



# EDUCATIONAL OPPORTUNITIES DURING MUGHAL DYNASTY

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## **Abstract**

The the Mughal period made immense contribution in the field of learning and education. First phase of Muslim dynasty i.e. Sultani period (1206-1526AD) was established by Qutubuddin Aibak. The important 2nd phase i.e. the Mughal empire was established by Babur. As the empire expanded it included Iranians, Indians, Afghans, Rajputs, Marathas and other groups in its system and the Mughal Emperors managed the diversity of people and cultures with their political Legacy and decisive power and maintained the peace and prosperity. They were patrons of education. They had great love for learning and contributed more in the field of spreading education through Pathshalas, Vidyapeeths, Maktabas and Madrashes. During the reign of Babur shuhrat-i-am, the Public Works Department used to set up buildings for schools and colleges. Mughal Emperor Humayun introduced the study of Mathematics, Astronomy and Geography in Madrasa in Delhi. Akbar added subjects like Accountancy, Public administration, Geometry. Jahangir paid homage for women's education which Saha Jahan also accomplished too. As the empire was very large in its periphery there were so many options for various types of jobs other than agriculture which was the backbone of the economy. Mughal rulers were the patrons of art and culture. Organised education system is the integrated part of India's glorious history. Physical, mental as well as spiritual development were organised from Gurukul system. Education was treated as a matter of individual concern, did not admit of the method of mass production applicable in industry. The making of men was regarded as an artistic and not a mechanical process. Indeed the aim of education was the developing of the pupil's personality in his innate and latent capacities. According to the ancient Indian theory of education, the training of the mind and the process of thinking are essential for acquisition of knowledge.

## **KEYWORDS:**

Pathshalas, Vidyapeeths, Maktabas, Madrashes,

## INTRODUCTION :

Nearly 650 years of Muslim dynasty the the Mughal period made immense contribution in the field of learning and education. First phase of Muslim dynasty i.e. Sultani period (1206-1526AD) was established by QutubuddinAibak. The important 2nd phase i.e. the Mughal empire was established by Babur. As the empire expanded it included Iranians Indians Afghans Rajputs Marathas and other groups in its system and the Mughal Emperors managed the diversity of people and cultures with their political Legacy and decisive power and maintained the peace and prosperity.They were patrons of education. They had great love for learning and contributed more in the field of spreading education through PathshalasVidyapeethsMaktabs and Madrashas.During the reign of Babur shuhrat-i-am, the Public Works Department used to setup buildings for schools and colleges. Mughal Emperor Humayun introduced the study of mathematics astronomy and geography in Madrasa in Delhi. Akbar added subjects like accountancy public administration geometry. Jahangir paid homage for women's education which Saha Jahan also accomplished too.As the empire was very large in its periferry there were so many options for various types of jobs other than agriculture which was the backbone of the economy. Mughal rulers were the patrons of art and culture. Many historical relics are the example of the rich endearment towards architecture sculpture Handicrafts painting etc. This helped developing various book a sense apart from traditional functions such as Government employees traders etc. Even in this Era is significant practice of song dance and music can be found. To discuss about the vacations related to industrial sector Mughal period may be divided into two categories agricultural based and non agricultural based. As technological advancement had not reached up to the mark in this period so Industrial products were mainly handmadeDifferent types of craftsmen at home from the cottage industry based on agriculture. From non agricultural sector the vocations are mainly from cotton textile and woolen products sugar products tobacco and wine and even from Silk products. The enormous wealth and resources helped to create various kinds of job opportunities.India has a long history of organised education. India has glorious past of quality education and cultural activities. The Gurukul system of education is one of the oldest on earth and it was dedicated for highest upliftment of all round ideals and human development that is physical mental and spiritual. The traditional Hindu Residential schools of learning what were called gurukuls which ran at the houses of the teachers or at monastery. According to Ain-i-Akbari boys wear kept in school for IAS where they learnt the consonants and vowels. A great portion of the life of the students wasn'twasted by making them read many books. His majesty ordered that every school boy should first learn to write the letters of the alphabet and also learn to trace their several forms. He ought to learn the shapes and name of each letter which may be done in 2 days then the boys should proceed to write the joined letters. They may be practiced for a week after who is the boy should learn some prose and poetry by heart and then commit to memory some verses in praise of God or moral sentences each written separately. The teacher ought especially to look after 5 things- 1) knowledge of the letters 2) meanings of words 3) hemistich 4) the verse 5) the former lesson. Every boy ought to read books on morals arithmetic the notation peculiar to arithmetic agriculture mensuration geometry astronomy physiognomy household matters the rule of Government medicine logic the Tabiyi and Riazi and Ilahi Sciences and history all of which may be gradually acquired.

## SIGNIFICANCE OF THE STUDY

The tradition of learning and education in India dates back with the start of Civilization. Primary education was oriented with listening andmemorizing process. Such orally transmitted education of old age generally known as Vedas in other words 'Shruti' was the source of basic knowledge from generation to generation. Institutionalization of education system gradually developed and many Institutions and Universities such as Taxila, VikramshilaNalandaetc where established in due course. With the advent of Muslim rulers' reign in India the education system changed rapidly. New type of education policy and institution Viz. Madrasa, Maktab came into existence. The Mughal Era was the most important transitional

phase of education policy, especially in case of vocational education. A empire was vast due to economic growth, mingling different cultures and advancement of society along with their political Legacy there were ample scope of several vocations apart from agriculture sector in Mughal period. Some were inherited vocations while others were refurbished with sincere effort and systematic technical implication of education policy patronised by Mughal rulers. Vocational education is skill based education related to specific trade, occupation, industry. So the students need to identify those with present situation.

