CHAPTER-6

CONCLUSION,

FINDINGS AND SUGGESTIONS
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A VISIONARY PHILOSOPHER

A MISSIONARY SCIENTIST

A PATRIOTIC ‘PEOPLE’S PRESIDENT’

“AN INTEGRATED PERSONALITY OF DR. APJ ABDUL KALAM”
6.1 CONCLUSION:

In this study the researcher analyzed that, this is all about an Inspiring Journey of Dr. Kalam, full of experiences and massages. The journey of Kalam which had a poor childhood life, had Dream ‘To Fly’, and he could do this. Education along with hard work and perseverance took him up to great height of success and recognition. As we all know he proceeded step by step as from Kalam to Dr. Kalam, Dr. Kalam to a hover craft engineer, from Hovercraft engineer to rocket scientist and from rocket scientist to Missile Man.

Further, the researcher analyzed that he not only had power in his thoughts and ideas but he also had power of pen and power of communication, through which the researcher has come to know about his educational thoughts and ideas.

Dr. Kalam had also contributed a lot in the same direction through his thoughts and ideas as seen in the books written by him and the lectures and speeches delivered by him on various educational occasions. Dr. Kalam had also chosen the education as a fuel to fly his mission of ‘Developed India’. An educated person with value thinking is just like the guided missile for him ready to launch for the national welfare, in the terms his positive contribution to make his country strong in all aspects. Awakening thoughts of Dr. Kalam played an important role to inspire children and youth of the country to be more innovative, creative and sensitive to their national development affairs. The researcher’s analysis of his educational philosophy as implicit in his beautiful and logical thoughts and ideas, is summarized under following heads-
6.1.1 IDEAS ON MEANING OF EDUCATION-

After critical analysis of educational thoughts and ideas of Dr. Kalam, the researcher felt that only formal education cannot inspire a person to dream and act to fulfill his dreams. Education imparted with spirituality, leads to enlightenment of citizens who have dignity of human being, confidence, courage and honesty to follow a right path of life. Education means learning by doing and experiencing failures and successes. Education also means acquiring knowledge which helps a person in social adjustment. On the other hand, practical meaning of education is, to learn at home, to learn at school or to learn at any situation of life which gives us a lesson to deal with problems. Education does not mean to acquire knowledge only from books or by sitting in the class; education means to learn from any site or sight of our life. Both, formal and informal educations are essential for being a perfect learner.

According to Dr. Kalam, nature is also a source of receiving education. Thus, his ideas are based on humanistic, idealistic, realistic, naturalistic as well as pragmatic philosophy of education. The Ideological philosophy i.e. acceptance of spiritual world and attaining mental capabilities and spiritual perfection, is manifested in Dr. Kalam’s educational thoughts.

On the other hand, Realism believes in individual and social development, importance of material world, and problems of real life. It emphasizes on scientific attitude and experiments. Child and his present life is the center of education. By going through the analytical journey of Dr. Kalam’s literature, the researcher felt that the philosophy of education of Dr. Kalam is further more or less similar to realism too. Since Dr. Kalam always stressed on ‘Developed India’, as depicted in his book
‘Vision 2020’, the only path shown by him is development of science and technology. The researcher felt that Dr. Kalam’s educational views were also influenced by naturalism. He considers the child, as a center of education. Similar to naturalism Dr. Kalam also gave importance to child’s interest and tendencies during teaching and learning process and stressed on drawing out creativity and innovative ideas inherent in a child by giving him freedom of exploring. During the beautiful and spiritual process of analyzing and findings of the research, the researcher also got some evidence which proved that Dr. Kalam’s educational philosophy had an impact of pragmatism also.

The most important role of education is to inculcate in the students the spirit of ‘we can do it’ Some common educational problems are there in most of the countries in the world including India, such as to make education adequately efficient, to democratize education, to correlate education with problems of life and to minimize cultural lag (progression gap between culture and technological advancement or modernization).

According to Dr. Kalam education is a fundamental right of every child and education means to make child creative, imaginative and innovative. He said that education serves as a base for a developed and strong country. Dr. Kalam believed that education can make a child to be an entrepreneur or a skilled worker, who can perform any task with full confidence to get assured success.

Thus, the educational philosophy of Dr. Kalam had practical approach towards the application. It had dynamicity as well as flexibility in ideas to be well adjusted in the society, with its changing demands, and to compete with technological advancement.
to remove cultural lag. It is progressive and dynamic ideology. Since Dr. Kalam was fond of literature reading and writing, he absorbed a lot from the present time available literature and learned from his lifetime experiences and presented a practical and dynamic philosophy of education which is needed at present to overcome social and educational hurdles of a democratic nation like India. He was a visionary as well as missionary social reformer. As a teacher who had interaction with billions of students in his inspiring journey of life; he played his role as a reformer of the society and nation, efficiently and effectively. He was a true patriot and always gave respect to his nation as a democratic country and tried out to give the solution of the social as well as national problems by considering the democratic policies and values of the nation. His philosophy was more influenced by democracy and its need and importance in present days to reform educational system in the country.

6.1.2 IDEAS ON AIMS AND OBJECTIVES OF EDUCATION-

The researcher analyzed that aim of education is to prepare a child to take initiative and become independent in thinking and working. Education helps in attaining recognition, developing confidence and providing successful achievements and maintaining self-respect and dignity of human being. Thus the aim of education is to prepare a person to face all the challenges of life with knowledge and logic and transform his dreams into reality. Similar to Idealism Dr. Kalam’s philosophy of education believed in realization of truth, beauty and goodness as the aim of education. Further, preparation of a holy life, development of intelligence, rationality and emphasis of book reading but not rote-learning is similar to Idealistic philosophy.
of education to some extent.

