

Opinions of teacher candidates upon the use of effective communication skills when teaching sciences

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Abstract. While teaching sciences which takes up a huge place in today's technological world, effective communication among teachers and students is especially required in order to increase the enthusiasm of students about sciences. The study is aimed to support teacher candidates in acquiring effective interaction abilities, which are some of the 21st century foreground skills, and foster them to make use of these abilities in the process of teaching sciences. The research has been conducted in accordance with qualitative research techniques which include observation and semi- structured interviewing techniques. 17 teacher candidates have taken part in the research as volunteers. The result of the observations made show that these teacher candidates have used oral communication in the activities mostly. The subject of hand and facial movements (mimics) and drama technique in teaching have drawn attention of teacher candidates heavily. According to the results of interviews made, it can be deducted that it is an important improvement for them to learn effective listening is also a medium for communication. At the end of the research, the teacher candidates have been observed to have found a chance to get to know themselves in the use of communication skills; therefore, it has been detected these people have been using some of the communication channels without realizing it, whether they are positive or negative, in their relations with friends, family members, school life and so on. The realization of teacher candidates upon the importance of communication skills in education and turning their ideas into skills through their knowledge in the issue reveal the fact that this study has fulfilled its aims.

1 Introduction

Innovations in science and technology guide almost every aspect of our lives [1]. Developing technology also effects education. As well as developing their education systems, countries are now thriving to raise individuals who question, do research and turn their knowledge into products. In our age, the definition of a teacher as a person transmitting knowledge on some braches is invalid but rather, it is changed into a person

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who takes up the mission of making process of learning easier through using a smart and interactional curriculum [2]. Life is getting easier by the help of technology; on the other hand, it is getting harder meanwhile due to fast accumulation of knowledge. As a result, students are looking for some ways for themselves in this knowledge crowd. Teachers, therefore, must be good guides for their students in this research. However, for teachers, the first principle of being a good guide is to communicate with students influentially.

Diloyan in his study conducted in 2017 analysed the effective communication in a classroom between teachers and students and made it clear that it is crucial for education [3]. Getting the ability of effective communication skills and using them are “musts” for all teachers in today’s world.

Sciences has a big contribution in most technological developments, which is why the importance given to its education in schools has dramatically swelled. The ability of a teacher to convey knowledge to students especially in abstract areas such as physics is not regarded as enough. However, s/he should be able to show empathy towards students along with interacting with them effectively, seeing individualistic differences and finding the suitable language for them. It is quite clear that a physics teacher considering teaching concept as only talking and writing something on board cannot appeal to 21st century students. For instance, in Germany, communication is one of the four competence areas which generate the national education principles for biology, physics and chemistry departments [4]. Erasing students’ prejudices if they have any specifically on areas which are abstract and hard to understand and keeping students active through motivating them during classes necessitate communication with students of the age and getting to know them better. Furthermore, for a good classroom management, a teacher should gain interaction abilities [5].

1.1 Key terms for effective communication

Communication is multifaceted such as oral, written, visual, audience, intercultural, interdisciplinary and so on [6]. For a classroom atmosphere, the key concepts could be put in order as sender, message, method, receiver, meaning-making and response of receiver. When communication is taken in terms of education, sender becomes teacher or students. The fact that somebody talks and others listen all the time, one sided conversation that is to say, is a fact which is not wanted in today’s world. That is why, the sender must be either a teacher or students rather than only being teacher. On the other hand, message is the process of turning an opinion, emotion or information into symbols, letters, words or numbers. Method is the atmosphere in which message is being conveyed such as body language, voices or visuals. Receiver, however, is the person getting the message of the sender, who could be a teacher or a student in different cases. Meaning making is the process of gathering what the sender tried to convey. Response of receiver is the answer the receiver gives back to the sender. In a classroom, response of receiver is required for the continuation of mutual communication.

1.2 Purpose of the research

Teachers today should help students develop their cooperation and communication skills and encourage creative and innovative thinking while reuniting their technological and problem solving skills [7].

It is not possible to keep science teaching apart from the close relationship of technology and sciences for which reason it is highly significant for teacher candidates of physics to raise awareness on this issue, detect on which subjects they lack knowledge and how they can be helped and organise their syllabi accordingly. Briefly, in teaching sciences

or intangible subjects like physics, teacher candidates must be educated diligently. Moreover, the ability to use proper communication methods must be taught to teacher candidates so as for them to transfer knowledge in a correct way.