### OBJECTIVES OF THE STUDY

- To know the unknown is the basic of an inquisitive mind.
- To know the several trending occupations and their nature in Mughal period
- To know about various service sectors and industrial sectors of this period and its impact on later ages
- To know the gravity of aegis of Mughal Emperors for vocational education.

### DEFINITIONS OF IMPORTANT TERMS

#### A) GENERAL DEFINITIONS :

##### MUGHAL EMPIRE :

The Mughal Empire self-designated as 'Gurkani' was an Empire in the Indian subcontinent founded in 1526. It was the second largest empire in India by approximate maximum extent 4 lakh square kilometres.

##### SURAT:

Surat is a large City beside the Tapi river in the West Indian state of Gujarat. It was an important town during the reign of Mughals and was famous for silk weaving and as a business city.

##### PHARMACY:

Pharmacy is the science and technique of preparing and dispensing drugs. It is a health profession that links Health Sciences with chemical Sciences and aims to ensure the safe and effective use of Pharmaceutical drugs

##### PANIPAT:

Panipat, an ancient city and historically important, which is situated in the state of Haryana India. The three battles fought near the city in 1526 1556 and 1761. Here Babur defeated Ibrahim Lodi and established Mughal Empire.

##### TECHNOLOGY :

Technology is the collection of techniques skills methods and processes used in the production of goods or services or in the accomplishment of objectives such a scientific investigation.

#### B) OPERATIONAL DEFINITIONS

##### EDUCATION-

(learning outcome): education is the process of facilitating learning or the acquisition of knowledge skills values beliefs and habits. Educational methods include storytelling discussion teaching training and directed research.

##### INSTITUTION-

(educational setup) As structures or mechanisms of social order, they govern the behaviour of a set of individuals within a given community. Institutions are identified with social purpose transcending individuals and Intentions by mediating the rules that govern living behaviour

##### MUGHAL ERA-

(time period ruled by Mughal rulers) The emperor was founded by the Mongol leader Babar in 1526 when he defeated Ibrahim Lodi at the first battle of Panipat. The emperor continued up to 1857 till the reign of Bahadur Shah II.

**VOCATIONAL EDUCATION-**

(proper teaching and training procedure to pursue a particular profession or job) Vocational education is education that prepares people to work in various jobs such as a trade, a craft or as a technician. Vocational education is sometimes referred to as career education or technical education.

**INDUSTRY-**

(Machine oriented and handmade workshop) Industry is the production of goods or related service within an economy. The major source of revenue of a group or company is the indicator of its relevant industry.

**MAKTAB:**

Maktab refers to only elementary schools. During the reign of Mughals the students started their first lessons in this institutions.

**MADRASA:**

Madrassa is the Arabic word for any type of educational institution secular or religious and whether a school college or university. The students in Mughal Era went in Madrassa for higher studies and the students of different religions studied there.

**SOURCES OF THE DATA**

Historical approach of research or historiography has some unique features and is generally counted as one of the methods of scientific inquiry. Conducting historical research in was the process of collecting and reading the research material collected and writing the manuscript from the data collected. The wishes are often has to go back and forth between collecting, reading and writing. The process of data collection and analysis are done simultaneously.

The sources of data with reference to historical research are as follows -

**Primary Sources:** These are the records of information created by people directly influenced by the historical event of interest. This can include eyewitness accounts, reports, journal, articles, maps, test scores, diaries, music, plays etc. Primary sources can be roughly divided into four areas, i.e. written records or documents, quantitative records (numeric), oral records and relics.

Written records of documents is the biggest category and can further be divided into groups based on the intention of the writer. Intentional documents are written to serve as a record of the past which can include things like a yearbook. Unpremeditated documents refer to documents that is written to solve an immediate purpose without the writer expecting it to be used as a record of the past. The availability of primary sources is dependent on the era and subject that is studied and in some instances not available at all and the researcher would have to turn to secondary sources.

**Secondary Sources:** Secondary sources of sources for the events or articles are described by a third person not directly involved in the event. It can also be the case that the event is described a long time after the event took place. Secondary sources can be created from primary sources secondary sources or a combination of the two.

In this research work researchers has mainly used the secondary sources of data. The used sources of this is today includes various Research reports, different articles and published books which are enlisted in the Bibliography.

**REVIEW OF THE RELATED LITERATURE****RELATED LITERATURE**

The Mughals were descendants of two great lineage of rulers. From their mother's side they were descendants of Genghis Khan, ruler of the Mongol tribes, China and Central Asia. From their father's side they were the successor of Timur, the ruler of Iran, Iraq and modern day Turkey. Such a great rulers could not refrain their endeavour to uplift educational system. They started a developed educational system with modern outlook and enough scope for creating new job opportunities. During Mughal period all round development had took place including military, painting, architecture, industry, art and culture, singing etc.

Related literature is a store home of knowledge. It is absolutely necessary to review literature before making up one's mind to proceed with the problem. The related literature is helpful to deal with a topic for dissertation. In this regard the review of the related literature avoid the risk of duplication, provides theories, ideas and expansions in formulating the problem and contributes to the general scholarship of the investigator. It is the foundation upon which all other elements of research depend. Review of the related literature on any problem area helps the researcher to discover what is already known, what others have attempted to find out so far, what methods have been used, which methods are useful to solve the problem. In the present prepared the researcher has tried to explain the relevance and attitude towards vocational education in Mughal period. The researcher has attempted to give a comprehensive picture of the studies which are directly or indirectly related to the present study.