Further, according to Dr. Kalam both the society and individual are valued, and aim of education is to prepare the child for a real life by developing physical and mental capacities and training of senses of child, preparing the child for a happy life, acquainting the child with nature and social environment and imparting vocational education. Such educational thoughts and ideas are also similar to realism. The researcher further analyzed in her findings that according to Dr. Kalam, education also aim to perfecting the human machine, to attain the present and future happiness, preparing for the struggle for existence, adaptation to environment, natural development and autonomous development. Thus, the researcher found that Dr. Kalam had faith in, growing naturally and adapting accordingly.

In pragmatism, educational aim change according to time, place and circumstances and it leads to creation of new values, social adjustment and harmonious development and also gives emphasis on experiment and practices. These all are seen in ‘Wings of Fire’, an Autobiography of Dr. Kalam. By going through the autobiography of Dr. Kalam the researcher has come to the conclusion that ‘Constant hard work and belief in self is the right path to assured success’.

The researcher analyzed that the aim of education is………

- To know about democracy, its need and importance.
- To develop democratic attitude towards problem- solving.
- To provide freedom, to ask, create and innovate.
• To develop humanity in the heart of children through explaining, the values of life.

• To develop honesty, courage, and righteousness.

• To make children independent and confident.

• To promote mental and physical health by developing innate capacities.

• To motivate children for achieving their desired dream targets.

• To guide children for accomplishing their dream projects.

• To develop entrepreneurship.

• To develop leadership based on moral values.

• To initiate and carry the responsibilities given by the society.

• To prepare the children for the societal transformation.

• To prepare for future technological revolution and modernization.

• To develop self-motivated, self-directed and long life learners.

• To provide opportunities to explore.

• To make enable the children to face the failures and setbacks and to learn from these adverse situations.

• To prepare a person to face all the challenges of life with knowledge and logic and accomplishes his dream skillfully.

• To empower the citizens of the country, for transforming a developing nation to developed one.

• To make country terrorism and corruption free.
6.1.3 IDEAS ON CURRICULUM-

The idea of giving vocational training to the students during their educational sessions to be self-employed is almost similar to ‘Basic Shiksha’ of Mahatama Gandhi. On the other hand, after critical analysis of various books and other literature related to the speeches and lectures of Dr. Kalam, the researcher got some concluding points that According to Dr. Kalam, the curriculum should be based on Science and technology and provision for creativity, provision for innovation, provision for discoveries, provision for expression, provision for experiencing, provision for practical examples, provision for learning by doing, provision for training skills, provision for capacities development, provision for vocational training and provision for research must have their needed preference in the curriculum at lower level as well as higher level of education. Dr. Kalam also gave equally importance to art, music and literature with value education. Further, the curriculum of schools or institutions at any level whether it is for primary, secondary or for higher education, there must be provision for high technical environment. Training of brains as well as heart should be given equal importance through various activities. It must fulfill the needs of the occupation and there must be provision for career oriented teaching and learning guided activities. Thus, researcher has come to conclusion regarding curriculum designing with reference to Dr. Kalam, that curriculum should be carrier oriented, having value based educational activities, flexible enough to be creative and innovative along with child centeredness and to provide space for overall development of the child. He stresses on active learning based activities in the curriculum to promote student participation in teaching-learning process. He emphasizes on inductive methods of
teaching in which brain-storming, discussions, project methods, excursion and experimentation are included. According to Dr. Kalam the curriculum includes nanoscience biotechnology, IT, Industries and development of creativity, innovation, entrepreneurship and managerial skills among students other than the regular subjects of study. Universities should facilitate for creating entrepreneurship and should introduce a syllabus of entrepreneurship, value based education including lessons of truth, path of righteousness, moral leadership and faith in God and spiritual development. According to Dr. Kalam the right kind of education based on moral values will upgrade the society and the country. Further, these developed moral values play an important role in making the country corruption free. Beside all these aspects, according to Dr. Kalam the curriculum, should be designed in such a way that it minimizes the load of the school bag and is helpful in retaining the smiles of children by giving the space for innovation and creativity and sufficient opportunities for overall development of them, both physically and mentally.

6.1.4 IDEAS ON TEACHING METHODOLOGY-

The researcher analyzed that according to Dr. Kalam teaching is an art and science both- as an art to interact children, to understand them and their capabilities and as a science to approach them technically to solve their problems by giving them logical and scientific solutions of the problems and satisfying their urge for knowledge by giving them the appropriate answers of the questions asked by them. He believed in freedom of expression of both the ends, teacher and student, of teaching learning process. According to him, Question- answer method, debating, discussion method, lecture method, lecture cum demonstration method, laboratory method -all methods
of teaching have equal importance, as these are being used according to the type of lecture and student. There should be a practical approach to a theoretical subject by giving the live illustrations to make the lecture more interesting and grasping. It helps in better retaining as well as recalling the lectures. Beside all these, book reading is also very essential and effective to retain knowledge. He gave emphasis on interactive approach of teaching learning process. For this, teacher should be like a facilitator, guide and friend not a dictator. He believes that nature is a very competent teacher as lesson learned from nature always stays with us and gives innovative results. Thus, teaching methodology should be fully capable of imparting knowledge with natural impact. It means it should not be so formal that could be burden to the learners and lacking in attention seeking. Dr. Kalam always stressed on the use of mother tongue during teaching-learning session. Various teaching methods and strategies are applied by Dr. Kalam during his teaching periods. Democratic teacher-pupil relationship is always promoted by Dr. Kalam. He interacted number of children as well as people and answered each and every question asked by them with a smiling face. Dr. Kalam always used effective illustrations and live examples to explain his message. Most of the time of his speeches and lectures, he easily connected the present from the past by setting the non-forgettable example.

