

Chisels that Sculptured my Life¹

APJ Abdul Kalam

Work with Integrity and Succeed with Integrity

I am delighted to address and interact with the students of Harvard and MIT. My greetings to all of you. Harvard University is devoted to excellence in teaching, learning, and research, and has been developing leaders in many disciplines who have made a difference to societies in the world.

The mission of MIT is to advance knowledge and educate students in science, technology and other areas of scholarship that will best serve USA and the world in the 21st century. I am very happy to address the students of these two great institutions that have made and continue to make a significant impact to economic and cultural growth of societies in the world. When I am with this audience, I am happy to share the "Chisels that Sculptured my Life".

First let me talk about my childhood experience in Rameswaram when I was 10 years old.

Lesson on Receiving Gifts

My father Janab Avul Pakir Jainulabdeen taught me a great lesson when I was a young boy. What was that lesson? It was just after India got independence in 1947. At that time panchayat board (village council, equivalent to US County elections) elections took place at Rameswaram in the Southern part of India. My father was elected as the village council member and on the same day he was also elected the President of Rameswaram village council. Rameswaram Island was a beautiful place with 30,000 population. At that time they elected my father as village council President not because he belonged to a particular religion or a particular caste or spoke a particular language or of his economic status. He was elected only on the basis of his nobility of mind and for being a good human being.

I would like to narrate one incident that took place on the day he was elected as President of village council.

At that time, I was studying in School. Those days we did not have electricity and we used to study under rationed kerosene lamps. I was reading the lessons loudly and I heard a knock at the door. In those days at Rameswaram, we never used to lock the doors. Someone passed through the door, came in and asked me where my father was? I told him that father had gone for evening Namaz (prayer). Then he said, "I have brought something for him, can I keep it here?" Since my father had gone for Namaz, I shouted for my mother to get her permission to receive the item. Since she was also on the Namaz there was no response. I asked the person to leave the item on the cot and I continued my studies.

After sometime, my father came in and saw a silver plate with gifts kept on the cot. He asked me "what is this? Who has given that?" I told him, "someone came and has kept this for you". He opened the cover of the tambulam and found there were expensive clothes, few silver cups, some fruits and some sweets and he could see the slip that the person had left behind. He was upset and angry at the sight of the gifts left by someone. I was the youngest child of my father, he really loved me and I also loved him a lot. That was the first time I saw him very angry and also that was the first time I had got a good beating from him. I got frightened and started weeping. My mother embraced and consoled me. Later, my father came and touched my shoulder lovingly with affection and advised me not to receive any gift without his permission. He quoted an Islamic Hadith, which states that, "When the Almighty appoints a person to a position, He takes care of his provision. If a person takes anything beyond that, it is an illegal gain." Then he told me that it is not a good habit. Gift is always accompanied by some purpose and a gift is a dangerous thing. It is like touching a snake and getting

¹ Speech addressed to the Students of Harvard and MIT HLS-Campus at Cambridge, Massachusetts, USA, on September 28, 2011. IMJ is thankful to the author for his consent to publish his speech.

the poison in turn. This lesson stands out always in my mind even now when I am about to reach my eighties. This incident, taught me a very valuable lesson in my life. It is deeply embedded in my mind. Even now, when any person appears before me with a gift, whatever shape it is, my body and mind shudders.

Later in my life, I realized from the writings in Manu Smriti, a scripture, which states that **"By Accepting gifts the divine light in the person gets extinguished"**. Manu warns every individual against accepting gifts for the reason that it places the acceptor under an obligation in favour of the person who gave the gift and ultimately it results in making a person to do things which are not permitted according to law. Even as I am now in the 80th orbit around the sun, my childhood experience has a special significance in my life. Often the unique lessons one derives in the early days of life are the governing forces which steer the value system in all thoughts and actions for life.