**2010:** Mughals at war, Akbar and the Indian Military Revolution,1500-1605 by Andrew de la Garza. The primary purpose of this work is to bridge the gap between war and the readiness for war which were essential elements in the shaping of the Mughals political, social and cultural identity. This work mainly focuses on technology, techniques, operations, logistics and support etc.

**2012:** Education during mediaeval period in India by V K Maheswari

This review covers the system of education in India from about 10th century a.d. to the middle of the 18th century. It is an enhanced work of educational system during that period.

**2016:** Islamic education at Mughal kingdom in India (1526 to 1857) by Sri Suyanta ,SilfiaIkhlas. This work has highlighted how Mughal dynasty had encouraged the new revival of the old and almost drowned civilization. In this work we can find that education system gained considerable attention during this period with simultaneous development of Mosques and Science subjects.

**2017:** A brief survey of Muslim education in pre-colonial India (1206 to 1857) by Anwar Farooq,Masher Hussain. This review relates the rulers contribution for education. Muslim rulers especially in Mughal period liberally is test on education for all. Though there was a strong conformity with Muslim tradition. Contemporary education was considered necessary for daily spiritual freedom here in this world and hereafter.

### **RELATED STUDIES**

The Mughal dynasty was notable for its large extent and effective rule for more than two centuries over the Indian subcontinent. The rulers maintained their unusual talent for almost seven generations and integrated Hindus and Muslims into a United Indian state. Therefore many historical works have been made in the context of Mughal dynasty and Mughal rulers. But Emphasis had not been given so far in the field of Vocational Studies and professions of this era. According to MohitPuri in 2009 a comparative study of education system during mediaeval period is described in his writing "Education in India during Vedic Buddhist and mediaeval periods". In the article by Dr V. K. Maheshwari as reflected about the education system during mediaeval period. In the study "Progress of Education during the Mughal period" in 2013 by DikshaKashyap educational progress has been discussed in context with different rulers. But the details description of Vocational study and job opportunities during Mughal dynasty is not available therefore there is ample scope for this study.

### **METHODOLOGY OF THE STUDY**

The tradition of learning and education in India dates back with the start of civilization. Primary education was oriented with listening and memorizing process. Such orally transmitted education of old age generally known as Vedas in other word Shruti was the source of basic knowledge from generation to generation. Institutionalization of education system gradually developed and many Institutions and Universities such as TaxilaVikramshilaNalandaetc were established. With the advent of Muslim rulers' reign in India the education system changed rapidly. New type of education policy and institutions Viz Madrasa

maktabetc came into existence. The Mughal Era was the most important transitional phase of Educational policy especially in case of vocational education. As the Empire was vast due to economic growth mingling different cultures and advancement of society along with higher political legacy there were ample scope of several vocations apart from agriculture sector in Mughal period. Some were inherited vocations while others were refurbished with sincere effort and systematic technical implication of education policy patronised by Mughal rulers. Vocational education is skill based education related to specific trade occupation industry.

### **RESEARCH METHODS USED**

Research is a systematic inquiry based on the scientific method and concerned with understanding, prediction and control of phenomenon. The objectivists' approach to research is known as the positivist paradigm while the subjectivists' approach to research is known as non positivist or humanistic paradigm. Based on this two Paradigms, positivist and non-positivist, studies on educational research can be broadly categorised in two heads-

#### **1) QUANTITATIVE RESEARCH:**

Quantitative research is based on positive paradigm. It includes the following-

Experimental studies aims at investigating cause effect relationship between variable in a given educational phenomena.

Quasi experimental studies where Quasi means seemingly but not really. Experimental studies follows through experimental design in which it is possible for the researcher to assign subjects randomly to groups or exercise full control over the scheduling of experimental conditions. On the contrary such conditions are not present in Quasi experimental design.

Correlational research is a form of descriptive research concerned with determining the extent of relationship existing between variables.

#### **2) QUALITATIVE RESEARCH:**

qualitative study sir based on non positivist paradigm. It includes the following-

Descriptive studies are concerned with studying what exists. It interprets and explains the educational phenomena. There are various forms of descriptive studies such as case studies, surveys of the different forms, developmental studies, content analysis etc.

Historical research attempts to examine past events in order to draw their relevance for the present and future life. There are various types of historical research namely bibliographical research, legal research, studying the history of scientific and philosophical ideas, studying the history of educational institution and Organisation etc.

Philosophical research is made on analysing meaning and nature of educational concepts and proposition and their relevance to educational practice.

Historical research is the process of systematically examining past events to give an account of what has happened in the past. It is not a mere accumulation of facts and dates or even a description of past events. It is a flowing, dynamic account of past events which involves and interpretation of these events in an attempt to recapture the nuances, personalities and ideas that influence these events. One of the goals of historical research is to communicate and understanding of past events.

There are a few important reasons for conducting historical research-

- To uncover the unknown events
- To answer questions from the past
- To identify the relationship that the past has to the present
- Today code and evaluate the accomplishments of individuals, agencies or institutions
- To assist in understanding the culture in which we live in

Historical research can show what occurred in the past and overtime which can help us to see you where we came from and what kinds of solution we have used in the past. Understanding this can add perspective on how we examine current events and educational practices.

This Roy research work is done under historical method of research discoveries of the Mughal period. The researcher has investigated of the matter and sought answers from the available sources and evidences. This include external and internal historical information literary articles of different authors, autobiographies and books by the Mughal rulers and existing various historical relics and others.

### **STATEMENT OF THE PROBLEM**

An Empire runs on services of Government employees as well as self employed persons in different vocations. This aspect suggest the standard and height of the development of a certain era and its impact on the posterior ages. Besides vocational education is a tool to develop and to judge the socio-economic condition. It helps to enhance the technique and skill to select an individual a particular job or vacation. The study deals with various types of job opportunities specific technical jobs vocational educational style and its consequences on later ages.