Thus, the researcher felt that, the method proposed by Dr. Kalam, for teaching and learning contributes permanence and not to be erased easily. Question-answer method, project-methods, debating, discussion method, lecture method, lecture cum demonstration method, laboratory method, and practical approach to a theoretical subject, these all are the teaching methods and strategies are seen in his speeches,
class-room lectures and past life incidents, where he taught his team, how to go ahead and achieve success. Beside all these, according to Kalam, book reading is also very essential and effective to retain knowledge. Thus, the researcher has come to the conclusion that teaching is a lifetime mission of Dr. Kalam’s life and he promotes flexible and interesting teaching methodology for seeking more attention of the student towards the delivered lecture or message. This leads to easy and permanent learning. Kalam also says that observation and demonstration both are equally important in teaching-learning process. Since Dr. Kalam learnt a lot from his teachers and the activities performed by them, he believes in teacher-pupil interaction and sharing ideas mutually to solve the problems and get assured success in life.

6.1.5 IDEAS ON DISCIPLINE-

The modern concept of self-discipline is leading to natural obedience. According to Dr. Kalam discipline comes from self-control. It is the responsibility of the parents as well as teachers to develop discipline from the very childhood of a child by presenting their own disciplined character before the children and becoming the role models for them. He was himself a great illustration of a disciplined life.

6.1.6 IDEAS ON DIFFERENT LEVELS OF EDUCATION-

According to Dr. Kalam every level plays an important role in a student’s life in making his/her career, whether it is primary, secondary, higher secondary or higher education. By his own experiences Dr. Kalam felt that primary level is having the prime importance in a student’s life, as he received idea and motivation to be a pilot or an aerospace engineer from his primary school teacher. Thus, according to him
every student needs a mentor in his/her early schooling days. He also emphasizes the significant role of secondary education as it helps in plotting the ground for higher studies. He also motivates the students to go for higher studies as it helps in acquisition of deep knowledge to know the real utility aspect of the subjects and its application in our life to improve our livings. He promotes research to contribute in our national wealth which ultimately helps in transforming his dream vision 2020 of India as a developed nation.

6.1.7 IDEAS ON ROLE OF TEACHER-

By analyzing the whole life incidents of Dr. Kalam, researcher concluded that only education based on values, received from his parents, friends and teachers, was there for providing foundation to accomplish his great aims of life. According to Dr. Kalam only education cannot inspire a person to dream and act to fulfill his dreams, therefore it needs a self-motivated and determined person with definite and realistic goal which ultimately contributed to the welfare of the society either by up gradation of social status or by developing moral values, both result in a ‘Developed Nation’, a great vision of Dr. Kalam.

Further, the researcher analyzed that he not only has power in his thoughts and ideas but he also have power of pen and power of communication, through which the researcher has come to know about his educational thoughts and ideas. The researcher felt that Dr. Kalam became philosopher by experiencing his sweet and sour incidents of life and practical approach towards solving them.

According to Dr. Kalam a teacher should act as a facilitator and not a dictator. The
researcher analyzed the role of a teacher through Dr. Kalam’s writings and other sources and referred that teacher should be a friend, a guide and a knowledgeable person who can satisfy a knowledge hunger and can give an appropriate and logical solution to a problem of his students. Since Dr. Kalam is himself a good teacher and has given preference to teaching in his whole career, he has some expectation from teacher.

By analyzing various logical as well as beautiful educational thoughts and ideas of Dr. Kalam, the researcher further concluded that the teacher should have faith in his student. Individual differences should also be considered by the teacher during teaching sessions and provide moral support at the time of difficulty. Appreciation and reward are the tools for a teacher for motivating his students to succeed. Teacher should be a path maker and a path searcher for his students especially high school children (adolescents), who are in the state of confusion or conflict (stress and storm). Teacher should be dedicated towards his profession and progressively go ahead in search of practical knowledge, which provide emotional assistance in dealing with students efficiently. Further, the researcher concluded that according to Dr. Kalam a teacher should create an autonomous learner who achieved his goals through the support and guidance of his teacher, like a ladder which is always there for everyone to climb, without changing his/her position and performance.

6.1.8 IDEAS ON ROLE OF STUDENT-

According to Dr. Kalam, the role of student is very important, as initially student is a receiver and a giver later on. So, students should realize their responsibility towards
their family as well as their nation. Students should contribute the best to them by initiating as a leader, whether in case of family progress or for national development. Students should be determined, while planning a career or profession and retain stability in it. Students must have entrepreneurial leadership through which student can produce many ways to be employed independently. And this is the best way to contribute in fulfilling the dream of ‘Developed India’. Beside this, students must share their knowledge and skills with those who are lacking. And for this, they must visit to the underprivileged areas and villages and teach people. Further, children should plant at least ten plants either in school campus or in their houses to create a serene environment. Along with these ideas and thought regarding the responsibilities of students, Dr. Kalam also emphasized on developing human values as well as moral values. In the same context, Kalam also said that student must take the responsibility to reach those people who cannot get education due to deficient educational facilities in their localities, and provide education in leisure time. Thus there is a need to mobilize the university and college students to undertake teaching of people who cannot read and write during holidays and vacations.

