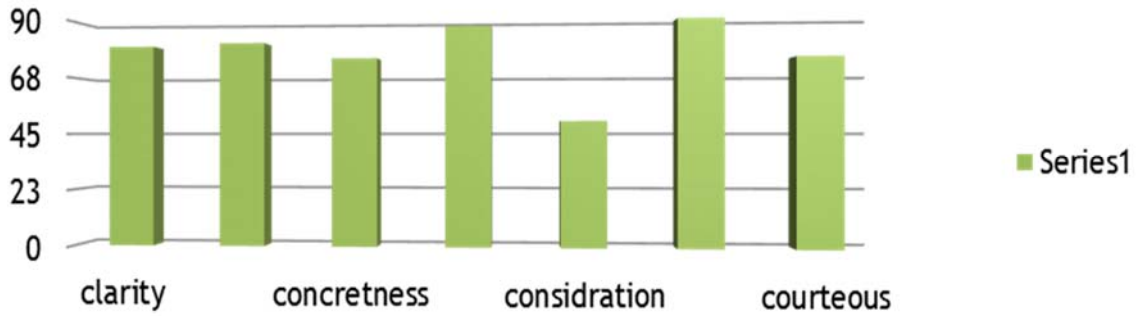


Fig 2: Level of all 7C's in Video 2

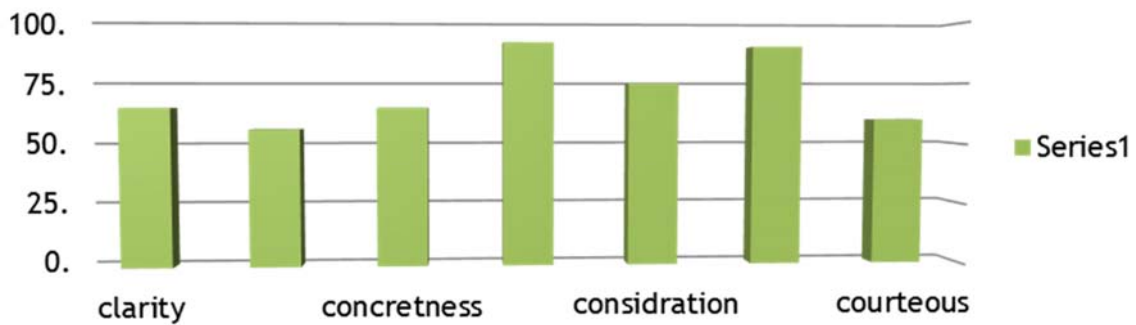


Fig 3: Level of all 7C's in Video 3

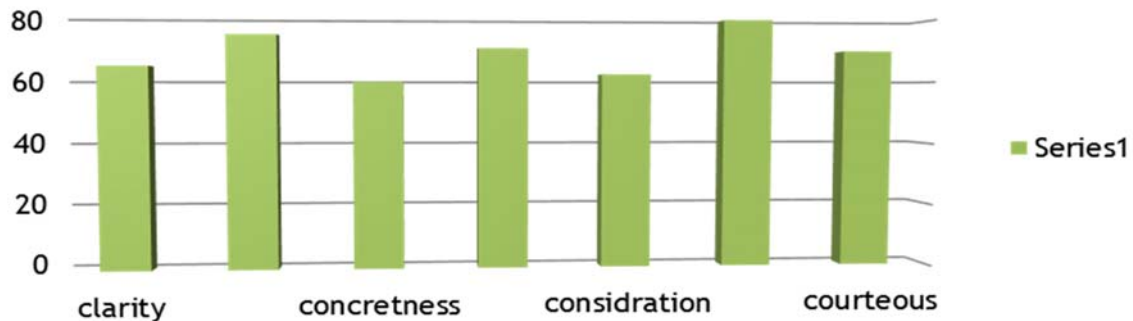


Fig 4: Level of all 7C's in Video 4

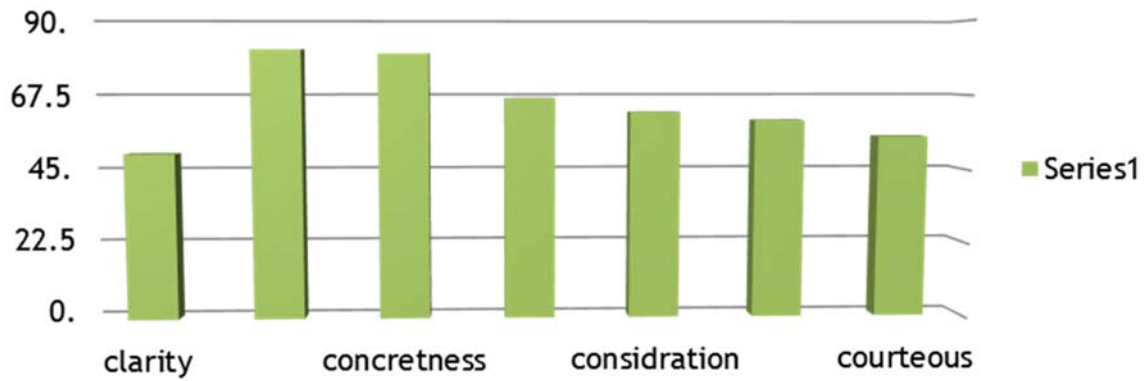


Fig 5: Level of all 7C's in Video 5

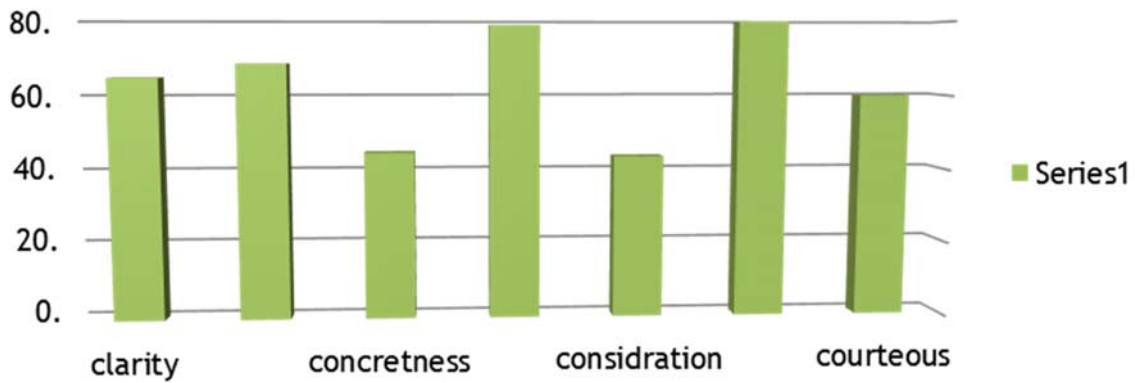


Fig 6: Level of all 7C's in Video 6

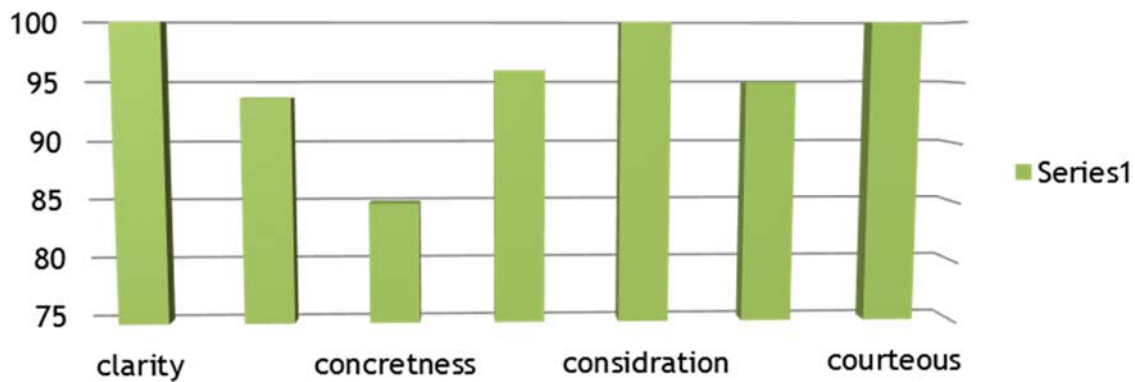


Fig 7: Level of all 7C's in Video 7

Table 14: Rating of all 7 videos on the basis of each C of communication.

7 Cs	Status	Video	Timings
Clarity	Best	7	00:00-01:20
	Worst	5	02:20-04:20
Conciseness	Best	7,1	01:11- 01:34
	Worst	3	34:30-35:10
Concreteness	Best	7,1	09:40-09:50
	Worst	6	00:00-01:30
Correctness	Best	7	05:31-05:55
	Worst	5	01:46-05:00
Consideration	Best	7	00:13-01:48
	Worst	6	02:20-04:30
Completeness	Best	1	03:17-05:05
	Worst	5	00:45-01:05
Courteous	Best	7	16:15-18:00
	Worst	5	06:01-07:15

Table 15: level of each C of communication In All 7 Videos

S. No	Cs in 7 videos	%
1.	Clarity	71.429
2.	Conciseness	78.571
3.	Concreteness	70.714
4.	Correctness	82.143
5.	Consideration	63.393
6.	Completeness	85
7.	Courteous	71.429

4. Findings

1. It is visible in all videos that teachers have done fairly well in correctness, completeness and conciseness.
2. Courteous and consideration are very less in their communication.
3. Teachers are ignoring the value of students in teaching learning process and it can easily be seen in the videos.
4. We noticed that during teaching learning process, "Consideration" is very low in teacher's communication due to which students start feeling bored in class which creates and develop phobia for math.
5. Where ever consideration is there, students are active and participating really well in class.
6. Knowingly or unknowingly teachers are using 7 C's of communications but not that effectively. Although they try to be complete and correct in their communication with the subject yet they somewhere lack either in concreteness or in clarity.
7. "Concreteness" is the third main factor of communication that is low in all videos and need to be worked upon by the teachers.

5. Conclusion

1. It should be used as a tool to improve teaching skills.
2. Teachers should use 7 C's of communication to reflect and bring the change in their teaching.
3. It will help teacher to deliver their thought more clearly and effectively.
4. It will improve the skill of probing questions of teachers and help students to understand the word/statement problem better.
5. With the help of these 7C's of communication, Phobia of math can be reduced in students.
6. If they will be taught about 7 C's of communication during their training period it will help them to be more effective and reflective teacher.

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