### **ANALYSIS OF THE OBJECTIVES**

#### ***THE UNKNOWN IS THE BASIC OF AN INQUISITIVE MIND***

Mughal period was the brightest chapter in the history of Muslim rule in India. With the coming of the Mughal educational and cultural activities received great filip. It is very natural and spontaneous question that why you eat an abundance of skilled craftsman and evidence of liquid capital India remained required in the field of vocational education and technological development during the 17th and 18 centuries. Although with the arrival of European there was increasement in the said sector. India had a rich tradition of Science and Technology. But after the 8 century the process slowed down but did not come to a standstill situation. The works of Sripathi and Bhaskaracharya during AD 1150 in the field of mathematics so that the situation was not worse. According to Al biruni the decline of Indian Science started due to the arrogance and growing insularity of brahmins. He was the first scientist of Islam who made a deep study of Hindu Sciences. She was the first scholar to study in Dr and the Hindu scientific literature. He has been described as the founder of Indology. He is studied Sanskrit diligently. In his book Kitabul Hind he described India's cultural scientific social and religious history. Due to military incursions Mohammed of Ghazni in India Hindu Scholars had moved to remote religious centres. Biruni's approach to Hindu Sciences was comparative making analogies between Greek and Hindu civilization. His comparison of two Civilization led him to the conclusion that Hindus could not bring Sciences to classical perfection and that scientific theories of the Hindus are in a state of utter confusion devoid of any logical order and in the last instance always mixed up with the silly notions of the crowd. Biruni regarded the essence of Hindu religion as a form of monotheism Idol worship as ignorant passions of the people. Though he was the first to introduce the study of Bhagavad Gita to the Muslim world and the first Muslim to study The Puranas and to translate Patanjali and Samkhya into Arabic. In considerable detail he outline the principles of Hindu astronomy Geography mathematics and medicine. After the coming of the Turks there was a greater interaction of Islamic or what was called Arab Science with India. Thus many new technologies were introduced such as paper spinning wheel the carder's bow an improved version of the water wheel or Rahat and widespread use of the iron. In the field of science interaction was mainly in the field of astronomy mathematics and medicine though agricultural and animal Sciences were not completely neglected. Jalaluddin Khilji was the first Muslim Sultan of Delhi to have showed some intellectual curiosity for Hindu learning and Sanskrit studies. Sultan Mohammed Bin Tughlaq was a great scholar veessed in logic Greek philosophy mathematics astronomy and Physical Sciences. He had knowledge of medicine and was a skillful in dielectrics. He also was an expert calligrapher. He enjoyed the society of Hindu yogis and extended his patronage to Jain divines. The sultan's of Delhi were very much interested in mechanical machines like police and piers. In the book Sirat Firoz Shahi 13 such instruments were listedbwhich were used in transporting stones and heavy building materials.

Sultan Firoz Shah Tughlaq set up hospitals for free treatment of the poor and encouraged physicians in the development of Unani medicine. He commissioned translations of medical words from Sanskrit. He order to work on Hindu astronomy and astrology to be translated into Persian under the name of Dalaile Firoz Shahi. Earlier from the 11th century onwards there has been a heavy onslaught on reason and Science in the Islamic world. Al Ghazali considered the great teacher played an important part in the assault on reason. As a result of this continuing campaign science was virtually submerged under religion mysticism aesthetics etc. Various whats on science were written during the period including those in India which have yet to be evaluated. They covered newer areas such as Geography physics especially optics and specific gravity magnetism and concepts of Motion and Time. However scientific works were generally mixed up with religion mysticism aesthetics etc. This was not a new feature because science religion magic and myth were mixed up in many religions. Hi maa Is Pyar of rationality was a necessary condition for the growth of science. In Europe science has grown from the 15 century onwards by sitting out a sphere of rationalism away from religion. The inability of science to delete itself from religion or mysticism became an inhibiting factors in India and elsewhere in the Islamic world.

### ***THE SEVERAL TRENDING OCCUPATIONS AND THEIR NATURE IN MUGHAL PERIOD***

As the Mughal Empire was vast there were several opportunities of choosing from several occupations. There was no formal institution for vocational education or professional training. Such education was transferred from generation to generation in due course with the active participation of eager people. It has been argued further that extreme specialisation was promoted by the caste system, with the father training his son in the same profession since si he had no option to move to another station. However this argument has limited' validity. In all pre modern societies including Europe additional skills were passed on from Father to Son. Whenever a new profession such as paper making, making of Fireworks, dying, painting, painting on cloth arose caste was no barrier for enlisting new entrants. As the empire expanded, it encompassed different professions and recruited diverse bodies of people. A detailed discussion is made in the following-

#### **MANSABDAR:**

Vitamin Satta refers to an individual who holds a Mansab meaning a position or rank. It was a grading system used by the Mughals to fix 1) rank 2) salary 3) military responsibilities. Rank and salary were determined by a numerical value called Zat. The higher the Zat the most prestigious was the noble's position in court and the larger his salary. The mansabdar's military responsibilities required him to maintain a specified number of sawar or cavalrymen. The mansabdar brought his cavalrymen for review, got them registered, their horses branded and then received money to pay them as salary.

#### **MILITARY:**

Muslim rulers established their Empire in India because of their superior skill in warfare and higher military organisation. Devar conscious of the fact that they could win because of their superior skill and Organisation of the armed forces. Therefore the pit special attention to military education of their children. The princes were given special military training besides education in practical affairs of life and state affairs. The young princess were also taken to battlefields for practical experiences. The Mughal Emperors paid special attention to military education because they knew that they could hold of the empires only through superior forces. So they engaged a large number of people in military services.