Thus, by analyzing these thoughts and ideas of Dr. Kalam, the researcher felt that student should be hard worker, honest and concern with the welfare of their surroundings and always be ready to initiate as well as contribute their physical and mental efforts to fulfill the dream of ‘Developed India’.
6.1.9 IDEAS ON ROLE OF SCHOOL-

Class room learning is as important as learning by self-observation outside the class room. Beside this, the teacher in the school has great responsibility in shaping the character of the student especially during the high school age or at the age of adolescence. Since this is the age of stress and storms for every child, school must provide needed and correct guidance to cope up with this situation by providing moral science classes and friendly environment to the students to share their problems and by satisfying their curiosities. Any academic performance variation in the student must be noticed and the counseling session must immediately commence. The school should have constant interaction with the parents of the student and give and take regular feedback about the behavior of the student. Thus the school plays an important role in healthy personality development of a child and contributes in shaping an emotionally stable and balanced citizen to the country. Beside this aspect a school must have morally good and competent teachers to impart practical and worthy education to provide purposeful education along with well equipped environment for effective learning.

6.1.10 IDEAS ON TEACHER-STUDENT RELATIONSHIP-

Dr. Kalam always remembers his school teachers as well as college teachers. He gives full credit of his life achievements to his teachers who played a significant role in Kalam’s life and in his career planning. So, Kalam believes in a healthy and facilitated teacher-student relationship, in which teacher gives full freedom to students to explore, create and innovate. On the other hand, student also has full faith
in guidance of teacher and follows the instructions obediently. In this aspect, Kalam believes in self-discipline. He visualizes that a teacher and a student both should be maintain their dignity by self-control and there should not be any need for external forces to control the behaviours of both. Thus, according to kalam teacher-student relationship should be based on mutual understanding by holding their positions firmly.

6.1.11 IDEAS ON TEACHER EDUCATION-

Dr. Kalam’s life is itself is a great live illustration of being an autonomous teacher who always tried to gain more and more knowledge through reading various great books and his scholarly performances throughout the journey of his life. He believes that teacher should be competent enough to satisfy the knowledge hunger of the student of modern age. And it can be possible only through update knowledge. And to fulfill it, a teacher should be educated and has a learner approach towards knowing new technology to compete the world.

6.1.12 IDEAS ON SCIENCE AND TECHNOLOGY-

Dr. Kalam is a great scientist who has a technical approach for the development of India. He is known as ‘Missile Man’, a Man of Technology. According to him science and technology is the only medium to grow and compete in modern world. Dr. Kalam suggests that we have to allow children to ask questions to develop scientific aptitude in our children and we should have the patience to answer them satisfactorily. We should not stop them for asking questions because curiosity is the foundation for creativity and that along with a questioning mind will lead to the creation of scientific temperament.
Youngsters should be motivated to enquire into science. He connects science with spirituality to feel its depth.

6.1.13 IDEAS ON VALUE EDUCATION-
The researcher felt that education without values is meaningless. Only value based education can produce civilized countrymen who have concern for the growth and welfare of the family, society and nation. According to Kalam, value based education is the basic need of democratic nation. He gave importance to individuality but he believed that nation is bigger that individual.

6.1.14 IDEAS ON MORAL EDUCATION-
The researcher analyzed that moral education is the only source to remove corruption and to enhance intimacy with and regards to human bonds. According to Dr. Kalam, moral education makes children disciplined which leads to empowered citizens who have a deep concern not only with the welfare of their families and societies but the national welfare also.

6.1.15 IDEAS ON WOMEN EDUCATION-
Dr. Kalam is a very sentimental person who has strong emotional bonds with his family members especially with his parents. He believes that if a family has a satisfied woman or satisfied wife or satisfied mother or any other satisfied role played by a woman in a family, that family definitely has peace and prosperity inside the family and among its family members. He said that India has a long tradition of giving equal opportunity to women to excel in every field. He gives equal importance to both boys as well as girls in every aspect of life. He believes that Women empowerment leads to society with stability and peace.
6.1.16 IDEAS ON INCLUSIVE EDUCATION:

He believes that in order to deal with special children, first of all, their parents should admit the disability of their child and cooperate with them without showing sympathy. This sympathy and over protection sometimes hinder the growth and development of the child. He says that special need children need freedom to express and explore instead of over emotional support and protection from the parents.

6.1.17 IDEAS ON EDUCATION FOR DEPRIVED ONES-

Dr. Kalam always motivates students to spread their knowledge by going to underprivileged areas to educate deprived ones. He says that in their leisure time students have the responsibility to impart their acquired knowledge and skills to those who cannot receive all these, due to lack of resources and facilities. He wants to educate each and every countryman, child and youth by using educated youth power of our country. He has some beneficial and practical thoughts and ideas regarding the education for deprived ones.

6.1.18 IDEAS ON PEACE EDUCATION-

According to Dr. Kalam peace education can be imparted through creating peace within the family members. Family is the core content of the world peace. If families of a nation are happy and satisfied financially, the whole nation will be prosperous and healthy. He says that righteousness in the hearts of each citizen leads to a sustained peaceful environment in the nation. He also says, that if each and every person of the whole world becomes satisfied economically, then only sustained world peace will be there. He believes that music, dance, drama or any art always helpful in obtaining sustained peace.
6.2 IDEAS ON SOME OTHER ASPECTS: Beside all above aspects of education Dr. Kalam also emphasized on the following:

- IDEAS ON AGENCIES OF EDUCATION:
  According to old beliefs, school was the only agency for the education of children. But according to modern views, all formal and informal agencies are harnessed to the task of education. According to Dr. Kalam both formal and informal educational agencies are important in imparting knowledge to the child. At home, family members play an important role in guiding the child at each and every stage of learning and provide informal education to the child. Such education forms a base for the out-coming personality of the child. On the other hand, at school level, a child receives formal education from his/her teachers and friends. This formal education provides a base for a social and professional life of a child. Beside all above well known agencies of education, Dr. Kalam stressed on nature, as a competent agency of education. He believes that the knowledge receives from the nature; remain with the child for a long time. Thus, he emphasized on both type of education formal and informal, received from various types of educational agencies.

