

Keys to Become a Successful Engineer



- **Knowledge**
- **Certification**
- **Networking**



The International Association of Certified Practicing Engineers is a partnership of academics, practical engineers and those striving to increase their knowledge and boost their career.

The goal is to build an organization that would validate a candidates' engineering fundamentals, prove their individuals skills, and enhance their networking ability.

Knowledge

Provides a standard of professional competence and ethics for engineering, maintenance and operations personnel.

Encourages engineering, maintenance and operations personnel to participate in a continuing education program of personal and professional development



Knowledge

The broad knowledge base that you will gain from the modules will make you perform much better in an interview.

They will assist you in your career and future master's studies



Certification

Identifies and recognizes those individuals who meet the standard

As our network grows there will be people looking to hiring someone with this qualification

In five years it may be you that is hiring



Networking

- **We currently have 12 Partner Universities (Dec 2018)**
- **We currently have about 600 members world wide**
USA Middle East Africa India
Malaysia Thailand Indonesia
- **Goals – In five years have 5000 members all over the world**
- **This Network for your career will be very important**

Networking

The best jobs will come from a referral when one of your friends has recommended you

Hiring someone with this qualification



Starting / Building IACPE



- 1. We began writing the Kolmetz Handbook of Process Equipment Design in 2007. We are honored it has been well received all over the world.**
- 2. We would get emails from students asking for student discounts. The Handbook is mostly purchased by companies so the cost was high for students.**

Starting / Building IACPE



- 3. In June 2014, we developed an idea to start an Engineering Association and utilize the handbook to train and certify individuals at a student rate. We are now in our 5th year of the association.**
- 4. In April 2015, we started Engineering Practice Magazine.**

Engineering Practice Magazine



The first Issue of Engineering Practice Magazine was April 2015.

2019 is our 5th year and the readership is approaching 5,000 per issue.

You should consider publishing and advertising in Engineering Practice Magazine



IACPE has three Levels

CPE Level 1

CPE Level 2

CPE Level 3

IACPE has three Levels

CPE Level 1 – assures fundamentals of engineering

CPE Level 2 & 3 – takes the fundamentals and gives practical knowledge you will utilize the rest of your career

We have had multiple people respond that the CPE Modules have assisted them in their Master Degree Studies.

Universiti Malaysia Pahang has started utilizing Level 2 and 3 in a Masters Degree Program.

Masters In Process Plant Management

This Practical Knowledge is what we are utilizing to help in the Master's Degree Program.

Keys to Become A Successful Engineer

Keys to Becoming a Successful Engineer

- 1. What is Success**
- 2. Understand Who You Are**
- 3. What Are Your Resources**
- 4. Education**
- 5. Horse vs Camel**
- 6. Make Art**
- 7. Learn from Failure**

What is Success

There are different meanings of success at different ages of your life.

Success changes as you age.

What is Success

At age three - Success is not wetting your pants.



What is Success

**At age ten - Success is cooking
for yourself.**



What is Success

At age twelve - Success is having friends.



What is Success

At age seventeen - Success is having a driving license.



What is Success

At age twenty - Success is having a more than a friendship relationship.



What is Success

**At age thirty five - Success is
having money for shallow people.**



What is Success

At age fifty - Success is plenty of money for very shallow people.



What is Success

**At age sixty - Success is still having
a more than a friendship relationship.**



What is Success

**At age seventy - Success is still
having a driving license.**



What is Success

**At age seventy five - Success is
having friends**



What is Success

**At age eighty – Success is
cooking for yourself**



What is Success

**At age ninety – Success is not
wetting you pants**



What is Success

**I am 63 – and I am still driving –
so I am a success**



What is Success

What is success for non shallow people – what do you consider success?

Where do you want to be at 63?

What is Success

**This is what I consider success
for non shallow people – what do
you consider success?**

- 1. Health**
- 2. Friendships**
- 3. Family**
- 4. Stable Financially**
- 5. Giving Back**

What is Success

Maintain your health:

You will not be successful or wealthy without maintaining your health.

Maintaining your health does not require major knowledge, but it is difficult to accomplish; eat healthy and exercise. For many people, both are hard to maintain.

What is Success

Friendships:

Remember the most valuable antiques are dear old friends - H Jackson Brown

A friend of mine's child died. I asked my dad, what should I say to him? My dad answered – you do not have to say anything, just go stand by his side.

What is Success

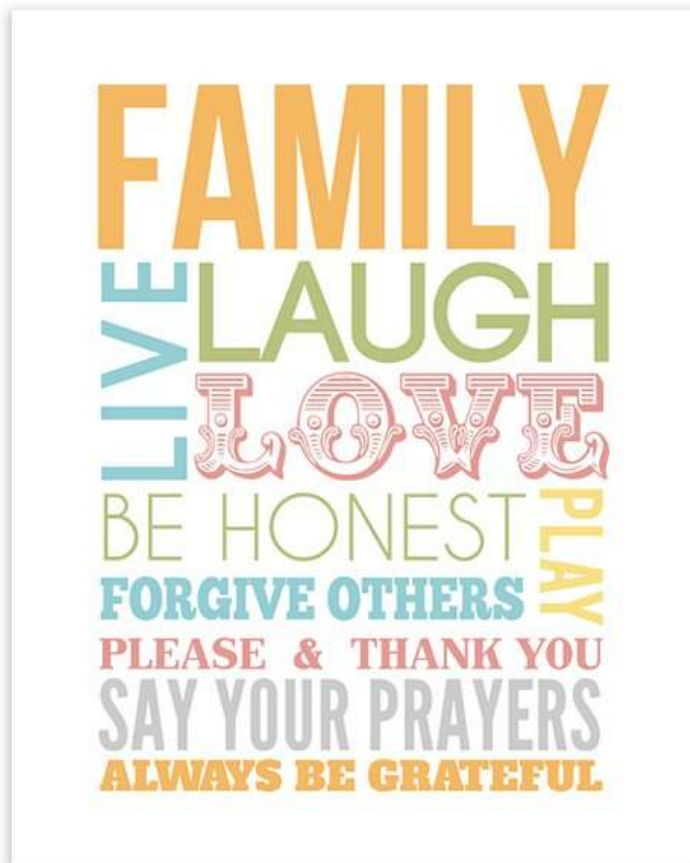
Friendships:

You will move in the direction of the people you associate with. You need to associate yourself with the kind of people, that you would like to become.

