

# **CHAPTER-1**

## **CONCEPTUAL FRAMEWORK**

### **1.1 Introduction:**

Universalization of elementary education with emphasis on enrollment, retention and achievement has been one of the policy thrusts of the government in recent years. The aim is to provide the children with a basic set of knowledge, skills, and attitude and make them fully literate. In the recent years, much progress has been made in expanding enrollments and extending elementary education facilities in rural areas. However, the elementary education system is confronted with several problems relating to enrollment, quality and efficiency. Many field surveys have been conducted to find out the reasons for not achieving the constitutional directive of compulsory and free schooling; multiple reasons have been identified; poverty of the parents, and low quality and uninteresting teaching of education seem to be much important; poverty results in lack of demand for education; poor quality of schooling seems to be reason for lack of attraction for schooling. (Tilak, 2000). Both Public Report on Basic Education in India (PROBE) conducted in year 1999 and 2006 found that there was no teaching activity whatsoever in half of the sample schools at the time of the investigators' (unannounced) visit. Pupil achievement was abysmally low, with, for instance, many children unable to read and write even after several years of schooling. So there is need to study several factors which affect the efficiency of school at large.

### **1.2 The Universalisation of Elementary Education in India:**

At time of independence, the overall literacy rate was 18 percent and female literacy rate was 9 percent. In 2005-06 Just over half (55 percent) of de facto women age 15-49 are literate, compared with 78 percent of de facto men in the same age group. In 2015-16, 68% women are literate, whereas 85% men are literate. Literacy has increased substantially over time, with recent cohorts being more literate than older cohorts; nonetheless, National Family Health Survey (NFHS-3, 2005-06) shows that even among those in the age group 15-19, only 74 percent of women and 89 percent of men are literate. 22.3% de facto women have completed 10 or more years of in the age group 15-49 in 2005-06, where as 35.7% de facto women have completed 10 or more years of in the age group 15-49 in 2015-16. The statistics show that achieving the Universalization

of Elementary Education is in need of attention for Indian educational conspirator. Let us see the major milestones events of free and compulsory elementary education in India after independence.

**Table-1.1 Free and Compulsory Elementary Education in India: Major milestone Events - Post Independence Period**

No	Year	Details
1	1950	Article-45 of Directive Principles provides for free and compulsory Education
2	1976	Education included under concurrent subject
3	1988	Operation Black Board (OBB) – To improve primary schools by providing support to improve school infrastructure
4	1990	Ramamurthy committee strongly recommends compulsory elementary education
5	1992	73 <sup>rd</sup> & 74 <sup>th</sup> constitution amendment- To facilitate decentralization and community involvement in education
6	1992	India signs UN convention on Right of the child and commits itself to provide compulsory elementary education
7	1993	Supreme Court judgment on Unnikrishan Case upholding elementary education as a fundamental right.
8	1993	District Primary Education Programme (DPEP) - To operationalise decentralized planning as a strategy to realize universalisation of elementary education through local area planning with disaggregated targets.
9	1993	Minimum Level of Learning- To ensure the mastery of basic competency among children
10	1997	Saikia Committee recommends free elementary education should be making fundamental right by constitution.
11	2001	Sarva Shiksha Abhiyan- To provide eight years of elementary schooling to all children in a mission mode with community participation.
12	2002	The 86 <sup>th</sup> amendment is passed, making free and compulsory elementary education a fundamental right of every citizen of India.
13	2009	The Right of children to free and compulsory education bill

Before 1976, education was subjected to States except higher education and state was responsible for the school education. In 1976, education included in concurrent list and

responsibility shared between state government and central government. In field of elementary education, major policy changes occurred in National Policy of Education 1986 and thereafter. Operation Blackboard (OBB) was executed with aim of providing infrastructure facility to school. However operation black board could not cover the entire spectrum of schools. In the 90', foreign agencies played important role to supplement finance of elementary education sector. 73<sup>rd</sup> and 74<sup>th</sup> constitutional amendments directed to facilitate decentralization and community involvement in education. The support from foreign agencies and local support from community; DPEP, Lok Jumbish Project etc... came into existence. As a result of experiences gained from these projects, in 2001 the SSA was introduced in all over India with aims of universal enrollment, retention and achievement. The following are the main policies, directions and schemes for achieving UEE in India from 1986.

### **1.3 Major Programmes for UEE:**

The following are the major programmes for universalization of elementary education.

#### **National Policy on Education (NPE):**

Redefinition of Universalization of Elementary Education in the National Policy on Education (1986) as consisting not only of enrollment and attendance but also of learner achievement brought focus on quality of primary education in a significant manner. Quality improvement is a complex question, unlike improvement in infrastructure, appointment of teachers or even of equipping schools with better academic facilities. It is not that there were no quality improvement measures in primary education in the past. However, learning from the past efforts, it is realized that there is no single factor solution for the problem. With this in view, the government has pursued a five-fold strategy following the recommendations of the NPE consisting of (a) Improvement in provision of infrastructure and human resources for primary education; (b) Provision of improved curriculum and teaching-learning material; (c) Improving the quality of teaching-learning process through the introduction of child-centred pedagogy; (d) Attention to teacher capacity building; and (e) Increased focus on specification and measurement of learner achievement levels.

**Operation Blackboard (OBB):**

The scheme of Operation Blackboard was launched in 1987-88 with aim of improving human and physical resource available in primary school of the country. Provision of at least two reasonably large rooms, at least two teachers and essential teaching-learning materials for every existing primary school were the components of the scheme. However, Operation Blackboard could not cover the entire spectrum of schools. The scheme has been subsumed in Sarva Shiksha Abhiyan (SSA) from 2002-2003.

**Shiksha Karmi Project (SKP) – The Barefoot Teacher of Rajasthan:**

To overcome the problem of teacher absenteeism, the concept of 'barefoot teachers' was introduced by the Shiksha Karmi Project (SKP) which is being implemented in Rajasthan since 1987 with financial assistance from Swedish International Development Cooperation Agency. The idea was to substitute the absentee primary school teacher by a 'local educational worker'. The project aims at universalisation and qualitative improvement of primary education in remote and socio-economically backward villages in Rajasthan, with primary attention being given to girls. The project works on the assumption that education must have community support and local ownership in order to meet the needs of the deprived sections of the rural areas.

**Shikshak Samakhya:**

A major project initiative called "Shikshak Samakhya" (Teacher Empowerment) was initiated in early 1990s in Madhya Pradesh with UNICEF support, which emphasized teacher creativity and autonomy for classroom organization and teaching with a view to making learning a joyful experience for the children. The experiment has influenced the pedagogic renewal process in many other states, viz., Ananddayi Shikshan in Maharashtra and Guru Mitra Yojana in Rajasthan. Similarly, following the model evolved by the Rishi Valley Education Trust in Andhra Pradesh, a small effort for resetting the teaching learning process in a block in Mysore district.