- IDEAS ON ROLE OF PARENTS:
  According to Dr. Kalam, parents play an important role in the life of a child. They have a significant part in the educational process of the child. They must be aware of the need for good education for making them enlightened citizen. They must be role model for their child and set examples for the child by their behavior and conduct. They should provide an interactive environment at home where the child can share their feelings and problems and get sufficient support from the parents. It will help
the child in developing love and respect not only for them but towards others also. There should not be any type of communication gap or hesitation among the children and other members of the home. Since sharing ideas promotes creativity which leads to innovation, parents at home play an important role in carrier building of a child by knowing the views of the children regarding their interest and abilities. Further, according to Kalam, parents should become the role models for their children, so as they also have to follow a disciplined life and have a strong character and preserve the essence of our culture in the form of disciplined children. In a democratic nation like India, everyone has right to speak and work freely. The democratic philosophy of education has a provision for the parents of the students to discuss their problems and share their ideas with the teachers and school management. This democratic principal of freedom promotes interaction among school and its teachers and other staff members. And this mutual interaction at school and college levels helps in minimizing the misunderstandings of parents, teachers and students. This sharing activity can be in the form of parent-teaching meetings. Thus according to Kalam this parent-teacher meet results in getting practical solution of the student’s problems and leads to reduce mental stress. Thus the role of the parents is also important in democratic philosophy of education where each one has equal right to speak and share.

- **IDEAS ON ROLE OF BOOKS:**
  The researcher came to know through the analysis of the whole journey of Dr. Kalam that books along with his teachers play a very significant role in achieving life targets. Thus, the researcher analyzed that books are as important for a student as
teacher in the class. According to Kalam, books sometimes play a role as a mentor for a student as in case of distance education programs, where no teacher is present physically to communicate with children. Thus, books guide the students at that time of need at any place where, there is nobody to guide. In the context of democratic education, books give full freedom to learn by own individual way without any external instructions as in case of teachers.

- **IDEAS ON ART AND MUSIC:**

  He appreciates art, music, drama and other arts. He is fond of music and regards music as a source of peace and good health.

- **IDEAS ON HEALTH EDUCATION:**

  He gives prime importance to health. He believes that a healthy person can only be able to contribute to his/her family, society and nation. He connects health with tolerance and emotional balance which leads to sustained peace of the nation. He visualizes that good mental as well as physical health can minimize the criminal instinct of human being.

- **IDEAS ON RELIGIOUS EDUCATION:**

  He believes in all religions. He says that religion should be there to provide the base for national unity. We should pay regard to every religion and feel its beauty and enjoy its unity in diversity.

  Thus, the researcher concluded that he was not only a missionary scientist but he was also a visionary social reformer who used interaction and communication as a tool to promote goodness of the human being for welfare of the society and the nation.
the other hand he also used the same approach towards the removal of social evils by minimizing differences and discrimination among the children and youth who are the future of developed India. He also proved that only degrees are not the proven steps of success ladder. He himself was an illustration for us that being an average student, possessing a normal personality, holding a diploma degree in aeronautical engineering, he became ‘Missile Man’ of the world. He proved that creativity and innovation along with value based education was the only fuel, he had to take a high fly. Finally, the researcher concluded the wordy extract from the thoughts and ideas of Dr. APJ Abdul Kalam as major findings of the present study.

6.3  **MAJOR FINDINGS OF THE RESEARCH:**

Dr. APJ Abdul Kalam advocated the universalization of education and knowledge, the unity of knowledge and work, proper instigation of technical in democratic citizenship; he wanted education in democratic citizenship. Dr. Kalam’s thoughts has a balance of Idealism, Realism, Pragmatism, naturalism and Humanism and were found of great use in the present Indian set up. He said science must be humanized. He pleaded for a progressive fusion of scientific and humanitarian studies. Dr. Kalam also stressed on humanistic approach towards the use of science and technology or any type of education. The major findings of this research study are as follows-

1. First of all he was a great teacher and he wanted to be remembered as a teacher after his demise. He had faith in life-long teaching and learning.

2. Dr. Kalam was a consistent performer as a scholar. He was a visionary social reformer as well as a democratic educationist.

3. He was an emotional and kind hearted person.
4. He was a very religious person but a strict secularist. He believed in God as a super power and had faith in all religions. Kalam believed that morality and religion are two sides of the same coin.

5. He loved justice and hates corruption and terrorism.

6. He believed that children and youth had natural powers to fight with these evils such as corruption and terrorism.

7. To establish sustained peace and prosperity was one of the prime missions of his life.

8. Dr. Kalam was the only adorable People President, who had lot of love and affection for children and felt that the future of India lies in them.

9. He was true patriot who always thought for the welfare of the country and its people.

10. ‘Wings of Fire’ an autobiography tells the story of Dr. Kalam’s life journey and his sweet and sour experiences. This book also gives full picturization of transformational process of Kalam’s desired dream, to be an aerospace engineer, into reality.

11. He believed in Dreams. For him, Dream is the source of inspiration to accomplish a desired goal. He appealed to children and youth to see dream, think and take actions for transforming our ideas into reality.

12. He used interaction and communication as a tool to motivate children and youth of the country to develop vision and to understand the innate capacities of them.

13. By realizing the dreams and ambitions and giving ideas and suggestions to children and youth of the country, Dr. Kalam guided them and converted their negative energies and thoughts into positive one. It was an exclusive approach contribution towards the nation.
14. He believed in hard work and self to get success. He believed that trial and errors along with success and failures make a person strong and develop a sense of creative leadership in him. Any financial hardship could not impede the success.

