Engineer as Great Leaders

Group #6

Azraf Taohid Akib (202330044)

Md. Mushfiqur Rahman Nafis (202330045)

Bazlur Rasid (202330048)

Renaisa Ratul (202330049)

Tanvir Ahmed Talha (202330050)

Nusrat Mim (202330051)

Military Institute of Science and Technology

GELM 275: Leadership and Management

Brig Gen Md Mahboob Sarwar

02/06/2024

Engineer as Great Leaders

The following is a case study on "APJ Abdul Kalam Azad", an engineer who became a great leader. The purpose of this study is to delve into his early life, expertise, contributions, and the leadership qualities that made him an enduring icon. We will explore how engineers can become transformative leaders, driving innovation and societal progress.

Division of Work

1. *Research & writing (biography):* Tanvir Ahmed Talha
2. *Research & writing (expertise):* Renaisa Ratul
3. *Research & writing (contributions):* Md. Mushfiqur Rahman Nafis
4. *Research & writing (leadership traits):* Bazlur Rasid
5. *Research & writing (leadership lessons):* Nusrat Mim
6. *Presentation coordination & paper compilation:* Azraf Taohid Akib

Biography

- Kalam was born on 15 October 1931, to a Tamil Muslim family in the pilgrimage centre of Rameswaram on Pamban Island.
- His father Jainulabdeen Marakayar was a boat owner and imam of a local mosque.
- He was the youngest of four brothers and one sister in his family.
- In his school years, Kalam had average grades but was described as a bright and hardworking student who had a strong desire to learn.
- He graduated in Physics in 1954 from St. Joseph's College, Tiruchirappalli.
- He moved to Madras in 1955 to study aerospace engineering in Madras Institute of Technology where he impressed the Dean by meeting a difficult deadline.
- Kalam died on 27 July 2015 due to a sudden cardiac arrest.

Expertise

A.P.J. Abdul Kalam had expertise in a variety of aspects.

Aerospace engineering and technology

A.P.J. Abdul Kalam had a great expertise in aerospace engineering as he worked at the Indian Space Research Organisation (ISRO) and the Defence Research and Development Organisation (DRDO). He was a key figure in India's civilian space program.

Missile development

Kamal played a crucial role in the development of India's ballistic missile technology. His contribution to the development of the Agni and Prithvi missiles earned him national and international acclaim.

Leadership

He had a great experience in leadership as he led numerous significant projects such as SLV-111, India's first satellite launch vehicle. His leadership extended beyond technical contributions.

Education and inspiration

A.P.J. Abdul Kalam was a passionate educator and writer. He authored several books including 'Wings of Fire', 'India 2020', 'Ignited Mind'. His books and his quotes are truly inspiring.

Presidency and public service

As the president of India (2002-2007), A.P.J. abdul Kalam was widely respected and admired. He promoted education, innovation and national development earning him the nickname 'People's President'.

Contributions

Dr. APJ Abdul Kalam's contributions spanned various domains, making him a symbol of India's scientific excellence and technological advancements.

Space Technology

SLV III

As Project Director, Dr. Abdul Kalam was instrumental in the development of India's first indigenous Satellite Launch Vehicle (SLV-III), which successfully injected the Rohini satellite into

near-Earth orbit in July 1980. This achievement catapulted India into an exclusive club of space-exploring nations.

PSLV

He was in charge of the evolution of ISRO's launch vehicle program, specifically the PSLV (Polar Satellite Launch Vehicle) configuration.

Defense and missile technology

Ballistic missiles

Kalam oversaw projects Devil and Valiant, leveraging SLV technology to develop ballistic missiles.

IGMDP

Under his leadership, the Integrated Guided Missile Development Program (IGMDP) produced the Agni and Prithvi missiles, enhancing India's defense capabilities.

Pokhran-II

He was a pivotal figure in India's nuclear tests at Pokhran in 1998, which demonstrated India's nuclear capability and strengthened its security.

Despite criticism, his unwavering pursuit of scientific excellence laid the groundwork for India's nuclear and space capabilities.