**Lok Jumbish Project (LJP):**

The technique of 'school mapping' is Lok Jumbish's special contribution to the task of mobilizing people for education. This begins with LJ workers (or a local NGO) building a rapport with members of the community who are interested in improving education

standards in the village. These members called the *prerak dal* (inspirational group), are given a short training for the task of mapping, which they undertake along with the LJ workers or the NGO. School mapping refers to the exercise of depicting every household in the village visually on a simple map. The whole exercise is an occasion for interacting with the community. When the map is ready, it is possible to see which household needs special help, and to discuss the schooling facilities required in the village. The *prerak dal* and the local community draw up a set of proposals based on the mapping data. The school mapping allows the ordinary villager to participate in a field survey and make proposals - a tremendous capacity-building exercise. Prompt follow-up to these proposals further builds up the confidence of the community. Under the LJP, evaluation studies indicate the positive impact of school mapping in which the community is involved.

#### **District Primary Education Programme (DPEP):**

The DPEP was initiated in 1993 as a centrally sponsored programme with external funding from various international agencies. The objectives of the DPEP were: universal enrollment of the all children in the age groups 6-11, reducing dropout rates in primary stage to less than 10 %, improving learner achievement levels by at least 25 % points above the measured baselines levels, and reducing gender gap to less than 5 %. Educationally backward districts with female literacy rate below the national average and districts where total literacy campaigns have been successful leading to enhance demand of elementary education those district were selected for the DPEP. DPEP districts indicate that decentralized planning and implementation facilitates community involvement in the process of school management. DPEP has met with varied degree of success in different States. Some have availed of DPEP benefits and have improved their elementary education sector. A large number of teacher vacancies have been filled up in many DPEP states. Settings up of Block and Cluster Resource Centres have facilitated academic interaction among teachers. Development of new textbooks with the participation of teachers and experts has been encouraging in most DPEP states.

#### **Nutritional Support to Primary Education:**

The Programme of Nutritional Support to Primary Education, popularly known as the Mid-day Meal Scheme (MDM), was launched in August 1995 on a nationwide basis. The Programme intends to boost universalisation of primary education by increasing

enrollment, retention and attendance and to improve the nutritional status of children in primary classes. The Programme covers all the children studying in government, local body and government aided schools. It is well known that many children who join schools in rural areas as first-generation learners come from poorer socio-economic background. Many among these tend to drop-out being unable to adjust to the formal structure of the school functioning.

**Sarva Shiksha Abhiyan (SSA):**

The Scheme of Sarva Shiksha Abhiyan (SSA) evolved from the recommendations of the State Education Ministers' Conference held in October 1998 to pursue universal elementary education in a mission mode. The scheme of Sarva Shiksha Abhiyan was launched by the Government of India in 2001. The assistance under the programme of Sarva Shiksha Abhiyan was on 85:15 sharing arrangement between the Central Government and the State Government during the Ninth Plan, at 75:25 during the Tenth Plan, and at 50:50 thereafter. The programme seeks to open new schools in habitations which do not have schooling facilities and strengthen existing school infrastructure through provision of additional classrooms, toilets, drinking water, maintenance grant and school improvement grant. Existing schools with inadequate teacher strength are provided additional teachers under the programme. The capacity of existing teachers is built by extensive training, provision of grant for developing teaching-learning material and development of academic support structure. SSA has a special focus on girls and children of weaker sections. A number of initiatives, including free textbooks are started under the programme. SSA also seeks to provide computer-aided education even in rural areas. The approach is community-owned and the village education plans prepared in consultation with Panchayati Raj Institutions will form the basis of district elementary education plans. SSA covers the entire country, with a special focus on educational needs of girls, Scheduled Castes and Scheduled Tribes and other children in difficult circumstances. SSA articulated the following specific goals for realizing the objectives of NPE and the Fundamental Right for free and compulsory education:

- ❑ All 6-14 age children in school/EGS centre/ bridge course by 2003;
- ❑ All 6-14 age children complete five year primary education by 2007;
- ❑ All 6-14 age children complete eight years of schooling by 2010;

- ❑ Focus on elementary education of satisfactory quality with emphasis on education for life;
- ❑ Bridge all gender and social category gaps at primary stage by 2007 and at elementary education level by 2010;
- ❑ Universal retention by 2010.

Due to various programmes, policies and schemes in elementary education, India has made significant progress in schooling facility. Because of that new cohorts of Indian population are more literate than old cohort. Let, look at the status of elementary education.

#### **1.4 Major Programme for Elementary Education in Gujarat:**

##### **Shala praveshotsav programme:**

Shala praveshotsav programme has been started with aim of 100% enrollment in elementary school. There has been notable focus and efforts on enrollment, and have brought a fare share of success for the elementary education. All government officers and government department take part and give their contribution in the field of elementary education. Local community also take part in this special drive for enrollment.

##### **Gunotsav:**

Gunotsav is defined as an accountability framework for quality of primary education which includes learning outcomes of children as well as co-scholastic activities, use of resources and community participation. This programme was started by the state Education department during November 2009, with an aim to evaluate primary education scenario and grade school teachers accordingly. A unique example of being a state initiative-Gunotsav is carried out with the participation of all state departments to strengthen 'quality' components of the Dept of Education. Different state departments took up additional responsibilities for this period. Government's efforts have succeeded in increasing school enrollments and bringing down school drop-out ratio, two major concerns in education field. The aim is to ensure that Gujarat should be among the top three states of the country in terms of student learning outcomes over the next 5 years.

This Program has been recognized as one of the best practices in the 12th Five Year Plan document published by Planning Commission, Government of India.

**AADHAAR enabled Child Tracking System:**

The entire project was specially designed and developed by the Sarva Shiksha Abhiyan and the Monitoring Information System of Gujarat. The first set of data for 87 lakh students for the academic year 2013-2014 was collected by a Cluster Resource Centre. And this time the data is being collected right from the block level. The web-enabled system help to create a complete academic track record of every student and his or her socio-economic situation reflected through dropouts and absenteeism but, "very importantly, also create a database and parameters of the performance of every school." Every child have an 18-digit UID number to track his or her academic career.