15. He had a vision for transforming a developing country into a developed nation. And ‘To make India a Developed Nation’ was the prime mission of his life.

16. He was a missionary scientist and had scientific and technological ideas and thoughts regarding educational aspects based on logical assumptions with reference to the role of the teacher, role of the student, role of school, role of family as educational agency and role of government.

17. He had science background still he always gave equal importance to all the disciplines whether it is from science or art. He believed that science brings prosperity and art and music bring happiness and peace. He considered Art and Music as a medium for relaxation.

18. He had a unique feature of his philosophy as he defined a connection between science and spirituality. He believes that science is a superpower which can make impossible into possible after God.

19. With reference to philosophical thoughts and ideas of education, he had a fusion of various philosophies of education. His philosophy of education was primarily influenced by idealism, realism, humanism and pragmatism. Naturalistic influence is also seen in his educational ideas and thoughts. His scientific and logical ideas lie under the category of Neo-Realism, a new aspect of Realism. Impact of neo-realism is found in his scientific and technical approach in finding the solution of a problem.
20. He believed in Democracy and suggested various ideas and strategies considering the democratic environment of the nation.

21. Overall his educational philosophy has much influenced by democratic school of thought, which lies under humanistic approach of philosophy.

22. Democratic approach was seen in his philosophy regarding the implementation of ideas to develop in a better way and to solve the educational problems.

23. According to his democratic philosophy education should be-
   - Individual centered education.
   - Teacher as a mentor is needed at the early stage of schooling to show the right path of future career.
   - The teacher is considered as a milestone in the journey of Total Development (physical, mental and emotional) of the child.
   - First interact and understand the child then teach him/her.
   - Emphasis on individuality- individual differences should be respected. Inclusive education is needed to deal with individual differences.
   - To impart value based education.
   - Preference given to Active learning and Inductive teaching methods like questioning, discussion, project work and experimentation.
   - Discipline defined as self-discipline and self-control.
   - Freedom to think, create, explore, express and innovate.
   - Development of entrepreneurial attitude and leadership.
• Equal opportunity to learn without having the discrimination on the basis of caste, creed, sex, or economic status.

• To develop feeling of nationalism.

24. He had materialistic approach of philosophy of education while interacting youth. He always motivated the youth to utilize their energies and creativities and earn to get a stable financial position in the society. He stressed on entrepreneurship for spending an independent and dignified life.

25. According to him, the aim of education is to build character, to develop human values, enhancing life-long learning capacities with scientific and technological approach and prepare to face the challenges of life. Education makes us more confident and determined to get assured success in very field of life.

26. He believed in illustrative approach as method of teaching; that means to teach the content with appropriate live examples. He considered Nature as a never ending source of teaching and learning.

27. He stressed upon reading of great books for acquisition of knowledge and satisfying our curiosities and answering the queries.

28. He stressed on overall development of the child. He believed that good health is the base for emotional stability which is needed for good social human being.

29. He suggested Yoga for retaining good physical and mental health. He also highlighted the various postures of ‘Namaz’ (a mode of praying in Islam) as an effective form of Yoga.

30. He said that various postures of Yoga (Asanas) also can change the attitude of the person as it gives relaxation of both body and mind.
31. He encouraged value based education to produce empowered citizens.

32. He promoted creativity and innovation in education.

33. He stressed most on primary education as a base for preparing a child for his/her future career and building up their character. According to him primary school teacher play a significant role in child’s life.

34. He emphasized on Vocational Education that is teaching and training covering the vocational aspects, to enhance job opportunities.

35. He always inspired for moral leadership and to initiate for developing entrepreneurial skill.

36. Introduction of various unique concepts like ‘Emotional Intelligence’ and ‘Tolerance Education’ to built strong emotional bonds among the families, societies and in the nations. He said that Emotional Intelligence prepares the base for Good Health and Tolerance Education is needed to accomplish sustained peace in the family, society and at national level.

37. He stressed upon women empowerment. He believed that educating women means educating the whole family as he regarded the mother like a teacher for the whole life from birth to death.

38. He suggested moral teaching classes conducted by guest lecturers to develop feeling as well as awareness towards our country and its significance.

39. He appealed that we all should prepare ourselves for graduating into knowledge society and suggested that we can cover deprived population by sharing knowledge among youth to youth.

40. He introduced new concepts of home library, creative classrooms, creative leadership,
moral leadership and building five capacities to enhance educational competencies of both teachers and students in a better way.

41. He said that technology could play vital role in education content generation and delivery system. He suggested technically sound and scientifically based teaching-learning sessions pouring the essence of moral values.

42. The researcher analyzed that as Dr. Kalam stressed upon a well defined and strong democracy regarding political system of a democratic nation like India, in the same way his educational philosophy also had many re-invented democratic thoughts and ideas to access the masses for imparting education, by keeping in view of individuality and its worthiness.

43. He suggested that-

- An education system which could feed and challenged the innovative and creative minds of youth of the country.
- Educational institutions should evolve a curriculum that is sensitive to the social and technological needs of a developed nation.
- Everyone in India must be imparted value based education.
- To promote affinity between the parents, students and the teachers an Integrated Primary Education System is needed and education at primary level has to be delivered in an integrated way by teachers
- Higher education should evolve global standards.
- He also promoted on computer education with creativity and innovation.
• Inclusive education should be given focus to utilize the talent of special children at national level to accomplish our mission 2020 and give them feel as an integral part of our nation.

• Research in all disciplines whether it is related to science and technology or in medical should be promoted to make students and teachers more competent.