Task that Leads to Bliss

Friends, now I would like to share with you, one experience which I had in 2010. I was taking a class of 72 students both graduate and post graduate at the Gatton College of Business and Economics, Lexington, Kentucky. We used to have 30 minutes earmarked for discussions of that every class. One day, one of the course participants Ms. Stephanie asked me an out of the box question. She said, "Dr Kalam, yesterday night I was reading one of your books. Kalam, you have done many tasks? Tell us one task that gave you the bliss? How to answer? It is important for me to answer. Let me share with all of you. When we launched the first indigenous satellite launch vehicle SLV3 in 1980, it gave me lot of happiness! When the long range missile called AGNI (fire) reached the target at 2000 kms in 1989, it gave me different kind of happiness! When our team had successfully tested the nuclear weapon at the 52 degree centigrade in Pokhran desert in Western India during 1998, it gave me great joy! When our team prepared the Vision 2020 document for transforming the nation into an economically developed nation, it gave me a good sense of happiness.

But what gave me a bliss! That is the memorable event which I would like to share with you now.

During my visit to one of the hospitals in Hyderabad (in southern India), I found many children were struggling to walk with an artificial limb weighing over 4 kgs. At the request of Prof. Prasad of NIMS, Head of orthopedic department at that time, I asked my AGNI missile friends why we cannot use the composite material used for AGNI heat shield for fabricating FROs for polio affected patients. They immediately said it was possible. We worked on this project for some time and came up with a FRO for the child weighing around 400 gms in place of 4 kg, exactly 1/10th of the weight which the children were carrying. The doctors helped us to fit the new light weight FRO on the children and the children started walking and running around. Their parents were also present. Tears rolled down from the eyes of the parents out of joy seeing their children walking and running with the light weight calipers. With the light weight device provided by the hospital they could run, ride a bicycle and do all sorts of things which they had been denied for a long time. The removal of the pain and the freedom attained by the children gave me a state of bliss which I never experienced during any other achievement in my life. This was a long answer to my student Stephanie's question.

Raju-Kalam Stents

Friends, one and a half decades back, I was traveling in a non-stop train from Delhi to Dehradun, a journey of about 4 hours. I was absorbed in a book "Man, the Unknown" written by Dr. Alexis Carrel. Suddenly one passenger greeted me and he wanted to convey certain aspects. There was a vacant seat next to me. I asked him to sit by my side. He introduced himself and said he was working in a government office and his name is Jitesh. Jitesh said, "Mr. Kalam I want to thank you for giving to people like me Raju-Kalam stents which is fitted in two of my arteries. I was fitted with these stents in Hyderabad Hospital almost at no cost as I could not afford a high cost imported stent. Thank you, Sir. My family also would like to greet you", he said. His lovely family with the kids were all in smiles. The stent emanated through the working of missile lab and medical institution on a mission mode. It was a successful mission of medical and engineering teams. I thought of sharing this incident with you to stress the importance

of medical and engineering teams to work together for developing medical systems, devices and equipments at an affordable cost as a societal mission. Medical costs are of concern both in developing and developed countries. How remarkable it will be if the medical and engineering communities in India and USA can be harnessed to innovate and bring out medical infrastructure whose manufacturing and operational costs are a fraction of what they are today. You should think big and you can achieve it.

Failure Management

Friends, three decades ago while I was working at ISRO (Indian Space Research Organization), I had the best of education, which won't come from any university. I will narrate that incident. I was given a task by Prof. Satish Dhawan the then Chairman, ISRO to develop the first satellite launch vehicle SLV-3, to put ROHINI Satellite in orbit. This was one of the largest high technology space programmes undertaken in 1973. The whole space technology community, men and women, were geared up for this task. Thousands of scientists, engineers and technicians worked resulting in the realization of the first SLV-3 launch on 10th August 1979. SLV-3 took off in the early hours and the first stage worked beautifully. But the mission could not achieve its objectives, as the control system in 2nd stage malfunctioned. There was a press conference at Sriharikota (the launch base), after the event. Prof. Dhawan took me to the press conference. And there he announced that he takes responsibility for not achieving the mission, even though I was the project director and the mission director. When we launched SLV-3 on 18th July 1980, successfully injecting the Rohini Satellite in to the orbit, again there was a press conference and Prof. Dhawan put me in the front to share the success story with the press. What we learn from this event is that the leader gives the credit for success to those who worked for it, and the leader absorbs and owns the responsibility for the failure. This is leadership.