Craftsmen: Crafts developed during the Mughal period as it received the royal patronage. Embroidery I bodywork exquisite ornaments were regarded as symbolic of the excellence attained by Handicrafts during the Mughal period. Because at that time there was no institution for technical education training in crafts, so it was practiced in the traditional manner in families. Preparation of War goods also encouraged handicrafts. Boats ships and chariots were manufactured on a large scale. This help that he seems to be busy in their work and earn their livelihood. Taj Mahal of Agra, Red Fort of Delhi and BulandDarwaza of FatehpurSikri are excellent examples of the development of architecture during in the Muslim period.



**FINE ARTIST:**

Development of Fine Arts has reached its peak during the Mughal period. The Mughal Emperors believed that along with strengthening of military powers it was also necessary to maintain pomp and show in the court. They encouraged education in fine arts so that great artists might develop their art for contributing to the glory of the court. One of the great courtiers of Akbar, Tansen the great musician, developed many musical tunes Rag and Raginis. Dancing was also developed during this period. Anarkali, the great dancer belong to Akbar's time. Painting was also encouraged. Jahangir himself was a great painter. Sir Thomas Roe the British Ambassador who visited the royal Court had praised Jahangir love of painting.

**TEACHERS:**

Oral education and memorization of the assigned lessons were the chief methods of teaching during the Muslim period. The teacher used to decide as to when a student was competent to receive education of a higher standard and the people believe that no knowledge was possible without a teacher. After completion of primary education in maktab the student could go for higher education in Madrasas. The Mughal rulers engaged many teachers for this purpose. They used to import lessons in maktab and madrasas.

**ASTRONOMERS:**

The Mughal Emperors took a keen interest in the development of astronomy. The works thus produced were mainly Zijes (astronomical tables) and calendars. Fariduddin Munazzam was a court astronomer of Shah Jahan. He compiled Zije Shah Jehani. Malajeet was another astronomer at Saha Jahan's Court. He wrote Parci Prakasha which gave Arabic Persian astronomical terms and their Sanskrit equivalents. Maharaja Sawai Jai Singh was an astronomer of the first order. He had some Greek works on mathematics translated into Sanskrit as well as more recent European works on trigonometry logarithms and Arabic text on astronomy. Except that Hindu Scholars namely Nityanand and Manish Vohra were amongst the noted astronomers of this period.

**HAKEMI:**

During Mughal period physicians used to care health and hygiene of the royal people as well as the common men. They were called Hakeems. Those Hakeems or the court physicians supervised preparation of Royal medicine and ensured safety of this. Hakim Ali Geelani was the chief physician of Emperor Akbar. He invented a kind of sweet wine for getting rid of travelling fatigue. Hakim Ain ul Mulk Siraji composed for his Royal Patron Emperor Shah Jahan Alfaz-al-Adwiya. Mohammad Raja of Siraj wrote treatise Riazialamgiri on medicine food and clothing and was dedicated to Aurangzeb. Hakim Akbar Arzani was also another court physician of Emperor Aurangzeb. Other jobs: There were so many other job opportunities in this era. Amin, Weaver, Dancer, Dramatist, Calligrapher, Surveyor, Accountant were among the prime vocations. Even many people were engaged in wine industry. In the comparatively large industry like ship-building, cannon industry many people were engaged as general workmen as well as mechanical engineers and other technicians and designers. Weaver: In the field of Weaving and Dyeing many people had the opportunities of their livelihood. Indian Technology was hardly backward as compared to the technology available at that time so even the Europeans sent their own craftsman to Murshidabad for certain colours and dyes.

***VARIOUS SERVICE SECTORS AND INDUSTRIAL SECTORS OF THIS PERIOD AND ITS IMPACT ON LATER AGE***

During Mughal period efforts were made to seek a kind of synthesis between the Indian traditional scientific culture and the prevalent medial approach to science in other countries. Let us discuss what development took place in various fields of service sectors and industrial sectors during this period. Astronomy: the 16th and 17 centuries Roy synthesis between Islamic astronomy and Indian astronomy way Islamic observational techniques and instruments are combined with Indian computational techniques. While there appears to have been little concern for theoretical astronomy Mughal astronomers continued to make advances in observational Astronomy and produced nearly a hundred Zij treaties. The

Mughal Emperors took a keen interest in the development of astronomy. Women who built a personal observatory near Delhi. The instruments and observational techniques used at the Mughal observatories were mainly derived from the Islamic tradition. In particular had one of the most remarkable astronomical instruments invented in Mughal India is the seamless celestial globe. The JantarMantar is a collection of architectural astronomical instruments built by Sawai Jai Singh. It still exist in Delhi and Jaipur. There are three instruments within the observatory of JantarMantar in New Delhi namely Samratyantra Jai Prakash Yantra and MisraYantra. The observatory in Jaipur consists of 14 major geometric devices like Samratyantra Jai Prakash Yantra Ram Yantra MisraYantra etc for measuring time predicting eclipses tracking stars' location as the Earth orbits around the sun ascertaining the declination of planets and determining the celestial attitudes and related ephemerides.