44. He was a practical social reformer as he always tried to remove all the evils of the societies by providing the best remedial science and technology solutions of the social problems to the youth of the country based on values. Thus, the researcher felt that Kalam had a democratic aim of his life based on humanism.

45. His future goal of life was to see smile on the faces of billion people.

46. He was a unique combination of saint and scientist. He gave equal importance to science and technology education as well as to religious education to make our country peaceful and prosper.

47. He was a patriot who never tired on his duty even on his last breath. He was on duty as he was delivering a lecture on ‘Livabe Planate Earth’ at IIM, Shilong, Meghalaya.

48. He was known as ‘Missile Man’ who flew away with a jerk and left a spark of knowledge behind him on July 27 2015.

49. Thus, he was not only a visionary but he was a missionary also. He was a self-motivated patriot whose constant efforts are always there for transforming his vision 2020.

50. After his demise we all realized that we have lost a great teacher. Number of developments has been done after Dr. Kalam not only by India but also at world level.

51. He proved that love gives love in return and teaching gives recognition.
6.4 SIGNIFICANCE OF EDUCATIONAL THOUGHTS AND IDEAS OF DR. APJ ABDUL KALAM

By going through the critical analysis of literature of Dr. APJ Abdul Kalam, collected from various primary and secondary sources, the researcher had come to the conclusion regarding the relevance of educational thoughts and ideas of Dr. Kalam that these thoughts and ideas were somehow not having real base as these were much more influenced by Idealistic philosophy of education. He was an excellent scholar and patriot who had been working for the national progress. He always assumed people of the country as a moldable one for they can be easily persuade to change their attitudes and approaches to working.

Still some ideas of Dr. Kalam were very realistic and could be worthy of application, as the idea of entrepreneurship and promotion of creativity. These can be applied or followed practically at school and college level. With reference to the role of teachers and students he had much more expectations from present time teachers and students who are in the queue of unemployed candidates and waiting for their numbers.

Since India is facing lots of natural and political problems which lead to financial crisis, she should prepare herself primarily for overcoming these problems by increasing production and export and for this India needs to have intellectual as well as skilled persons to produce knowledge and skill which can come only through education. Thus the researcher felt that education is essential to grow but it needs improvement and it can be done by science and technology. So digitalization is the need to the hour to flourish at national and international level. Since children and
youth are more flexible for change and have more energy and fewer responsibilities, they can be easily motivated to contribute to national development through their educational development and moral behaviour.

Moral Leadership is also logical since it is needed at every stage of development, because development of any field is then only possible if leader who initiate to accomplish a project has moral values that means he not only works for himself but for the welfare of society also. The ideas related to the improvement of teacher education and training of senses had logical approach to their application.

There is a uniqueness in the idea of peace education as it is correlated with women empowerment and women education. He thought that an empowered woman with knowledge at home plays various roles in the family. If she is satisfied and is efficient to take correct decisions for the sake of family the whole family will be happy resulting in happiness and progress for the society and the nation.

Home Library is also a unique idea of Dr. Kalam and it is practically applicable. It is an excellent thought to promote quality reading which also results in peace at home and among family members. Further it leads to maintaining peace in the society. The Unique vision of Dynamic School and Dynamic College can produce a number of quality teachers, leaders and professionals on application. The concept of Creative classroom is also very practical and effective in teaching learning process. And it can be designed by using the attractive teaching aids as well as by using the locally available resources along with natural resources and making a theory classroom to an experimental laboratory where students can become part of the subject. It would make easier for the students to learn a theoretical topic. Further, Knowledge Society
is a unique term evolved by Dr. Kalam and it needs mutual effort of teachers, students and their families by taking interest in education and having proper awareness of its real purpose and application.

Dr. Kalam also shows us a path for self-motivation in order to achieve our desired goal, by developing Five Capacities. These capacities help us to be Autonomous Learners. An Idea to provide digital and e-learning at primary level of schooling in India is also very worthy but perhaps it will take some time in implementation due to other priorities of the Indian Govt. such as to fight against poverty, unemployment, crime and corruption. His suggested the awareness as well as application of digital library to promote educational connectivity. Thus each and every thought and idea of Dr. Kalam had national welfare as a core element.

The concept of democratic education is the need of the hour; and the efforts put by Dr. Kalam through his inventions, researches, literatures and inspirational speeches and lectures and at last not the least interaction with children all over the world, will definitely create wonder and his great vision of transforming our developing nation into developed nation through science and technology and value based education. The relevance of Dr. APJ Abdul Kalam’s educational thoughts and ideas in the present system of education is identified through administrating the opinionative to the education experts, teacher educators and teachers at school and college levels.
6.5 EDUCATIONAL IMPLICATIONS OF IDEAS OF DR. APJ ABDUL KALAM-

According to Dr. Kalam, the young mind is indeed turbulent and looking for the vision for the nation and its fast accomplishment. He believes that it is very important to engage the young minds with an inspiring vision for thinking and action. According to him, the Ignited Minds of India are the most powerful resources on the earth, above the earth and under the earth.

1) Networking of educational institutions, which is the demand of the Knowledge Era.

2) Youngsters should be made to realize the role played by science in their day to day life and also motivated to enquire into science.

3) Dr. Kalam believed that science is a boon of God and it is essential to understand the world. He said that the innate fear that "science is a difficult subject" should be removed from the minds of the children through easy to understand, interesting, creative presentations by the science communicators. He suggested for establishing science museums and laboratories across the country, so that science reaches to the students at the primary and secondary level education, so that the spirit of learning science and applying science with creative minds are possible. He believed that, this approach will lead to building a borderless world with the spirit of scientific excellence.