**Computer Aided Learning:**

The Computer Aided Learning Program (CAL) creates an environment, where learning and assessment is fun and the opportunities to learn is equitable among the rural and urban children. The CAL is primarily introduced in rural government elementary schools covering classes 1 to 8 to attract and retain children and also in the process, enhance the quality of learning by making "Learning Play", "Assessment Fun" and "Equal knowledge for all". CAL objective is sought to be achieved through story based, animated cartoons, interactive games and riddles with the use of multimedia features. Spontaneous, self-initiated and self-regulated, the three critical aspects that make an activity play are integrated in CAL to make Learning Play and use of cartoons, story line and music is intended to make CAL as self-initiated and engaged in learning. The coverage of the CAL Programme in Gujarat, there are 20502 schools providing computer labs across the state.

**Pragna – An Activity Based Learning Approach:**

Pragna is an activity based learning approach to convert a classroom to a more holistic and learner based way of working with children through the day, throughout the year. The classroom is a child friendly place for children where they would love to come and learn. It is a place where the material is within their reach and they also have freedom to

use their material as per their need. With regards the coverage of this programme, there are 3748 schools across the state in the academic year 2012 – 2013.

**Building as Learning Aid (BaLA) / Inclusive – Building as Learning Aid (i-BaLA):**

BaLA (Building as Learning Aid) is an innovative concept towards qualitative improvement in education, through developing child-friendly, learning and fun based physical environment building in school infrastructure. BaLA is a way to holistically plan and use the school infrastructure. It incorporates the ideas of activity based learning, child friendliness and inclusive education for children with special needs (CWSN). At the core, it assumes that the architecture of school can be a resource for the teaching-learning processes. This concept was originally developed by Vinyas, Centre for Architectural Research & Design with support from UNICEF. It is now implemented across the state in all districts in more than 1620 Model Schools, since 2006 by SSA Gujarat.

**1.5 Status of Elementary Education:**

India started his journey of educating their children much before its independence. Before independence the efforts were very much localized, in isolation and somehow limited in nature. After independence the scenario was not changed immediately. Increase in population and poverty were the major constrains in way to universalisation of elementary education. Besides constrains, elementary education in India has progressed slowly but very consistently in terms of increase in institutions, teachers and students in elementary education. The number of schools in the country has increased fourfold while enrolment in primary schools has jumped by about six times as shown in the table.

**Table-1.2 Growth of Elementary Education in India**

Year	No. of Schools		No. of Students in million			
			Primary		Upper Primary	
	Primary	Upper Primary	Boys	Girls	Boys	Girls
<b>1950-51</b>	2,09,671	13,596	13.8	5.4	2.6	0.5
<b>2000-01</b>	6,38,738	2,06,269	64	49.8	25.3	17.5

**Source: Encyclopedia of Indian Education**

Access to schools is no longer a major problem. At the primary stage, 94 % of the country’s need population has schooling facilities within one kilometer and at the upper

primary stage it is 84%. The following table describes the trends of elementary school in India.

**Table-1.3 Trends of Elementary Education in India**

<b>Indicator</b>	<b>2005-06</b>	<b>2010-11</b>	<b>2015-16</b>
Student-classroom ratio	39	31	27
% schools with drinking water facility	83.1	92.7	96.8
%schools with girls toilet	37.4	60.3	97.6
%school having electricity	-	43.1	61.7
%schools with computer	10.7	18.7	26.0
Gender parity index: primary level	0.92	0.94	0.93
Gender parity index: upper primary level	0.84	0.94	0.95
Retention rate: primary level	-	73.4	84.2
Transition rate: primary to upper primary	-	85.2	90.1
Pupil-Teacher Ratio: Elementary	36	30	24
%Female Teachers	40.3	45.5	48.0
Ratio of primary to U. primary sch./sec.	2.6	2.1	2.0

**Source: DISE Data**

So elementary education system in India; has made the progress in infrastructure facility, access, and human resources. Thus the country has made impressive achievement in the elementary education sector. The following are the status of elementary education in Gujarat.

### **Gujarat state**

The literacy rate in Gujarat state (excluding children in the age-group 0-6 years) has increased from 61.29 percent in 1991, 69.67 percent in 2001 and 78 percent in 2011. Among males, it has increased from 73.13 percent in 1991, 80.21 percent in 2001 and 85.80 percent in 2011; whereas among females, it has increased from 48.64 percent in 1991, 58.29 percent in 2001 and 69.7 percent in 2011. Ahmadabad has the highest literacy rate of 79.89 percent in 2001 and Surat has highest literacy rate of 85.53%, while Dahod has the lowest literacy rate of 45.65 percent in 2001 and 58.82 percent in 2011. The following table describes the trends of elementary school in India.

**Table-1.4 Trends of Elementary Education in Gujarat**

<b>Indicator</b>	<b>2005-06</b>	<b>2010-11</b>	<b>2015-16</b>
Student-classroom ratio	38	34	28
% schools with drinking water facility	80.9	97.9	100
%schools with girls toilet	50.4	73.1	100
%school having electricity	-	97.5	99.7
%schools with computer	15.8	45.4	73.8
Gender parity index: primary level	0.89	0.86	0.89
Gender parity index: upper primary level	0.79	0.84	0.83
Retention rate: primary level	-	80.8	98.4
Transition rate: primary to upper primary	-	90.7	98.1
Pupil-Teacher Ratio: Elementary	35	31	28
%Female Teachers	51.1	54.4	56.1
Ratio of primary to U. primary sch./sec.	1.5	1.4	1.3

**Source: DISE Data**

Comparing with the national indicators, the status of elementary education in Gujarat is progressive. Let look at Mehsana district of Gujarat state, which is the area of investigation.

**Mehsana district:**

Mehsana district lies on the northern part of Gujarat. Before independence, it was under Baroda state. Maharaja of Baroda introduced primary education much before independence. Mehsana district is famous for animal husbandry. Mehsana district comprise of nine Talukas. In 2001, The literacy rate of Mehsana district is 75.54 % where male literacy is 86.52% and female literacy is 63.96%. The difference between male and female literacy rate is 22.56% in 2001. Mehsana district is one of the district among top five high literacy district in 2001. The lowest female literacy Taluka is Satalasana with 44.03% in 2001.

In 2011, The literacy rate of Mehsana district is 83.61 % where male literacy is 91.39% and female literacy is 75.32%. The difference between male and female literacy rate is

16.07% in 2011. Unjha sub district has the highest literacy rate of 88.82% with 94.38 % and 82.92 % as male and female literacy rates respectively. Satlasana has the lowest literacy rate of 74.08%. Male female literacy gap is maximum for Satlasana (26.04%) and minimum for Unjha (11.46%). Literacy rate of different Talukas of Mehsana district are as follows.