The importance of effective communication skills in education is widely known yet, it will be held in this study that it has a different kind of significance in terms of teaching sciences or abstract areas like physics. Incorrect methods that have been chosen before or ineffective use of chosen methods in science teaching can lead to misunderstanding of what have already been difficult to comprehend for students. While a teacher thinks s/he does a correct transfer, s/he cannot even realize the fact that students have not understood the concept or s/he has contributed to a conceptual mistake.

In this study, in relation to the significance given to having effective communication skills for teaching sciences, teacher candidates are given the chance of knowing themselves better and developing themselves more.

2 Method

The study is carried on through the use of qualitative research techniques. Observation and semi structured interview techniques are the techniques also made use of.

2.1 The study group

The study has taken place in a state university with the contributions of 17 teacher candidates who took Effective Communication lecture. These people who enrolled the course have participated in the study as volunteers because of the fact that the lecture was an elective course.

2.2 Data gathering tools

Observation forms and semi structured interview forms are used in the study under the light of qualitative research methods. In this way, it is aimed to raise the study's validity through data range [8].

Observation Form: Observation in such categories as active participation in activities related to communication skills (motivation), the communication type teacher candidates use when conversing with each other, effective listening, and establishment of empathy are planned.

Semi Structured Interview Form: Opinions of teacher candidates upon the applications of effective communication course in terms of education are taken with the help of the interview form prepared by the researcher. Candidates' thoughts and recommendations on the course curriculum and their acquisitions have been also questioned.

2.3 Application process

At the very first class, teacher candidates were asked to answer why they had wanted to take the course and what had been their expectations from the course. General information about the course and activities about possible applications of it in terms of education were discussed with teacher candidates. Furthermore, what was expected from them was explained. In this case, 2 students whose expectations from the course were different from others gave up the course since they expected psychological subjects to be discussed during the class hours. In the following weeks, key concepts of the course were handled and some scenarios towards the use of these concepts were created. In this way, it was understood

both to what extent teacher candidates comprehended what was intended to be given and how much it can be conveyed in cases of any possible crisis moment in a classroom (field survey). Observation was done by the researcher as a field survey without any intervention. The role of the researcher has been ‘‘participant as an observer’’. In this type of observation, the researcher explains teacher candidates in the beginning of the class that s/he is just an observer [9]. S/he has not only analysed the motivation created in the class atmosphere, the frequencies students feel they should use some effective communication skills (like jokes, dialogues between themselves, questioning and answering and so on) when needed, but has taken some notes about them on the observation form. At the end of the term, in addition to any criticism or suggestion, teacher candidates were asked to express their opinions upon the use of effective communication skills when teaching sciences and the course curriculum by means of semi structured interview.

2.4 Analysis of the data

The results have been interpreted through having done the analysis of all the data. For this analysis to be conducted, the findings, which include the ability of teacher candidates to use the effective communication skills in classroom activities, their internalization of these qualities, solutions they found for some possible crisis moments, gathered from observation form were evaluated. The answers given about the course curriculum and to directed questions in interview form which were about the effective applications in education have been qualified with content analysis by categorisation method.

3 Findings

The data attained from the observations;

It has been detected that teacher candidates actively participated in the activities mostly. They adopted the critical approach technique while giving examples from their family relations or social environment they live in in order to merge them into the new knowledge. They also supported the class by telling anecdotes from their pasts sometimes, which were mostly about the times when they used to take maths and physics in high school. They discussed the exemplary situations created during the class as well as criticising and suggesting something else. They reached the right communication way through negotiating the wrong ones. The method they chose was the oral communication while conversing with each other. They made progress in the activities associated with abilities like establishing empathy and effective listening. After a while, they even started to use and highlight them while talking to each other. 2 students applied the nonverbal communication through drama technique in the class, which drew the attention more. It could be said that gestures and mimics were the main focus of interest.

According to semi-structured interview data;

The answers of the teacher candidates were categorized. Some teacher candidates gave answers in more than one category.

Table 1. The answers given to the question “What are your reasons to take the Effective Communication Skills course?”

	Number of Teacher Candidates	Frequency
To acquire effective communication skills	5	29
To contribute to work life	9	53
To improve myself	8	47
To complete the elective course list	3	18
To be beneficial for students	3	18

Table 2. “Did the course curriculum meet your expectations from it?”

	Number of Teacher Candidates	Frequency
Yes	16	94
No	0	0
Indecisive	1	6

The indecisive student explained that the course curriculum was nearly the same with the other class s/he had taken before, which is why s/he cannot decide about whether it met the expectations or not.

Table 3. “ Are the teaching techniques enough for you? Any suggestions or criticism if you have.”