#### **WATER WORKS:**

The first Mughal emperor Babur is known to have patronise the construction of water channels used in Gardens and orchards ablution pools for his servicemen. This tradition was continued by his grandson Akbar who built monumental water works in his capital at FatehpurSikri where he ordered the construction of a dam with 13 Gates. This damn created this fellow artificial lake during the monsoon season every year. Water was developed into FatehpurSikri through large mechanical device is known as the Persian water Wheels and Sakias. Digging if wells and river embankments for irrigation were the pillars of success in the field of irrigation system during the reign of Mughal emperor Shah Jahan. Nahar-i-Faiz and Saha-Nahar were the notable canals for irrigation. Alchemy or Chemistry: Sheikh Din Muhammad had learned much of Mughal Alchemy and understood the techniques used to produce various alkali and soaps to produce shampoo. He was also a notable writer who described the Mughal emperor Shah Alam II and the cities of Allahabad and Delhi in rich details and also made note of the glories of the Mughal Empire. Sheikh Din Mohammad was appointed as sampling surgeon to both Kings George IV and William IV. Pharmacy: Sultan AlauddinKhalji had 7 an eminent hakeems in his Royal court. This Royal patronage was a major factor in the development of Unani practice during Mughal period in India but also a Greco- Islamic medical literature with the aid of Indian Ayurvedic physicians. During the reign of Mughal kings of India several Qurabadains were compiled like QurabadainShifae'ee, Qurabadain Sakai, QurabadainQadri and Elaj-ul-Amraz. In these Pharma pharmacopoeias quantities of drugs in a given prescription were specified and methods of preparation. The court physician supervised the preparation of Royal medicine which were sealed to ensure safety.

#### **MATHEMATICS:**

Faizi was a poet Laureate of Emperor Akbar. At the suggestion of Akbar Faizi translated Bhaskaracharya's Sanskrit work on mathematics 'Lilavati' into Persian containing theorems of arithmetic and algebra. It appears that mathematics was not only associated with accountancy and revenue collection but with astronomy and architecture as well. Ustad Ahmad Lahori the architect of Taj Mahal and Red Fort made significant contribution to mathematics. Maharaja Sawai Singh made major contributions in trigonometry which was to find the sine of one Degree and its parts namely minutes and seconds.

#### **METALLURGY:**

Various types of weapons were made in India. The use of zinc was not known in Europe but extracted in India. Many alloys were made iron steel brass bronze used in making weapons. This kind support princeware produced in a plant called Karkhana.

Screw Cannon-in order to carry heavy cannons on Hill tops the Cannon was made in pieces and assembled subsequently.

Another dimension of metallurgy was production of gold silver and copper coins.

Gold and Silver leaf was produced for use in goods and medicines. Trains are made from various metals like gold silver which are used in textile. In 1659 Muhammed SalihThattvi headed the task of creating a massive

seamless celestial globe using a secret wax casting method in the Mughal Empire. It was inscribed with Arabic and Persian inscription. 20 other side clothes wear pad used in Lahore and Kashmir during the Mughal Empire. It is considered a major feat in Metallurgy.

### **ROCKET:**

Akbar was the first to initiate and utilise metal cylinder Rockets known as Bans particularly against war elephants during the battles. In the year 1657 the Mughal unutilized Rockets during the Siege of Bidar. Prince Aurangzeb's forces discharged rockets and Grenades while scaling the walls. Rocket were made with gunpowder in them.

Some Rockets went in the year and some point along the surface. The rocket man were trained to launch the rockets at an angle calculated from the diameter of the cylinder and the distance to the target.

Damascus Steel: the Mughal Emperor Akbar is known to have built large foundries producing the best quality showed blades. Akbar himself is known to have preferred Damascus Steel Talwar which were considered the shortest blades ever used in battle in South Asia.

### **CANON FOUNDRY:**

During the reign of the Mughal emperor Shah Jahan Raigarh Fort became one of the world's most efficient Canon foundries mainly due to the abundance of iron ore mines in the vicinity of the Fort. There was a massive internal that sucked yeah from the high mountains into its furnace creating temperature as high as 2400 degrees Fahrenheit. Dhee today I would mail the metal and then the liquid molten metal would feel it is aware chamber and into a Cannon mould in the casting pit. Most of those Mughal canonsburg Messi mostly 16 feet long and have to be prepared within a single day. The Mughals also build a large ingenious mechanical devices that had a Precision gear system driven by 4 pairs of oxen. The device was used for hollowing out the Canon barrels.

Mughal Cannon production reached its Zenith during the reign of the Mughal emperor Aurangzeb. Except that many other scientific inventions were made in this period such as device for cleaning many gun barrels at the same time, a moving carriage for grinding corn etc. Search high quality development had its impact on the later ages. The impact was first filled with the coming of the Portuguese. Portuguese ships and guns were seen as the basis of Portuguese superiority at sea. The master carpenters of the Krishna Godavari Delta on the Coromandel coast could not start and launch ships as any shipwright. Many of them had learnt the techniques of European construction from European craftsmen. Bus Surat became one of the centres for such ship construction. By the end of the 17th century European country to Das made a little technical distinction between ships built in the west and those built in the countries of the Indian Ocean. They seemed to have preferred the local ships as the standard of finish and general workmanship remained high. Even the Omani fleet it built in India was able to deal with English piracy and threat in Surat. Though there were some weak points in the field of manufacturing cannons muskets and water pump. But it is the power of entrepreneurship of Mughal period that paved the way for better development in those fields.

According to Jai Singh- Religions disperses like Mist kingdoms are destroyed but the work of the scientist remains forever. Really the development during the Mughal period established the future of India in a golden way of opportunities.