**Table-1.5 Literacy Rate of Mehsana District**

<b>Sub-district of Mehsana</b>	<b>Literacy Rate in 2001</b>	<b>Literacy Rate in 2011</b>
Unjha	81.12%	88.82%
Visanagar	79.72%	86.95%
Mehsana	78.52%	86.31%
Vijapur	77.25%	84.88%
Kadi	74.17%	81.97%
Vadanagar	70.02%	81.05%
Becharaji	68.41%	75.66%
Kheralu	66.34%	75.79%
Satalasa	60.98%	74.08%
<b>Mehsana District</b>	<b>75.54%</b>	<b>83.61%</b>

**Sources: Census 2001, 2011**

In Mehsana district, there are 995 Primary and Upper Primary School. In which 783 schools are having standard 1 to 7. There are 9 BRC, 102 CRC in Mehsana district. There are 196 secondary school and 63 higher secondary schools. So the ratio between elementary school and secondary school is approximately 4:1. There are 49 primary teacher training colleges in Mehsana district. There are 7043 elementary teachers comprise of 3085 male teachers and 3958 female teachers in Mehsana district. There are 229868 students in primary schools comprises of 125558 male students and 104310 female students. (Jilla Shikshan Samiti, Mehsana on dated 31-08-2008). Looking at the various numerical educational data, Mehsana has progressed in number of elementary schools and secondary schools, number of students, literacy rate etc. The following table shows the some relevant statistics which reflects the Status of Mehsana district in context to Gujarat state and nation.

**Table-1.6 Indicator Comparison among Mehsana District, Gujarat state and India**

Indicator	India	Gujarat State	Mehsana District
Literacy rate*	73%	78%	83.61%
Male Literacy*	80.9%	85.80%	91.39%
Female Literacy*	64.60%	69.70	75.32%
Student-classroom ratio**	27	28	27
% schools with drinking water facility**	96.8	100	100
%schools with girls toilet**	97.6	100	100
%school having electricity**	61.7	99.7	99.8
%schools with computer**	26.0	73.8	89.5
Gender parity index: primary level**	0.93	0.89	0.85
Gender parity index: upper primary level**	0.95	0.83	--
Retention rate: primary level**	84.2	98.4	--
Transition rate: primary to upper primary**	90.1	98.1	99.5
Pupil-Teacher Ratio: Elementary**	24	28	27
%Female Teachers**	48.0	56.1	59.3
Ratio of primary to U. primary sch./sec.**	2.0	1.33	1.16

Source: \*census data 2011; \*\*DISE data 2015-16

Mehsana District has sound education background in context to Gujarat State and nation. In spite of the progress in the field of elementary education, Mehsana district still do not achieve the universal retention and quality education in elementary schools. The following indicators show the status of primary education in Mehsana district with compare to Gujarat state. The present research has been conducted considering the following statistics.

**Table-1.7 Relevant data according to DISE date 2007-08**

Parameters	Gujarat	Mehsana
Transition rate primary to upper primary	90.49 %	88.2 %
Gender parity index (primary level)	0.88	0.80
Retention rate (primary level)	84.52 %	75.7 %

The data indicates that Mehsana district is progressed better in the field of elementary education in terms pupil-teacher ratio, classroom – teacher ratio, % of having female teachers, drinking water facility, toilet facility etc... But at the same time, we look at retention rate, gender parity index and transition rate from primary to upper primary, Mehsana district is not at par with compare to Gujarat state. So, in depth analysis of Mehsana district is needed. With this context, researcher has identified Mehsana district for the area of the study. Let overlook the some major deficiency in development of elementary education in India.

### **1.6 The Shifting Goalpost of Universalization of Elementary Education in India:**

The Universalization of Elementary Education in India has been long cherished but unrealized goal, which India has been striving towards ever since her independence in 1947. One of the directive principles of constitution (Article-45) states, "The state shall endeavour to provide, within a period 10 years from the commencement of this constitution for free and compulsory education for all children until they complete the age of 14 years." This was an ambitious goal, and the practical measures that were taken to implement it have fallen far short of what was required. To this day, the provision of educational facilities remains completely out of line with the stated goal of universal school education until the age of fourteen. During these 59 years, we postponed the day for attainment of this dream. In 1964-66, the Kothari Commission recommended that each state and district should prepare a perspective plan for development of primary education. The opening statement of the report is, "The destiny of India is now being shaped in her classrooms." There are still locations where PTR is not satisfactory and in one classroom very large number of pupils is sitting. There were single-teacher (12.17 percent schools) and single-classroom (9.54 percent) schools across the country in 2005-06. A good number of schools are either without teacher or without single-classroom. In 1986-87, nearly half of all rural children in the age group of 6-11 had never been enrolled in any school. The National Policy on Education (1986) declared that it shall be ensured that all children who attain the age of about 11 years by 1990 will have had five years of schooling and by 1995 all children will be provided free and compulsory education up to 14 years of age. OBB (1986) recommended that, "Provision will be made of essential facilities in primary schools including at least two reasonably large rooms that are usable in all weathers, and the necessary toys, blackboard, maps, charts and other learning

material. At least two teachers one of whom woman, should work in every school, the number increasing as early as possible to one teacher per class.” Not surprisingly, the cheerful expectations of instant success did not materialize.

National policy on Education, Plan of Action (1992) is in line with the earlier tradition. Despite stressing that it was 'imperative for the government to formulate and implement a new Education Policy for the country' (p.4), the policy did little more than to repeat the old credo with a different time frame: 'it shall be ensured that free and compulsory education of satisfactory quality is provided to all children up to 14 years of age before we enter the twenty first century.' (p. 20) Once again, the policy gave little hint of practical steps that would make this so called 'resolve' a reality. Instead, it enunciated a remarkable collection of platitudes such as "all teachers should teach and all students should study" (p.34). But looking at the following data from the 'District Information System for Education' (DISE, 1999-2000), the hard reality of elementary education sector can be judged (The figures pertain to 127 DPEP districts in 13 major states).

- ❑ 58 percent of India's primary schools have at most two teachers.
- ❑ 61 percent of primary schools have no female teacher.
- ❑ 26 percent have a pupil-teacher ratio above 60.
- ❑ 35 percent a pupil-classroom ratio above 60.

Data compiled in 'The State of World's children 2005' UNICEF revealed that in India, 1998-2001 only 59 % of entrants primary school reaching grade-5 where as in Brazil 95%, in Republic of China 99%, in Indonesia 89%, in all developing country (average) 78%. In South Asia, during 1998-2001, UNICEFF estimated that 42 million primary school children are out of school; among them 23 million are girls. The largest numbers of out of school children in South Asia are in India i.e. 28 million (15 million girls). This data indicates that the goal of UEE in India is far away.