4) He also suggested a strategy to deal efficiently with science teaching. He said that for teaching science, ‘firstly the simple beauty of science should be explained to the students. Secondly, we must have inspiring teachers in science. Thirdly, students must be exposed to the lives and work of great scientists, so that they can derive
inspiration from them. Fourthly, the value of science must be emphasized by senior scientists.

5) He believed that science was born and survives only through questions. According to him the whole foundation of science is questioning. He said that we have to allow children to ask questions and we should have the patience to answer them satisfactorily for developing scientific aptitude in our children. According to him, we should not stop children for asking questions. He believed that curiosity is the base for creation of scientific temperament. Thus, he promoted questioning sessions, for injecting creativity and innovation in students and make an active learning environment in teaching-learning environment.

6) Dr. Kalam, suggested some ideas for developing scientific attitude and approach among the students. These are openness of communication, tolerance to criticism, team work, collective problem solving, constant efforts for continuous improvement in performance and develop interest in research.

7) He said that the organizational practice should be flexible, able to change with time and promote thinking and creativity. According to Kalam, the reward system must based on critical evaluation of performance and merit.

8) According to Dr. Kalam, research can be improved and worthy for social welfare purpose by providing competent teacher guidance and standardized formats and sufficient facilities.

9) According to Kalam, the benefits of science and technology must reach the common man, especially in rural India. This is what is being planned through PURA (Provision of Urban Amenities to Rural Areas). He said that efforts must also be
made to promote science education in regional languages and by introducing science education in various regional languages we can remove the fear of science from the hearts of the learners. Further, he believed that it can minimize the distance between learner and innovation and creativity in the field of science.

10) He was man of technology and believed in technology as the best medium to spread the light of knowledge. He suggested that Tele education can be used to enrich the content of higher education.

11) He also saw science and technology as ideology-free areas and emphasizes the cultivation of scientific temper and entrepreneurial drive.

12) He said that developed India should be able to take care of its strategic interests through its internal strengths and its ability to adjust itself to the new realities. For this it will need the strength of its healthy, educated and prosperous people, the strength of its economy, as well as the strength to protect its strategic interests of the day and also in the long term.

13) According to Dr. Kalam there are some keys that would help India become a leader in making original contributions to technology. First of all we have to give highest priority to education in basic science and applied science as this would help reduce technology gaps. Beside this Work on convergence technology of information, communication and biotechnology should be there and it will bring about a revolution both in information technology and medical technology.

14) He said that science is helping reduce poverty in our nation. For example, information and communication technology has helped bring connectivity to many of our remote areas and remote sensing technology is helping farmers in many ways.
15) According to Dr. Kalam, in order to strengthen the balanced concept of development, promotion of educational competence in students and teachers is needed.

16) He visualized that the main cause of an unbalanced concept is an incomplete system of education. The modern system of education is fully concentrated on enriching knowledge and earning one’s livelihood. The important aspect of learning – to live together and with others, and learning to be ones true-self- are almost neglected. The result is that while knowledge is increasing and economic development is taking place, peaceful coexistence and the identification of inner wealth are being lost sight of. To deal with this situation, Dr. Kalam suggested for developing interest in higher education and research.

17) He suggested for deploying IT technologies creatively and purposefully to even the remotest parts of our country. He said that it can be a very useful tool for transmission of education system and skill-generation in India.

18) According to Kalam, while freedom of the self is very important to good health, mindfulness about the value of another’s freedom is equally important. According to Dr. Kalam, the best means to bring about the change in the attitudinal tendencies of human beings are two- fold, namely education (shiksha) and righteousness (dharma). Through education students are told what is right and what is wrong, but they are not trained to abandon the wrong. In the field of Dharma too similar lacuna exists. Religious persons are not taught how to control their senses and mind. They are only taught believe that they can reach their goal by observing rites and rituals. Thus according to Kalam, the pressing need of the present day is to effects the process of transformation.
Thus, the researcher concluded that Dr. Kalam stressed on education based on science along with values and spirituality. He also promoted on computer education with creativity and innovation. According to Kalam skill based education plays a vital role in implementing the Mission 2020 of Developed India. Dr. APJ Abdul Kalam discussed some aspects related to the education system of our country, which needs attention to be reform. Some practical ideas are also proposed by Dr. Kalam to improve the present scenario of contemporary India, regarding education. According to Kalam, the most successful persons are those who select the subject and task for which they have the aptitude, regardless of the opinion of other.

6.6 SUGGESTIONS FOR FURTHER RESEARCH WORK-

The value of the subject and topic selected for the study is enormous but the limitation of time and condition of adherence to the topic did not allow to going deep into the subject and covering all the aspects of Dr. Kalam’s life. This leaves a scope for further research on the subject. Further researches can be done on the topics listed below.

1) A study about the categorization of the educational thoughts and ideas of Dr. APJ Abdul Kalam specifically in a particular philosophy of education.

2) A study about defining the uniqueness of the educational thoughts and ideas of Dr. APJ Abdul Kalam.

3) A study about to draw out the conclusions regarding his personality by analyzing his whole life incidents.
4) A study about the relevance of unique ideas of Dr. APJ Abdul Kalam in contemporary India.

5) A study about the contribution of Dr. APJ Abdul Kalam, in science and technology.

6) A study about Dr. APJ Abdul Kalam, as a teacher.

7) A study about the strategies proposed by Dr. APJ Abdul Kalam, regarding educational development.

8) A study about the vision 2020 of Dr. APJ Abdul Kalam and its implication.

The great man was inspiring till his last breath. Even though he is no more, he continues to inspire us in more than one ways. The list of inspiring quotes by Dr Kalam is endless. His quotes will be remembered and practiced till the end of time.