Healthcare

Kalam-Raju Stent

Collaborating with cardiologist Soma Raju, Kalam developed a low-cost coronary stent, significantly reducing the price of stents in India.

Kalam-Raju Tablet

In 2012, they developed a rugged tablet for rural healthcare administration.

Others

Empowerment of youth

He actively encouraged Indian youth to pursue careers in science and technology.

Social justice

Kalam championed social justice and worked to improve the lives of marginalized groups.

Technology Vision 2020

As Chairman of the Technology Information, Forecasting, and Assessment Council, he led efforts to create a roadmap for India's transition to developed status.

Leadership traits

Visionary clarity

Dr. Kalam passionately pursued a vision of a developed India, driven by technology and innovation. His ability to articulate and inspire his team with this vision was a hallmark of his leadership, motivating them to work collectively towards this shared objective.

Courageous decision making

Dr. Kalam was known for his fearless decision-making. He understood that true leadership often required making difficult choices. He remained unswayed by popular opinion, following his conscience to make decisions he believed were in the nation’s best interest.

Success failure management

He managed both success and failure with grace. Dr. Kalam always credited his team for their accomplishments, viewing their success as his own. Conversely, he took accountability for failures, using them as learning opportunities and a means to grow.

Transparent communication

Transparency was essential in Dr. Kalam’s leadership style. He valued clear, open communication and maintained honesty with his team. By encouraging team members to express their ideas and opinions freely, he ensured that every voice was heard, building a foundation of trust and collaboration.

Humble leadership

Dr. Kalam believed genuine leadership was about serving others rather than displaying authority. He used his influence to empower and positively impact people’s lives. Despite his

numerous accomplishments, he remained grounded and approachable, always acknowledging the support and guidance he received from others.

Listening skills

He valued listening to others' opinions and believed in learning from their experiences and perspectives. Dr. Kalam frequently interacted with young minds, referring to these exchanges as the "Wonders of Life." He felt it was his duty to inspire youth to reach their full potential.

Empathy and accessibility

Kalam's leadership was not just about achieving goals; it was also about connecting with people on a human level. His empathetic approach made him a beloved leader among all sections of society.

Leadership lessons

Everything is possible

Dr. Abdul Kalam, former President of India, rose from as the son of a boat owner to the highest office in the country. His journey, marked by hard work, dedication, and sincerity, demonstrates that anything is possible.

Leaders care, share, and maintain transparency

Kalam dedicated his life to learning and sharing knowledge. He valued transparency and sincerity, fostering growth and development by imparting everything he learned to those he encountered.

Leaders humble themselves

Kalam's rise to power only further humbled him. He used his positions to make others feel stronger and more valued, emphasizing that true leadership elevates others rather than oneself.

Leaders look for solutions to problems with innovative mindset

Dr. Kalam applied missile technology to healthcare, creating the affordable Kalam-Raju Stent and lightweight calipers for children. His innovative mindset solved critical problems.

Conclusion

Dr. Abdul Kalam, known as the 'Missile Man of India', is exemplified as the ideal of an engineer who is a great leader. From the son of a boat owner to the highest office in India, his life story is a testament to the power of perseverance, vision, and integrity. As we reflect on his journey, let us draw inspiration from his words: "A Leader must have vision and passion and not be afraid of any problem. Instead, he should know how to defeat it. Most importantly, he must work with integrity".

References

A. P. J. Abdul Kalam, Wikipedia, https://en.wikipedia.org/wiki/A._P._J._Abdul_Kalam

Dr. A. P. J. Abdul Kalam, The President of India, https://www.presidentofindia.gov.in/abdulkalam/profile

Dr. A P J Abdul Kalam Biography, Vedantu, https://www.vedantu.com/biography/dr-apj-abdul-kalam-biography

Achievements of APJ Abdul Kalam, Unacademy, https://unacademy.com/content/ssc/study-material/general-awareness/achievements-of-apj-abdul-kalam

8 leadership lesson from apj abdul kalam, Slideshare, https://www.slideshare.net/slideshow/8-leadership-lesson-from-apj-abdul-kalam/249988967