After the Mughals British started their rule in India. They constituted several committees and common sense for educational development and stressed on recommendations made by several committees incorporation with reflection of the previous era. Lord Macaulay's minute; Wood's despatch on education ,1854; Hunter Commission 1882-83; The Indian University act 1904; The resolution 21st February 1913; The Sadler university Commission 1917-19; The Hartog committee 1929; Wardha scheme of basic education; Sargent report 1944 are some of the educational developmental schemes made under British Raj. Such committees recommended introduction of new vernaculars, new techniques and vocational courses as well as female education and education for physically and mentally handicapped children. All such endeavour had been made with a view for a better type of person and rising the social status of the profession. In independent

India under five year planning scheme several efforts have been made till date for development of educational education system especially stressed on vocational training and scope of job opportunities. Even in very recent time Pradhan Mantri Kaushal Vikash Yojana, Skill India are among the enthusiastic initiatives for promoting vocational education in India.

### ***THE GRAVITY OF AEGIS OF MUGHAL EMPERORS FOR VOCATIONAL EDUCATION***

The administrative and military efficiency of the Mughal Empire led to great economic commercial and educational prosperity. International travel as described it as the fabled land of wealth. The Mughal Emperors and their mansabdars spent a great deal of their income on salaries and goods. This expenditure benefited the artisans and peasantry who supplied them with goods and produce. The enormous wealth and resources commanded by the Mughal Elite made them an extremely powerful group of people in the late 17 century.

The Mughals tried to spread education to the general people. Boys and girls both received primary education. Mosques and maktabas were the centre of education. The greatness of the rulers are as follows...

#### **ZAHIRUDDIN MUHAMMAD BABUR: (1526- 1530)**

He was an accomplished scholar in Arabic Persian and Turkey. He was celebrated author Turkish poems. His 'Memoirs' throws light on this issue. Babar was also famous for his Persian composition. He invented in new style of verse called 'Mubaivan'. He was a great literary genius. Babar was also a fastidious critic. He composed a book entitled 'Mufazzal'. He had also skill in music. Babar initiated a form of handwriting- "the Babarui handwriting" and wrote a copy of the Quran in that script. Babar took possession of Ghazi Khan's library. He was also a lover of paintings. Babar made the diffusion of education a duty of the state. Babar had a Society of literary men.

Babar's Surat-i-am that is Public Works Department was entrusted with the duty of publishing a gazette and establishment of buildings and colleges. The fact that the establishment of educational institution constituted an important item of Babar's administrative program speaks much for his interest in the extension of education in his Indian Empire.

#### **NASEERUDDIN MOHAMMAD HUMAYOUN :(1530-1556)**

He was an accomplished scholar. He gave great encouragement to land man and used to discuss literary subjects with them. Emperor human health plant man in very high Esteem. His learned associates included Mir Abdul Latif. He designated the different grades of persons by 12 arrows the lowest being made a base material and the highest (the XII Arrow) being made of pure gold. Humayoun was very fond of astronomy and geography. This branches of science made considerable progress during his reign. He wrote a dissertation on the nature of elements and constructed his own Terrestrial and celestial Globes. He was very fond of poetry and he himself composed verses. Farishta tells us that he fitted up 7 halls for the reception of his officers and dedicated them to 7 planets. The land manual received in the Saturn and Jupiter halls. He classified the learned men into three major categories-

- 1) the holy men the law officers and the scientist formed one category known as Ahlisaadt.
- 2) the relations of the monarch the nobles the ministers and military men formed the second category known as Ahli-Daulat, and
- 3) the third category was formed of musicians and artistes known as Ahli-Murad.

Humayun was a great bibliophile and Studios scholar. He was very fond of books and collected a vast number books in the Imperial library. Even during military expedition he Carried a selective library with him. He founded a Madrasa at Delhi.

#### **SHER SHAH :(1552-1556)**

Sher Shah who dethroned Humayun and ruled for 4 years did much for the promotion of education in his dominion in spite of the short duration of his reign. His educational contributions were not contrary to the

spirit of the Mughal rulers. He rather paved the way for Akbar. He was fond of philosophy history and biography. He was also fond of learned men and built the most gigantic Madrasa called the Sher-shahi Madrasa at Naruaul.

### **AKBAR THE GREAT: (1556 -1605)**

The reign of Akbar, son and successor of Humayun was characterized by peace and prosperity. This afforded ample opportunity for literary activities in India. His court was crowded with men of letters like AbulFazal and his brother AbulFaizi E Abdul KadirBadaoniAbdur Rahim and others. As a result we have Masterpiece of literary works like the Ain-i-Akbari.

During the age of Akbar there were some celebrated places which were known for educational activities and cultural activities.

#### **AGRA:**

Agra in the reign of Akbar was a famous seat of learning and celebrated centre of education. It had several schools and colleges for students flocked from far and wide for listening to the lectures of learned and distinguished teachers. A big Madras existed there.

#### **LAHORE:**

Lahore too was at this time an eminent abode of literary geniuses. It was here that celebrated Tariq-i-Alfi was written and the Mahabharata and the Rajtarangani were translated into Persian.

#### **FATEHPURSIKRI:**

FatehpurSikri was also famous for cultural activities. It has several schools and colleges. The well-known Ibadatkhana was situated here. It was the meeting place of the intellectual of various nationalities and the centre of a set of brilliant Scholars of the reign. The representatives of different schools of thought used to discuss minute points of their religions here.