Nurturing Biodiversity

Dear friends, while I was in Rashtrapati Bhavan (President's Estate), one day, during my morning walk,

I observed a forsaken and injured deer kid. My friend, the veterinary doctor, Dr. Sudhir and myself went to the lawn and found that the deer could not get up because her two legs were damaged during birth. Immediately doctor started treating and putting the bandage. We tried our best to connect the mother deer and the fawn, but could not succeed. Everyday a milk bottle will come and I started feeding the fawn. In a week's time, the kid got up and started walking. As soon as I go, it will run to me for getting the milk. The milk was given thrice a day. After few weeks, the deer herd accepted the fawn. It was a beautiful time. On the day of my departure from Rashtrapati Bhavan I composed a poem:

Then a miracle happened.
One lovely deer, a young one slowly and
Slowly advanced towards me,
And started licking my hand
Looked at me, said "I am the little one
You fed me daily with milk,
When my mother had forsaken me,
As I could not walk and
run to reach my mother.
Thank you sir, feeding me milk
many a days and for curing my injuries.
You and Sudhir made a deer out of me"
This event electrified me,
the deer herd slowly advanced
bowed with tears rolling,
From the return of kindness.

I Can Do It

Friends, when I was the President of India, I used to meet a large number of students, almost every day. On August 28, 2006, I met a group of tribal students from eight states. I asked all of them one question: "What do you want to become?" Out of many responses, one visually challenged boy studying IX class got up. His name is Srikanth, he answered me "I will become the first visually Challenged President of India". I was very happy to see his vision and ambition. Small aim is a

crime. Hence, I congratulated him to realize his vision and told him to work for realizing the vision.

Then he worked hard got 90% in Xth class and 96% in intermediate (10+2) and he set a goal to study Engineering in MIT, USA. His relentless hard work not only secured seat but he got full fee waiver from MIT. Srikanth's achievement has inspired many to set high vision. Seeing his performance and willpower, GE India volunteers have funded Mr. Srikanth for his travel to USA. Today he is pursuing his studies at MIT. When the GE India offered him a job on his completion of graduation, he told them that he would certainly come back to GE, if he couldn't become the President of India. What a confidence that boy has amidst of difficulty and the challenges in his life by being visually challenged.

Warana PURA

Friends, last year I was in the Warana valley of Kolhapur in western India where I interacted with many students, farmers, milk producers, rural entrepreneurs and villagers and also inaugurated a PURA center at the Tatyasaheb Institute of Engineering and Technology.

The Warana PURA mission began as a sugar cooperative movement, as a vision of a great social leader called Tatyasaheb Kore in early 1950s. The area of Warana used to be a backward area infested with unlawful activities. That was when Shri Kore, a farmer himself, gave the leadership to organize a cooperative movement involving the sugarcane farmers and also brought in the technical expertise from the Agricultural institutions of the state. The Warana PURA has since then evolved on a cooperative framework and implemented sustainable models based on the core competencies of the rural areas covering 69 villages and about 400,000 people in the region. This PURA model has more than 60,000 farmers, women entrepreneurs and villagers as their members.

Under the vision of Tatyasaheb Kore, the Warana PURA programme aimed at income generation through value addition to agro products. The Warana cooperative sugar factory has about 20,000 farmers as its members. There has been significant effort to upgrade technology and practices, which has reflected in the consistently

high sugar recovery rate of more than 12% which is almost 20% higher than the national average.

For the welfare of landless villagers, Tatyasaheb Kore envisioned and pioneered the creation of the Warana Poultry and Warana Dairy. A visionary like Tatyasaheb also realized that mere income generation would not fulfill the ambition of holistic development of the Warana region. The added income levels meant that there was a demand for better services and products. With the objective of delivering better living standard to the rural people of the Warana region the Warana PURA complex evolved innovative models in the service and retail sector. This vision of Tatyasaheb Kore led to the Warana Bazar (supermarkets). The Warana Bazar, managed by women, with its 58 stores, was the first consumer cooperative departmental store in rural India.

