

Education of Mathematics in India and Japan at the Pre-College Level: A Comparison & Contrast

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ABSTRACT

The most important role of education system is to build a brighter future for the students as professionals & as citizens. It makes students as learners, innovators, scholars, researcher & trainers. So, education is very important part in the life of Japanese and an Indian. The national policy on education in 1986 saw it as a 'Mathematics is a vehicle to train a child to think, reason, analyze and to articulate logically'. In this paper a comparative study of the education system particularly for Mathematics between India and Japan is done.

Keywords: Education system, Primary education, Mathematics, Student

INTRODUCTION

India is developing country. In most of the states the literacy percentage is high. Whereas almost 100% of the people in Japan are able to read and write. In Indian education system there is preprimary education up to age 6, elementary education up to age 14, secondary & higher secondary up to age 18 and then university for 3 to 5 years. In Japan Preschool and kindergarten for 1 to 3 years, 6 years of elementary, 3 years of junior or middle school, 3 years of high school and 4 years of university.

The school in India starts on 26th of June and ends on second or third week of April. There are 2 to 3 weeks of Diwali vacation which divides the session in two terms. 7 to 8 weeks of summer vacation after annual exam. So the working days are 220 to 225. The Japanese school year begins on April 1 and ends on March 31. There are 3 terms April to July, September to December and January to March. There are 6 weeks of vacation in July and August, 2 weeks around the New Year and 2 to 3

weeks in the spring after annual exam. The working days are 240 to 250. In both countries children attend school from Monday to Saturday. So the length of the school year is near about same.

School Identity cards with their name, class, roll no, house, residential address are given in all schools in both the countries. In India the subjects include languages (English, Hindi, Regional), Mathematics, Science, Social science, Art & Craft, Physical Education, Moral education. In Japan children have to study Japanese language, Mathematics, Science, Social science, Music, Art, Home economics, Physical education, and Moral education. Recess is fun time in India & Japan. Indian children bring tiffin box from home and also get hot lunch prepared in school kitchen. Japanese children eat hot lunch prepared in school kitchen in their own room. The children takes turns serving lunch to their classmates and also help clean their classrooms at the end of the day.

MATERIALS & METHODS

In this paper, the research is based on secondary data taken from different research reports, journals and research

papers. The research is based on the comparative study of components of education of India & Japan.

COMPARISON OF INDIAN & JAPANESE EDUCATION

Indian Education System	Japanese Education System
3 years of pre-primary, 4 years of primary, 3 years of middle school, 3 years of high school.	6 years of primary, 3 years of middle school, 3 years of high school.
June end to April with Diwali vacation. Attending school 220-225 days	April to March with two vacations. Attending school 240-250 days
Mathematics is important subject	Mathematics is important subject
Mathematics books contain clear explanations, examples, Exercise for practice, problem sets and summaries of key points.	Mathematics books contain clear explanations, examples with practice problems and summaries of key points.
Use of calculator is not allowed up to higher secondary education	The majority of students never or rarely use calculator in math classes.
Teacher use less class activities than Japanese classroom.	Students spend more time in thinking and exploring new techniques for problem solving.
Indian teachers have received formal education and training for teaching	Japan has a much higher focus on teaching quality. They also receives formal training.
Students are taught a specific way to solve a problem and then practice on their own. Emphasis given on recalling mathematical methods.	Students are encouraged to come up with their own methods for solving the problems. They are taught to think instead of how to recall mathematical methods.
Classrooms offer less time for thinking and getting solution. Although the students arrived at the answer on their own, the teacher ask them a different way of coming up with the answer as they are more focused on problem solving skills.	Classrooms offer more time for thinking and getting solution. Although the students arrived at the answer on their own, the teacher ask them a different way of coming up with the answer as they are more focused on problem solving skills.
Teacher give introduction of the concept explains the concept and spend the first part of the period demonstrating the type of problem. Then in second part students apply the method learned. The teachers assign problems to the students to try and he or she observes, helps those having trouble.	Teachers begin the class with a preview of the previous day's lesson followed by an introduction to that day's topic. The teachers then typically present a problem which the students have the knowledge to solve but one that they haven't seen before. The students spend time working on their own and then they present their methods of solution to the class. The teacher point out some useful methods for solving the problem and either elaborates on the method or the students practice it.
Teachers provide the skills, techniques, formulae that are required to solve the problems.	Teachers provide their students with the knowledge they need and the ability to think so that they can apply the knowledge for solving various problems.
It focuses on developing mathematical concept.	It focuses on developing mathematical thinking.

RESULT

Japanese students are able to make explicit links between concepts. This is because Japanese teachers focus on developing student's mathematical thinking. This strategy and teaching style should be adopted by Indian teachers for effective teaching learning process. Current Japanese novice teachers have two major challenges to teach mathematics using teaching through problem solving; one is adequate knowledge for teaching the contents & another is the lack of collegial support by experienced teachers. Moreover it is expected that about 37% of elementary school teachers will be at the retirement age of 60 years in next eight years. This recent change in the schools has left newly hired teachers without the support of experienced teachers necessary to develop skills needed to teach through problem solving. But in India lot of

young teachers are there. Adequate senior staff is also there to guide the novice teachers.

CONCLUSION

Education system is essential for national, social and economic development of the country. There is a need of value based education system which empowers youth for self sustainability by inculcating employment skills .Education for all cannot be achieved without improving quality.

Two principles characterize most attempts to define quality in education: the first identifies learners' cognitive development as the major explicit objective of all education systems. Accordingly, the success with which systems achieve this is one indicator of their quality. The second emphasizes education's role in promoting values and attitudes of responsible

citizenship and in nurturing creative and emotional development. The dual challenge of improving quality and expanding access in an equitable way requires a level of sustained investment that is currently beyond the reach of countries. From the above comparison we can see that for development in the field of education countries should adopt good & suitable teaching techniques from each other.

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How to cite this article: Borikar SM, Seikdar SM. Education of mathematics in India and Japan at the pre-college level: a comparison & contrast. International Journal of Research and Review. 2019; 6(1):208-210.
