# Gender Sensitization through Multimedia: An Affective Experimentin Science Education

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## ABSTRACT

'Zero Hunger' and 'Good Health and Well – Beong' are globally accepted as the crucial goals of sustainable development to be achieved by 2030. These goals are directly related with the nutritional needs of the humanity. The good health and well – being of people of any country can be assured by assuring the quality nutritional and health care provided to the children. In India achieved by ensuring the good the by the goal ill demand a change in the society. We know that it's tough to change an adult hence the change must begin from a young age. To realize a society with gender equality in the future, we must sensitize the elementary students today. Attaining the gender equity through gender sensitization is also accepted as one of the affective goals of science education. This paper describes such an experiment of gender sensitization of students of class 8 using multimedia in a science classroom. The experiment asserted multimedia as an effective tool for gender sensitization.

Keywords: Gender equality, Gender sensitization, Affective Goals, Science

Education, Elementary Education, Multimedia Package

## • Introduction:

Gender equality is globally accepted as one of the goals of sustainable development to be achieved by 2030. India's Final Country Report on Millennium Development Goals claimed that the country has achieved the goal of elimination of gender disparity in school education (MOSPI, 2017). Elimination of gender disparity in education is the most welcomed action for gender equality but there a long road ahead. End of all the discrimination based on gender is the state of 'true gender equality'. At this state each individual respects the opposite gender and scraps all the gender stereotypes. In a diverse country like us, education can be more powerful to attain such a state than the laws. Children properly sensitized today will become the foundations of the world with 'True Gender Equality' in the future. This paper discusses such an experiment of gender sensitization of elementary students through a multimedia package.

#### • Need for the Study:

Gender refers to the roles assigned to the men and women by society (UNESCO, 2010). Gradually the assigned roles become a rigid identity and converted into gender stereotypes. According to Centurelli&Wyckoff(2017) gender stereotypes in science are not new and remain particularly hard to shift. This observation is indeed a challenge toscience teachers because promoting gender equity is one of the goals of science education (NCERT, 2013). Moreover, Sharma (2017) considers the gender sensitization as the measure of the effectiveness of teachers and educational institutes. The unaware elementary school children believe in the science related stereotypes because rarely a teacher works for gender sensitization in a science classroom. Technology is a powerful tool to attain gender equality (UN, 2005), but in science education very few researches can be seen focusing on this topic. Considering this gap the researcher tried to include some elements for gender sensitization in a multimedia package developed for learning of science in the affective domain.

#### • Objective of the Study:

The objective of the study was to observe the effect of a multimedia package on gender sensitization among the elementary students. The researcher attempted to find the changes in students' perception regarding women scientists after the execution of a particular portion of the multimedia package.

#### • Research Design:

The present study was a qualitative research carried using pre-experimental research design. For the present study one group pre test – post-test experimental design was employed. The qualitative data were collected using different worksheets as the testing and responding tools before, after and during the execution of the multimedia.

#### • Sample:

For the execution of the multimedia package Sett R. J. J. High Schoolof Valsad city (Gujarat, India) was selected purposively. A sample of 38 students (21 Girls + 17 Boys) was selected randomly using Android Application Random UX from a total of 130 students studying in three divisions of class 8 during the academic year 2018 -19.

#### • Tools:

The researcher used self-prepared worksheets for two purposes. The 'Draw a Scientist' worksheet was used as a testing tool before and after the execution of multimedia. The worksheet 'Madam Curie' was used to collect students' responsesto the video. This worksheet comprised of following questions: 1. if you have the powers to change the story of the video, what change will you make? Why? 2. What made you surprised in this video? Why? 3. Will you recommend your friends to watch this video? Why? 4. What was your perception about a woman scientist before watching this video and now what do you perceive?

#### • Procedure:

Before the execution of the multimedia, the students were given the 'Draw a Scientist' worksheet and asked to draw a picture of a scientist appearing in their minds. The video on life and works of Madam Curie was played and then the students were given the worksheet 'Madam Curie'. At the end of the multimedia program, the 'Draw a Scientist' worksheets were again given to the students. The data obtained on the tools were quantitative in nature. The content analysis method was used for the data analysis. First, the idea units emerging from the students' responses were identified and then frequencies corresponding to those idea units were computed. The interpretations were made by identifying the proportion of students' leaning on different idea units.

#### • Major Findings of the Study:

The major findings based on various questions of tools were as follows:

## • Findings based on 'Draw a Scientist' Worksheet:

Before the multimedia package execution all the students drew pictures of male scientists and after the execution of the package 14 out of 38 students drew pictures of female scientists. Four out of them drew the pictures with male and female scientists working together in labs. These changes in the pictures drawn by the students suggest that the multimedia was capable enough for a positive gender sensitization.

# • Findings based on Q.1 Make a Change in the Story:

Majority of justifications for the changes made in the story (12 out of 16) were related to the gender sensitization. The thoughts witnessing gender sensitization were like: "Women are equality rightful for education", "Marie was the most appropriate person for the post of a professor" and "Many girls in Poland could excel in science like Marie did (if they were allowed to study)". Most of the students noted that they would like to remove the scene of an accidental death of the Pierre Curie because "He was a good husband and a true man". Students' this response indicates that the children respect those men who respect the women.

## • Findings based on Q.2Surprising Element of the Story:

Majority of the students (35 out of 38) found Marie Curie's excellence in science, her noble cause, and the challenges she accepted for education and science as the surprising elements of the story; not only that they appreciated her such attributes. The students expressed reasons based on denial of gender disparity in education and profession. The students were surprised by the fact that "Girls in Poland were not allowed for college" and identified it as an injustice to the girls. The reasons like "Despite all the odds Madam Curie became first woman scientist and professor" and "No other can do what Madam Curie did for an invention" clearly highlight acceptance of women's contribution in science.

## • Findings based on Q.3 Recommending the Video to Friends:

All the students asserted to recommend the video to their friends. The most common reason for the recommendation was 'The inspirational life and attributes of Madam Curie'. The responses of some boys like "This video inspires us to respect the women" and "He (friend) should also know that women are capable to do all the things what the men can"can be considered as an initiation toward the gender equality because 'respecting the opposite gender' is the foundation of the gender equality.

# • Findings based on Q.4 Perception about a Woman Scientist:

The research revealed that the majority of the students (32 out of 38 - including girls) were not positive about women's ability to become scientists. A remarkable change in students' perceptions about 'women in science' was seen after the multimedia package execution. The expressions of boys like "Earlier I believed that women were far behind the men but after watching this video now I believe that women are not behind the men but due to their sincerity and hard work they succeed in science" and "After watching this video, I strongly believe that every woman deserves respect" indicate that an affective multimedia can change the wrong perception and help in attaining the gender equality. A girl's reflection "I am inspired a lot and now I wish to become a scientist like Madam Curie" indicates that multimedia with affective inputs can also sensitize the girls about their own gender and to deny the gender stereotypes in science.

#### • Conclusion:

From the findings following conclusion can be drawn:

- 1. Science related gender stereotypes prevail in elementary school students hence should be attained.
- A multimedia package is an effective tool for gender sensitization of the elementary school students.
- 3. An effective multimedia inspires the students to respect the opposite gender and can become a foundation for gender equality.
- A proper multimedia package helps the students to identify and refuse the gender stereotypes.
- 5. The students accept and appreciate the good attribute of an individual

irrespective of the gender of that person.

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