In 21<sup>st</sup> century, comprehensive plan was executed in the name of Sarva Shiksha Abhiyan with the goals of universal enrollment and retention by 2010. The 86<sup>th</sup> Constitutional Amendment Act 2002 made education a Fundamental Right for children in the age group of 6-14 years. This Constitutional Amendment and Sarva Shiksha Abhiyan both is milestone in history of elementary education in India. Besides that, in 2007-08, DISE data reveals that 13.21% primary schools have student-class room ratio more than 60 and 13.76% primary schools have student-teacher ratio more than 60. So journey to achieve the goal of UEE is not just easy. Nonetheless, in the recent years, for the first time in the

history of India, over 90% of children are enrolled in primary school but retention and achievement of those children are still major concern. So, it needs more resources and research based comprehensive planning looking at the local needs of various areas of India. For this purpose, school should be analyzed. If the school is inefficient to universal enrollment, retention and achievement, than what are the factors responsible for such inefficiency of elementary school. So, the next section of the proposal describes the efficiency of elementary education.

### **1.7 Defining the Term 'Efficiency':**

The terms; quality, efficiency, and effectiveness of education features highly in debates. More often than not, these terms are associated with learners' cognitive achievement, which is usually measured through examinations results. There is a considerable body of literature on the usage and meaning of the terms, quality, efficiency, and effectiveness of education (Fuller, 1985; World Bank, 1988, Abagi & Odipo, 1997). These terms have become increasingly popular in discourse about developing education in all over world. What is clear is that, the terms "quality of education," "school quality," "school efficiency" and "school effectiveness" are often used interchangeably and associated with students' levels of academic (cognitive) performance in examinations. If achievement by students is low—as manifested in a school's low test score in examinations, for example—the school is purported to be of low quality and, therefore, inefficient. Such a school would also be considered as not increasing students' ability to contribute to the overall development of their society, and hence not effective. The donor community also tends to equate quality with efficiency. In this regard, World Bank-based studies usually focus on pupils' academic or cognitive achievement (Fuller, 1985; Abagi & Odipo, 1997). So let the overlook the some important definitions of quality, effectiveness and efficiency.

Etymologically the term 'quality' means a high degree of goodness or worth. Webster's definition of quality is "the degree of excellence which a thing possesses". Harvey and Green, (1993) states quality refers to something distinctive and elitist, and, in educational terms is linked to notions of excellence, of 'high quality' beyond that to which most institutions or scholars can aspire. After analyzing many definitions of quality, Mukhopadhyay concludes that quality means something special, consistent, and satisfying specified intentions. Quality is relative, transformative and sometimes

perceptual. When we incorporate the concept of quality in education, it means excellence in education. How does any institution fit for propose i.e. educational outcomes and providing experiences?

According to Oxford Advanced Learners' Dictionary the term 'effectiveness' means: producing the result that is wanted or intended or producing a successful result. Effectiveness is the extent to which an organization or programme produces particular outputs (which are concrete and measurable; and which may not be measurable). Effectiveness involves achieving your worthwhile goals that support your vision and mission. An activity is effective when it leads to the output (or mix of outputs) that we want to achieve.

The concept of 'efficiency' refers to the relationship between the inputs into a system (be it agricultural, industrial or educational), and the outputs from that system (be they wheat, vehicles or educated individuals). According to Oxford Advanced Learners' Dictionary the term 'efficiency' means the relationship between the amount of energy that goes into a machine or an engine, and the amount that it produces. Another meaning of the term 'efficiency' means the ratio of the effective or useful output to the total input in any system. The concept of efficiency relates the outcome of a process to its input. A system is said to be efficient if a maximum output is obtained from given input, or if a given output is obtained with minimum input. Inputs and outputs have somehow to be valued so that they may be aggregated; and usually prices are used to perform this valuation function. Efficiency has thus to do with the ratio between output and input: How much do we get for what we put into the system? The analysis of efficiency thus deals with a comparison of costs and benefits. An activity is efficient when it leads to the output (or mix of outputs) with reference to inputs. The desired outputs of an education system are things like academic achievement, positive attitude and development of job skills. Cost refers to the level of input needed to get the output. A program is efficient when the desired mix of outputs is maximized for the given level of inputs (cost), OR, where inputs are minimized for the desired mix of outputs.

So, after looking at these definitions of the terms; the following implications can be derived.

- ❑ Efficiency compares effectiveness to cost.
- ❑ The concept of efficiency already includes the concept of effectiveness. So, if the any programme or activity is efficient, one can assert that it is effective.

- ❑ To improve efficiency, one cannot consider only the cost of an activity but also, must consider the quality and effectiveness of the activity.

### **1.8 Types of Efficiency:**

In educational setting, it is useful to think two types of efficiency: Internal Efficiency and external efficiency.

An educational system is internally efficient to the extent that it uses available resources for improving the quality and increasing the quality of education in the best possible ways. Indicators of internal efficiency would include student achievement, grade repetition and drop out, teacher preparation, quality of content and adequate instructional materials. In short internal efficiency is concerned with whether the components of the education systems fit together in the most cost-effective way. Education economists define internal efficiency as comprising “the amount of learning achieved during school age attendance, compared to the resources provided,... the percentage of entering students who complete the course is often used as (its) measure” (Abagi & Odipo, 1997).

External efficiency is concerned with the extent that educated students receive and contribute to sustained economic and social development of the country. Key indicators of external efficiency include whether students they have the skills that employers require (e.g. Can they get the job?) or, alternatively, whether students have adequate preparation to enter the next level of schooling.

### **1.9 Efficient School:**

UNESCO (1998) has defined efficient school in following manner. Efficient school can be defined in terms of three commonly found factors. First efficient schools are those which obtain good outcomes, in terms of examination results. This operational definition makes it easy to quantify efficiency because examination results are a measurable entity. However, it may have negative implications as far as the school processes are concerned. In order to be efficient, schools may tend to be examination-oriented, which is hardly a welcome feature, especially at the primary level. Secondly, efficient schools are those which are well managed. This definition focuses on internal management of the school. It starts with the belief that any school is efficient where the interaction between different stakeholders is cordial and mutually reinforcing so that the teachers are the happy to teach, parents are willing to send their children to school and children enjoy the learning

process. Thirdly, efficient schools are those which give good results at a reasonable cost, affordable to the society as a whole and to the different individuals in the society. In this definition, it is the cost and equity considerations which are dominant. A closer look at these definitions indicates four dimensions of efficiency, namely, focus on outcomes, favorable internal managements, cost effectiveness and equity. Needless to add, all these four dimensions should be an integral part of an efficient school. So, theoretically, efficient school related factors comprises of academic performance, participation of students in sports and other competitive events, repetition rate / dropout rate of the school, favorable internal managements, cost effectiveness, equity etc...