	Number of Teacher Candidates	Frequency
Enough	15	88
Not enough	2	12

The responses of the teacher candidates reacting as not enough to this question are given below:

S1: “The way of teaching the class could be different. The course was without any question effective yet, another method except power point slides could be chosen in order for us to memorize.” When asked what kind of a method s/he thinks about, s/he replied as the drama technique.

S2: “It would have been better if there had been more visual expression and activities including debates during the class.”

Suggestions:

S3: “It was enough. It could benefit us to teach the lesson through using the drama technique.”

S4: “If we had had more time, more applications could have been made; thus, it would have been a permanent course in our memories.”

S5: “The exams could be more practical instead of being more theoretical. Nonetheless, this would take a lot of time.”

IV. If we summarize the answers given to the question ‘‘what kind of changes have you experienced in your understanding of effective communication from the beginning until the end of semester?’’;

people said that their knowledge has increased, 2 of them stated they have started understanding body language more and more, 4 of them signed out that they have been applying the things they learned in their daily lives and they are not doing the same mistakes they have done before, 4 of them explained it is not just talking that is important for the effective communication but also listening skills, 2 of them declared that they have

gained effective listening and speaking skills, 1 of them pointed out that s/he has learned how to communicate effectively with students and 1 of them stated that there has been no change inside since s/he experienced it before in another class.

V. “Do you believe in the fact that the things you learned in the course will contribute to your work life? Explain.”

There was nobody to react negatively to this question. Even the ones reacting negatively to the course curriculum presented positive opinions.

Some of the opinions of some teachers are given below:

S1: “Yes. I understood that approaching a student requires different techniques and individualistic differences have some effects on communication.”

S2: “Yes. How teacher- student relationships could get better was taught during the class and the concepts influencing communication in our lives have changed.”

S3: “I believe it since there have been many comments upon what to do in case something happens. This helped us to create some methods in our minds.”

S4: “Yes, I believe it. From then on, I have been more careful about my body language, gestures and mimics.”

S5: “Due to the awareness which this course created in me, I believe this course will be helpful to me in work life.”

4 Conclusion and discussion

Students’ listening their classmates all ears and their being active by asking questions regularly during the classes can be interpreted as their positive approaches towards the course. This is also backed up by the interviews.

Another observation result is that teacher candidates usually made use of verbal communication during the classes more but, after the gestures and mimics had been mentioned, they began to use them in classroom activities as well, from which the deduction can be made: They have been trying to include these methods into their lives.

The most attractive issue for teacher candidates was body language and facial/ hands movements.

The class taught through drama technique was appreciated the most.

Suggestions from teacher candidates were inclined for these skills to be counted in teaching sciences, especially physics. The anecdotes they told in the class were mostly negative ones.

At the end of the interview with teacher candidates;

It has been revealed that 53% of the students took the class to make contribution to their job lives, which can be concluded as teacher candidates are struggling to become better teacher.

They assessed the course curriculum as 94% and teaching method as 88% adequately. There have been some teacher candidates suggesting the class to be longer and teaching it through drama technique. These findings match with the observation results in that the class taught with drama technique drew attention.

At the end of the term, it was observed that the teacher candidates had increased their potential knowledge and they have been using those skills in their daily lives. From this point of view, we can state that our teacher candidates can make use of them also in classroom atmosphere. That they realized they had been using some communication skills unconsciously before is a huge progress for themselves.

That the ones considering effective communication as only talking learned effective listening was also a communication method is a crucial result. They are going to apply them not only in their lives but also in classrooms.

There have been some claiming that they understood body language better, which could be interpreted as they will be able to interact with their students better.

They all expressed that they wanted to use these methods in their professional lives. The examples they gave during the classes, expressions in the interviews show that teachers should utilize from these skills for the unfavourable classes. All of them take us to the conclusion that the study has reached its main objective.

Effective communication, which is one of the must-have skills of especially the 21st century, is an ability which must be applied successfully both in social life and in classroom atmosphere. When analysing science, technology and economy relationship, we can see that science teaching comes to the fore. That is why, it is extremely vital to make students like science classes. A science teacher who can make good contact with his/ her students will be a popular, successful and wanted teacher eventually. The teacher having these qualities can choose the right methods while transmitting the knowledge, send correct messages and most importantly, can be well understood by the student. The study has been conducted with voluntary students taking the elective course named Effective Communication Skills. In order to reach more students, it is advised that this course be given as a compulsory course and be enriched with activities related to science teaching. Moreover, while criticisms, suggestions, gathered results from the study are being taken into account, it is also suggested to enthusiastic researchers that the subject be studied with more crowded groups and extensively.

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