Akbar's reign was marked by the growth of an extensive and sound system of education through schools and colleges. Under his instruction numerous maktab and Madrasas for both resident and day Scholars were founded. Education was encouraged in every possible way. Akbar championed education of Hindus and Muslims alike. Akbar had a broad National Outlook. Hisar to have education imparted to all classes of his subjects irrespective of their caste and creed. The Hindus were educated on the same line as the Muslims. During Akbar's time education was liberalized and even Hindus were admitted to Muslim Maktab and **Madrasas**. As a result in course of concert in Hindi Scholars and historians learnt person and made valuable contribution to the cause of education. Some of the prominent Scholars of the time were Madho Bhat, Shri Bhat, BishanNath, Ramakrishan, Bhan Bhat, Vasudeva Misr, VidyaNivas, Gaurinath, Gopinath, KisanPandit, Narayan Shivji. Akbar offered state patronage to the development of the Hindu culture. Akbar the great Mughal was patron of and contributor to education. The glory of Islamic education in India reached its Zenith in the days of Akbar The Great.

#### **JAHANGIR: (1605- 1627)**

Jahangir was a scholar and poet. He was is interested in history and wrote his autobiography. NaimatullahHaibat Khan Nakib Khan Mirjaghiyas Beg adorned Jahangir's Court. Jahangir was greatly interested in promoting the cause of education. He repaired and reconstructed the moribund and dilapidated maktab and Madrasas. Jahangir was a great lover of books and paintings. He paid 3000 gold coins for the purchase of a rare Persian manuscripts. He appointed Muktab Khan as the librarian of the Imperial library and keeper of the picture gallery. The Mughal painting reached its Zenith during Jahangir.

#### **SHAH JAHAN: (1627-1659)**

He was a cultured king and refined scholar. He is better known for his magnificence. Shah Jahan founded the Imperial college at Delhi near Jama Masjid. Shah Jahan was also a lover of books on travels biographies and histories. He was a great Patron of music.

Painting received his encouragement. Architecture was a special contribution of Shah Jahan.

**AURANGZEB: (1659-1707)**

Communal reaction had began in the reign of Shah Jahan. Aurangzeb completely turned the table. Religious bigotry reflected in the administration and Educational policy. Aurangzeb had very little for the promotion of Hindu learning. He patronised Islamic education only. Under his orders many Hindu educational institutions were demolished. He appointed teachers in Muslim educational institution throughout his Empire.

Aurangzeb founded number of schools and colleges in his Kingdom and took special interest in the education of his subjects in the out line provinces.

Aurangzeb also took steps for the education of The Princesses in the harem. They were first taught to read and write in their mother tongue. Aurangzeb himself was well educated and well versed in Arabic Persian and his own mother tongue that is Turkish. During fixed hours of the day he read and copied the Quran and used to sell the copies.

Dhol Baje was deeply religious minded yet he was not satisfied with the traditional Islamic curricular at ideas on Theological and grammatical skill. He wanted philosophy to add of the mind to reason and to elevate the soul. He wanted listens in reciprocal duties of king and subjects Arts of war history geography and language. In conclusion it can be well said that never in the whole history of India did art and literature Science and Commerce flourish as a whole quite as much as during the 200 years of great Mughal rulers. Education specially vocational education made mighty strides during the Mughal period. It was because this Emperors were great educationists and patrons of learning.

**SUMMARY, CONCLUSION, FINDINGS**

Organised education system is the integrated part of India's glorious history. Physical, mental as well as spiritual development were organised from Gurukul system. Education was treated as a matter of individual concern, did not admit of the method of mass production applicable in industry. The making of men was regarded as an artistic and not a mechanical process. Indeed the aim of education was the developing of the pupil's personality in his innate and latent capacities. According to the ancient Indian theory of education, the training of the mind and the process of thinking are essential for acquisition of knowledge. Will do da and lights when the Mughal ascended the throne they brought a high but narrow standard of culture with them. Dilabar letters as much as was old and new how to combine a successful siege with poetry. Among the Muslims education was mostly in the visible through tutors in guest by prosperous fathers for their sons. It was an aristocratic conception of education as an ornament occasionally an aid to a man of affairs and power but usually an irritant and a public danger in one doomed to poverty of modest place. According to B.G.Gokhale like the Hindu system of education the Islamic system also suffered from several limitations. It was meant primarily for Muslims who formed a minority in the total population for with the exception of Akbar no muslim King made any significant efforts for promotion of Hindu learning. However professor S.M.Jaffar has a word of high appreciation for the educational system prevalent during the mediaeval time. He says even though the mediaeval government did not have any regular Department of Public instructions it could justly boast of possessing one Department of Public instructions which looked after religious as well as educational institution. He father says it was perhaps only during the days of acute unrest occasioned by external invasions or internal disorders that the secret cause of education suffered to a certain extent. Barring out a few such cases however education made mighty strides during the Muslim period so much so in fact that Muslim universities of mediaeval India were thronged by thousands of students and professors and often hundreds of hearers.

**Bibliography**

1. Altekar, A.S. (1957) Education in ancient India, Nandkishore, Varanashi, UP.
2. Basham, A. L. (1992). The wonder that was India (Reprint ed.). Kolkata (Calcutta):
3. Bose, Sugata Bose, Ayesha Jalal (2004), Modern south Asia : History, Culture, Political Economy, Roulledge.
4. Empire of the Moghul: Raiders from the North by Alex Rutherford.
5. Eraly, Abraham : The Mughal Throne, The Saga of India's Great emperors London, Phoenix 2004.
6. Har Anand. Islam, R. (1999). Sufism and its impact on Muslim society in South Asia. Karachi, Pakistan: Oxford University Press.
7. Koul Lokesh (1998), Methodology of Educational Research New Delhi, Vikash Publishing House.
8. Kulke, H., & Rothermund, D. (1994). History of India. Kolkata (Calcutta):
9. Law, N.N. (1916) Promotion of learning in India during Muhammadan Rule, Logman Gnen & Co, London.
10. Maiti Provatansu and Saha Probhat (2009), Medieval India, Kolkata, Shree Dhar Publisher.