### **1.10 Factors that Affect Efficiency:**

There are many factors, which affects efficiency of school viz. mainly teacher related factors, student related factors, household based factors, community based factors; and school based factors. Sorojini (1993) identified the positive impact on enrollment and retention of primary students due to increase in input such as construction of school building, supply of materials to schools. Nessa (1994) was found that home and individual variables like father's education and occupation, mother's education are correlated with academic achievement of primary school students. It was also found that the high achievers were taught by parents, while the low achievers were taught by private tutors. Osokoya has identified six variables which contribute 53% altogether to the prediction of transition rate of Nigerian pupils from the primary to secondary school. The teacher: pupil ratio made the largest contribution of 17%; followed by parent's education attainment 9.1%, learning resources available at school 8.06%, school location 7.6%, parent's occupation 5.8% and education facility available at home 5.5% in that order. The study was conducted on community participation and school effectiveness indicates that there is positive correlation between the community participation and the school effectiveness (Kumar, et al., 1998). Ramachandran (2003) identified the factors which facilitate or impede successful primary school completion. Active PTA/ school education committees, actual teaching time satisfactory – more than 1 hour 20 minutes a day and at least 35 minutes per period, female teacher who is regular are highly influencing positive factors which facilitate successful primary school completion. Teacher – pupil ratio very high, above 1:40 and in many areas 1:65; punishment – harsh, teacher exhibits prejudices, actual teaching time very low- less than 45 minutes a day and less than 20 minutes per

period are highly influencing negative factors which impede successful primary school completion. After reviewing related literature, the following factors are listed, which affect efficiency in elementary schools.

**Household based factors:**

1. Total numbers of family members
2. Father's, mother's education
3. Occupation of father or guardian
4. Duty others than education performed by pupils
5. Time spent on education
6. Child labour as default activity
7. Per capita income of the family
8. Land owning
9. Mother's work force participation
10. Time utilization of pupils i.e. Time spent on domestic (Household duties) or paid work
11. Household attitudes

**Community based factors:**

1. Initiation ceremonies & trend.
2. Gender issues and socialization
3. Religious factor

**School related factors:**

1. Number of children in the class
2. Total attendance in class for the year
3. Direct costs of schooling – Actual costs of schooling
4. Incentive programme of the government to reduce direct costs
5. Planning and implementation of curricular and co-curricular activities
6. School physical resources and its maintenance

**Community participation – related factors:**

1. Involvement of PTA, MTA, VEC, SMC members
2. Involvement of parents
3. Non-members involvements in school activity
4. Direct involvement of members of different committee in school activity

**Teacher related factors:**

1. Contact hours

2. Teacher's years of service in school
3. Occupation of teacher's spouse
4. Number of children teacher has
5. Level of language studied by teacher
6. Distance between school and teacher's home
7. Administrative workload on teacher
8. Teachers training
9. Teachers qualifications and experience
10. Combination of staff
11. Teacher's attitude
12. Classroom dynamics
13. Sexual harassment

**Educational policies and institutional processes:**

1. Limited budget
2. Political will
3. Poor management
4. Monitoring and feedback

**1.11 Measuring Efficiency in Education:**

The problems of measuring efficiency in education, however, are considerable. Efficiency can be derived after taking account of observable phenomena. Observable phenomena are measured such as outputs and inputs and some form of relationship between these phenomena is specified. So, in context of efficiency analysis, two fundamental issues need to be considered. How should inputs and outputs of the school defined? And what values should be attached to this inputs and outputs? Let discuss the inputs and the outputs of elementary school. For the measurement of these factors, it is necessary to consider quantification of these factors. Nonetheless, all input and output factors cannot quantify. For the present study the different terms have been summarised in following manner.

**Output Factors:**

The problems of measuring efficiency stem mainly from difficulties in measuring educational output, as well as from quantifying the relationship between inputs and outputs. How educational output is measured depends, of course, on the nature of the objectives of the educational system. Depending on the philosophical, political or analytical viewpoint adopted, the objectives may differ considerably. Mainly,

Educational outputs comprise the educational attainment of the students, educational achievement of the students etc...

Outputs of elementary school can be determined in terms percentage of eligible children enrolled- enrollment ratio, average attendance of students on records as also on head count, percentage of student appeared in the examination, percentage of student passed, percentage of student – getting more than 60%, average years taken by students to complete elementary education, percentage utilization of funds, percentage of student participation in different events.

**Input factors:** Educational inputs comprise the buildings, teachers, books, teaching learning materials etc... These can be named physical facility, human resources, academic facility and support system. The input side of efficiency analysis is usually less problematic than output side. Physical inputs can often be measured more accurately than outputs. However, even the specification of inputs can give rise to serious conceptual and practical difficulties in efficiency analysis. For the present study following factors are considered.

**Physical facility:**

Physical facility of elementary school can be determined in terms teacher- classroom ratio, drinking water facility, sanitation facility, electricity facility, compound wall, ramp, availability of equipment for mid day meal scheme, sport equipment, musical instrument.

**Human resources:**

Human resources of elementary school can be determined in terms pupil- teacher ratio, teacher qualification, teacher experiences, distance between home and school.

**Academic facility:**

Academic facility can be determined in terms timely availability of textbook, computer facility, TLM availability etc...

**Support system:**

Support system of elementary school can be determined in terms no. of visit by BRC/CRC co coordinator, no. of VEC meeting, no. of day mid – meal serve.

For the same set of inputs, if the one system produces lower value of outputs indicates inefficient system and another system produces higher value of outputs indicates efficient system. It gives the some useful insights into the functioning of an educational system.

### **1.12 Economics of Education and Production of Education:**

Economists have been interested in education from Adam Smith to the present. Nobel Laureates T. W. Schultz (1961) and G. S. Becker (1962) among others have rediscovered the concept of human capital and economics of education has grown as a branch of economics. Efficiency and equity issues are the cores of economics of education. (Schultz, 1972) Macro level efficiency of education has been much researched in almost all the countries where data are available. Rates of return to investment on education are available in India. (Tilak, 1987) However, micro level efficiency of investment in schools is, relatively less researched. The most powerful incentive to study school level efficiency was the Coleman Committee Report (Coleman, 1966) in the U.S. and Lady Plowden Report (1966) in the U.K; independently they come to the cheerful conclusion about the input-output relations in schools.

Hanushek (1979, 1986, 1994) one of the pioneers in the area of education production, has reviewed almost all the studies which estimated the relationship between school inputs and standardized test scores and concludes, “The results are consistent in finding *no* strong evidence that teacher-student ratios, teacher education, or teacher experience have an expected positive effect on student achievement. According to available evidence, no one can be confident that hiring more educated teachers or having smaller classes will improve student performance. Teacher experience appears only marginally stronger in its relationship”. Total expenditure, teacher salary and expenditure per student provide no separate indication of a relationship between expenditure and achievement. The strength of this relationship disappears when differences in the family background are controlled. The evidence in developing countries too indicated no reason to change the conclusions found in developed countries. Hanushek is aware of the limitations of the result; incomplete information, poor quality data; faulty research could distort the statistical result. He warns that these results should not be blindly accepted.