As part of social development of the area, focus has also been directed towards better educational facilities so that the children of the farmers are able to find the best education opportunities within the village complex. This has come in the form of institutions covering multiple disciplines of education, including engineering, pharmacy, medical, arts and vocational training. While I was in Warana I also visited the Warana Sugar Parliament, which is a mark of the empowerment in a democratic framework which the Warana PURA complex has provided to the farmers. I was impressed to see the building which closely resembled the Indian Parliament, echoing the message of Shri Tatyasaheb Kore which reverberates the faith in democratic, economic, social and educational empowerment of the grass-root level rural population.

The Warana PURA complex has a message that how a leader's vision with innovative missions, with focus on better technology and sound management, can fulfill the socio-economic objectives of creating a prosperous and happy society emanating from the bottom of the pyramid.

Research Results from my PhD Student

Friends, since I am with the student community, I thought of sharing the research results on mentally challenged children carried out by student Fr. AK

George. He has carried out ten scientific studies and worked out the guidance required to the nature of brain which helps one as to how to intervene with the brain for enhancing brain capabilities. Wiring together of neurons and firing in quick succession opens up vistas for creating high amount of connectivity in the brain. The need of providing challenge guides one to take the proper course of challenging the challenged brain to enhance its capabilities. The scientific study on feedback brings forth the need of positive as well as negative feedback in guiding the brain to right behavioral pattern. Shortening of paths by practice underlines the need of repetitions in the case of mentally challenged children. The role of both the hemispheres in execution of task, points to the need of training both the hemispheres. The role of proper exercises to wire the brain underlines the need of having the proper exercises to enhance the brain capabilities.

Invitation from European Parliament of 27 Countries

When I received the invitation from the President of European Union to address the European Parliament of 27 countries having 800 members, I considered this as a very important opportunity to present a road-map for promoting a conflict free world. When I reached the European Parliament at Strasbourg, it was a great sight to see the whole Parliament waiting for a very important address on the topic "Dynamics of Unity of Nations" where I focused that unity of nations is definitely possible through "Confluence of civilizations". I put forth three major thoughts to this audience which I thought of sharing with you friends.

1. European nations were fighting for 100s of years and generated two world wars. Today the 27 nations of Europe have come together in a Parliament for promoting peace and prosperity of the nations. This

is a beautiful mission and is an example for regional economic cooperation. It has to spread to all the continents of the world.

2. I putforth the idea of world knowledge platform, how Nations have to work together with their core-competencies for a win-win situation and reducing the tensions among many Nations, by brining equitable economic prosperity.
3. The third idea, I proposed was the evolution of enlightened citizens, which has three components: education with value system, bringing unity of religions through spirituality which is common to all religions based on India's experience, and removing societal inequality and bringing prosperity through a comprehensive national vision.

Conclusion: What I will be Remembered for

Finally, I would like to ask you, what would you like to be remembered for? Very soon, you will graduate from your institutions, and carry the legacy of your alma mater. You will have the responsibility to live upto this reputation, in thought and action. Hence, you have to evolve yourself and shape your life. You should write it on a page. That page may be a very important page in the book of human history. And you will be remembered for creating that one page in the history of the nation? whether that page is the page of invention, the page of innovation or the page of discovery or the page of creating societal change or a page of removing the poverty or the page of fighting injustice or planning and executing mission of networking of rivers. There is a need to give a vision to your ambitions. What is that mantra? Yes, the mantra is the following: "What I will be remembered for". If you find an answer to this question in a few lines, that "out-of-the-box idea" will drive you for the rest of your life.

APJ Abdul Kalam is a notable scientist and engineer and has served as the President of India from the period 2002 to 2007. He has been honored with some of the India's highest civilian awards like Padma Bhushan, Padma Vibhushan and Bharat Ratna.