Hanushek’s review of literature on educational production has been subjected to criticism. Hedges et al. (1994) argue that Hanushek’s head-counting method should be replaced by meta-analysis. They reanalyzed the same educational production estimates,

which Hanushek surveyed, but by using the *meta* analysis; they come to cheerful conclusion namely, that school inputs do contribute to SAT scores.

### **1.13 Frontier Production Model:**

Educational system is hierarchically organized and educational data are typically nested, pupils nested to class, schooling to cluster. At each hierarchy, students share common influence. The hierarchical nature of educational data leads to certain bias where OLS estimate is used. The bias includes aggression bias, misestimated standard errors. Heterogeneity of regression. Aggression bias occurs when variables takes on different meanings and different effects at different organizational levels. To meet such shortcomings, researchers have developed Hierarchical linear models (HLM) to analyze the determinants SAT scores. The studies, which use HLM have come to be known as school effectiveness studies. The journal, 'School Effectiveness' and 'School Improvement' has been encouraging such studies among others over the last 20 years. The aim of production function studies and school effectiveness studies is the same difference being statistical methods. Both fail in the sense that their results are applicable to the sample of schools, not to individual schools; the values are the average ones. So school/class specific efficiency estimates is not possible. (Gounden, 2003)

Over last 20 years or so, researcher have developed Frontier Production Models to estimate efficiency of each school. Economists have long been interested in the efficiency of firms, farms etc. at micro level and the economy as a whole at macro level. Adam Smith's example of pin factory is a classic example of the interest in production efficiency.

Frontier production has desirable features. For long, empirical production analysis has focused on central tendency, average or most likely relationship. This relationship is constructed by *interested* data with a frontier rather than surrounding data with a frontier.

### **1.14 Technical Efficiency in Measurement:**

Considerable work has been done in the specification and estimation of frontier production function since Farrell. Production function approach to assess technical efficiency assumes that there is well defined relationship between measurable inputs which are transformed into a measurable output;  $Y = f(x)$  where  $X$  is a set of input and  $Y$  is output. The coefficient of the production function have been estimated by least squares regression procedure. Zero mean residual has been assumed such that the estimated

function is an average function. More recent research recognized that the zero mean residual is inconsistent with maximum attainment output. Researchers have tended to adopt frontier rather than average type production functions.

There are varieties of approaches to estimate frontier, the most popular ones are: (i) Data Envelopment Analysis (DEA) and (ii) Stochastic Frontier Production i.e. econometric approach. DEA uses mathematical programming method.

“Econometric approach is stochastic and so attempts to distinguish the effects of noise from the effects of inefficiency. The programming approach (DEA) is non-stochastic and lumps noise and inefficiency together and calls the combination inefficiency. The econometric approach is parametric and confounds the effects of mis-specifications of functional form into inefficiency. The programming approach is non-parametric and less prone to type of specifications error” (Lovell, 1983). Thus, the approaches differ primarily in the assumption imposed on the data in terms of: (i) the functional form of the best practice frontier, (ii) restrictive parametric versus less restrictive non-parametric form, and (iii) where random account is taken within econometric approach. There is difference of opinion about the distribution assumption for the inefficiency. In this investigation, stochastic Frontier Production Model is used for efficiency analysis. Cobb-Douglas specifications is adopted, inefficiency distribution assumed is half-normal distribution.

Usually production function is written as:

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \dots + \beta_m \ln X_m + \epsilon$$

where Y is output, X is vector of inputs and  $\beta_s$  are unknown parameters to be estimated;  $\epsilon$  is a composed unknown error term, it includes not only usual elements (noise) but also inefficiency.

### **1.15 Rationale:**

Elementary education in India with the aim of universal enrollment, retention and achievement has been an unfinished task as mentioned earlier. Many attempts have been made to achieve universalization of elementary education. Beginning with the Operation Blackboard Scheme to equip all primary schools with at least a minimum level of

infrastructure and human resources, the 1990s also witnessed major initiatives like Non Formal Education (NFE); Teacher Education (TE); Mahila Sankhya (MS); State Specific basic education Programmes like the Andhra Pradesh Primary Education Project, Bihar Education Project, Lok Jumbish (LJP) in Rajasthan, Education for all project in Uttar Pradesh; Shiksha Karmi Project (SKP) in Rajasthan; National Programme of Nutritional Support to Primary Education well known as Mid Day Meal scheme (MDM); District Primary Education Programme (DPEP). Sarva Shiksha Abhiyan has been executed all over India since 2001. So, many attempts have been made in form of formal education, non formal education, alternative programme of education etc... Many strive has been introduced like 'back to school' etc... The care has been taken for children with disability. But millions of children still are out of school in India. In spite of several large scale initiatives, universal retention and achievement has remained far from satisfactory. The data of DISE 2007-08 revealed that transition rate from primary to upper primary decreased by 2.59%. In 2006-07, the transition rate, it was 83.72 %; and in 2007-08, it was 81.13 %. So it is obvious that there is the need for a more direct action to be initiated at the school level in a need based manner. The centre point of these entire schemes, programmes, policies is elementary school. If the school is inefficient to achieve universal enrollment, retention and achievement than there is necessary to analyze school inputs and outputs in terms of their efficiency. According to guide lines of Sarva Shiksha Abhiyan, at present, many inputs are provided to elementary school to fulfill universalization elementary school. The five year plans on the other hand provide large financial allocations for the elementary education sector. Annual allocation for SSA has increased over time; for example the allocation for SSA was Rs. 4754 crore in 2004-05 to Rs.10671 crore in the 2007-08 and the allocation for 2008-2009 has been raised to Rs. 13,100 crore. Since 2004, citizens of India have been paying a 2% education cess on all central taxes to finance the commitment to universalize quality basic education. (Budget paper: 2004-05, 07-08, 08-09) But looking at the various surveys and findings, outputs of these inputs are insufficient. So there is need to analyze all those factors which affect efficiency of elementary school. Various factors affect the efficiency of elementary school. Some of them can be changed with a very little effort. Some of them cannot be changed without constant effort. So it is important to identify such crucial factors which have greater impact on efficiency of elementary school. On basis of identifying such factors, improving them with strategic planning, we can assure the efficiency of school. It

can help not only on enrollment and retention of children in the school but also on the possibilities of further education and exercise of citizenship rights and responsibilities. After searching the all available sources of literature in the field of elementary education, very carefully reviewing the literature and scrutinizing the all possible written work, researcher has found that many studies has been conducted on factors affecting the achievement of elementary students, school infrastructure facility, even the problems faced by students and studies on out of school children. Studies are also conducted on intervention of different programmes, role of Gram Shikshan Samiti in universal enrollment, retention and achievement. Researcher has come across the study, which are conducted on factors affecting the transition rate from primary to upper primary, inefficiency in education system etc... But researcher has not come across the studies which aggregate inputs factors and outputs factors and looks the relationship between. Efficiency issues always discuss in industrial sector and more than ever in economic sectors. But in service sectors, it is very rare to employ and analysis the efficiency. So many hazards can be faced to compute the efficiency of elementary school. But there is time to look at all school related factors whereas school facility factors, human resources related factors and efficient school related factors in contextual condition. There are many statistical techniques and model in the field of econometrics like regression analysis, data envelopment analysis and stochastic frontier analysis which can employ in multi inputs and multi outputs production process. These all econometrics techniques can be employing in education sector also. So investigating such factors, researcher has to investigate elementary school. Based on survey of elementary school and using reliable statistic methods, researcher can come up with some useful finding to interpret the school in relation to efficiency. For this purpose, survey method has be employed to investigate the present status of elementary school. Understanding and analyzing the present status of elementary, researcher do study a small geographical area like one district. Looking at the homogeneity of the area and feasibility of study, Mehsana district of Gujarat state is identified for the present study.

After careful scrutinizing the review of related literature, the researcher comes up the following research questions.

- Which physical facility related, teacher related, academic facility related, support system related factors affect the efficiency of elementary school?

- ❑ What is extent to which school efficiency is dependent on inputs and outputs factors?

### **1.16 Title of the Study:**

#### **A Study of Efficiency of Elementary Schools in Mehsana District of Gujarat State**

### **1.17 Objectives of the Study:**

1. To study the input factors in terms of physical facility, human resources, academic facility and support system in elementary schools.
2. To study the output factors in elementary schools.
3. To study relation between input variables and output variables.
4. To study the efficiency of elementary schools.

### **1.18 Hypothesis of the Study:**

The hypotheses are as follows.

Ho 1: There will be no significant correlation between physical facility and academic facility.

Ho 2: There will be no significant correlation between physical facility and human resources facility.

Ho 3: There will be no significant correlation between physical facility and support system.

Ho 4: There will be no significant correlation between academic facility and human resources.

Ho 5: There will be no significant correlation between academic facility and support system.

Ho 6: There will be no significant correlation between human resources and support system.

Ho 7: There will be no significant correlation between physical facility and output variables.

Ho 8: There will be no significant correlation between academic facility and output variable.

Ho 9: There will be no significant correlation between human resources and output variable.

Ho 10: There will be no significant correlation between support system and output variable.

Ho 11: There will be no significant correlation between aggregate input variables and aggregate output variable.

### **1.19 Operationalization of Terms:**

**Efficiency:** Efficiency of elementary school is determined in terms of the output with reference to the inputs.

#### **Input Variables:**

Input variables comprises of physical facility, academic facility, human resources and support system.

**Physical facility:** Physical facility of elementary school is determined in terms

1. Compound wall of the school: It is surrounded school premises.
2. School entrance gate: It is entrance of the school premises.
3. Compound of the school: It is part of school covering open area of school premises. It covers external look of school.
4. Building of the school: It is constructed area of school comprises of rooms.
5. Infrastructure facility in Standard-7 classroom: It is an infrastructure facility like fan, light, ventilation, blackboard etc. in standard – 7 classroom.
6. Water arrangement: It is arrangement of water for drinking and other uses in school premises.
7. Sanitation facility: It is urinal and latrine facility in the school premise.
8. Student-classroom ratio: It is ratio of students and classroom.

Student-classroom ratio = No. of student in school divided by no. of classroom

**Academic facility:** Academic facility is determined in terms

1. T.L.M. in std-7 classroom: It is no. of T.L.M. in std-7 classroom.
2. Different display boards in school: It is different boards in the school for staff details, list of SMC Members, news, *Aajnu Gulab*, *Aajno Dipak*, Good thoughts
3. Library in School: It is facility for borrowing books from school for students and teachers.
4. Science Laboratory in School: It is facility for conducting science experiment in school.
5. Learning Facility through ICT in school (BISEG and other Means): It is facility T.V., Disk Antenna, D.V.D./C.D. Player, System for BISEG telecast their use in day-to-day teaching-learning process.
6. Computer education facility in school: It is no. computer available in working condition in school and their use in day-to-day teaching-learning process.

**Human resources:** Human resources of elementary school is determined in terms

1. Average of teacher indicators: Teacher indicators comprises of teacher's educational qualification; professional qualification; TAT/TET/HTAT exam passed; till which std English learned; Knowledge of computer; rendering services as expert in training session; any publication work; members in NGO, organization, club
2. Average job satisfaction: Job Satisfaction or dissatisfaction as the result of various attitudes the person holds towards his job, towards his job, towards related factors, and towards life in general. (The definition is given by Gilmer and adopted by Dr. S. P. Gupta) It is average score of teachers in school on Teacher's Job satisfaction Scale (TJSS).
3. Pupil-teacher ratio: It is ratio of pupils and teachers in school.  
Pupil-teacher ratio = No. of student in school divided by no. of teachers

**Support system:** Support system of elementary school is determined in terms

1. Mid day meal scheme in school: It is arrangement of foods for students in the school.
2. Visit of school by CRCC, BRCC and other officials: It is no. of visit by CRC coordinator, BRC coordinator, Education officer and others responsible personal.
3. Community contribution: It is community contributed for school in terms of article/ thing/object/cash or any other way.

4. School management committee (SMC): It is mandatory committee as directed by RTE-2009 for looking different functions of the school.

**Output Variables:**

Output Variables in elementary school is determined in terms of

1. Participation in sports: It is participation of students in sports activity at different level.
2. Participation in science- mathematics exhibition: It is participation of students in science- mathematics exhibition at different level.
3. Average achievement: It refers to scholastic dimension of std-7 students. It is average score of students of std-7 on achievement test.
4. Percentage of present students by head count: It is percentage of present students by head count on day of visit in school.

**1.20 Delimitations of the Study:**

- Government Gujarati medium elementary schools having I to VI standard was included in the present study. The private elementary schools and English medium elementary schools were not included for the present study.
- It was delimited to only Mehsana district of Gujarat state.
- It was limited to only 71 elementary schools. For achievement test, only std-7 students were sample of present study. For the achievement test, the syllabus was covered only first semester of std-7.
- Only 21 input variables and 4 output variables of elementary school were studied. There can be chance of instigation more variables.