The friends you have, will form you as you go through life, make good friends, and keep them the rest of your life.

What is Success

Family



What is Success

Family



What is Success

Stable Financially

Having enough money so that you can make the decisions that you want to make about;

Health

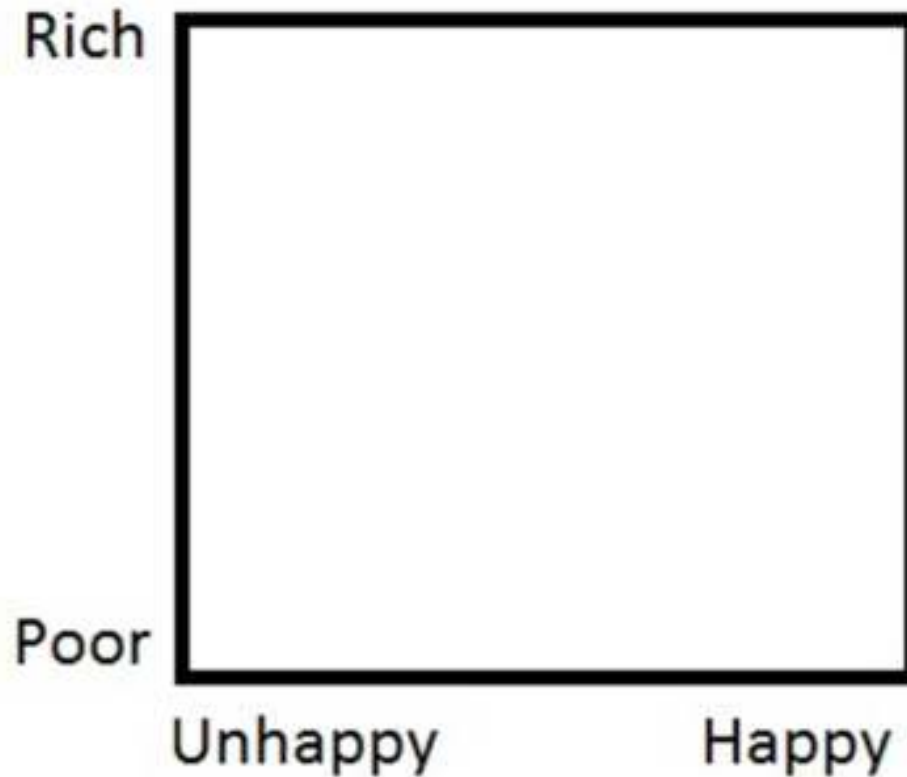
Friendships

Family

Giving Back

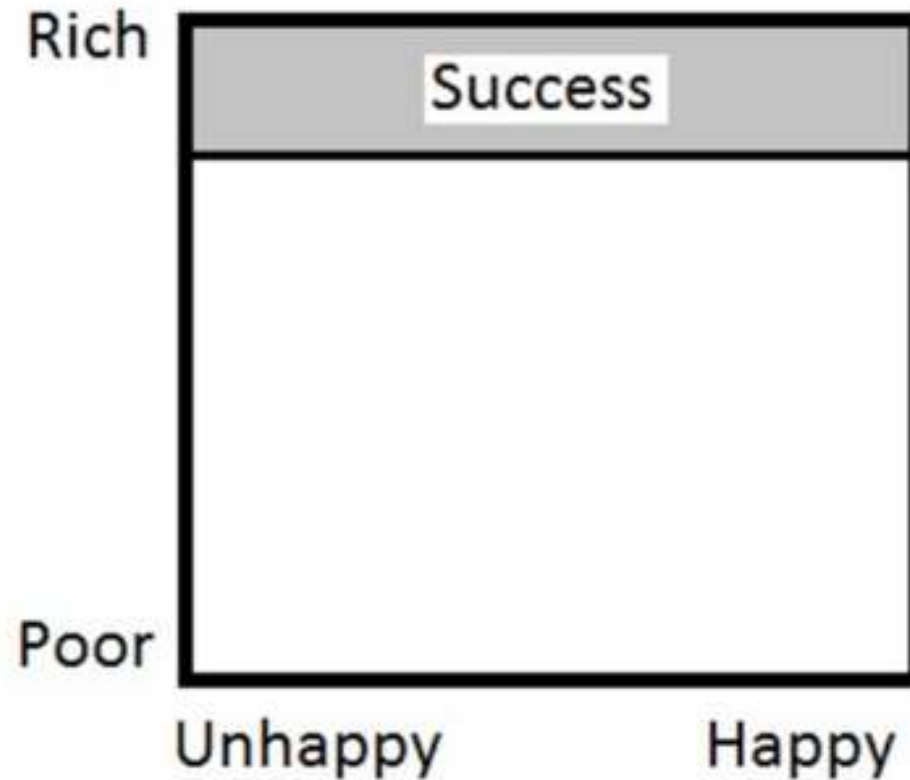
What is Success

Stable Financially



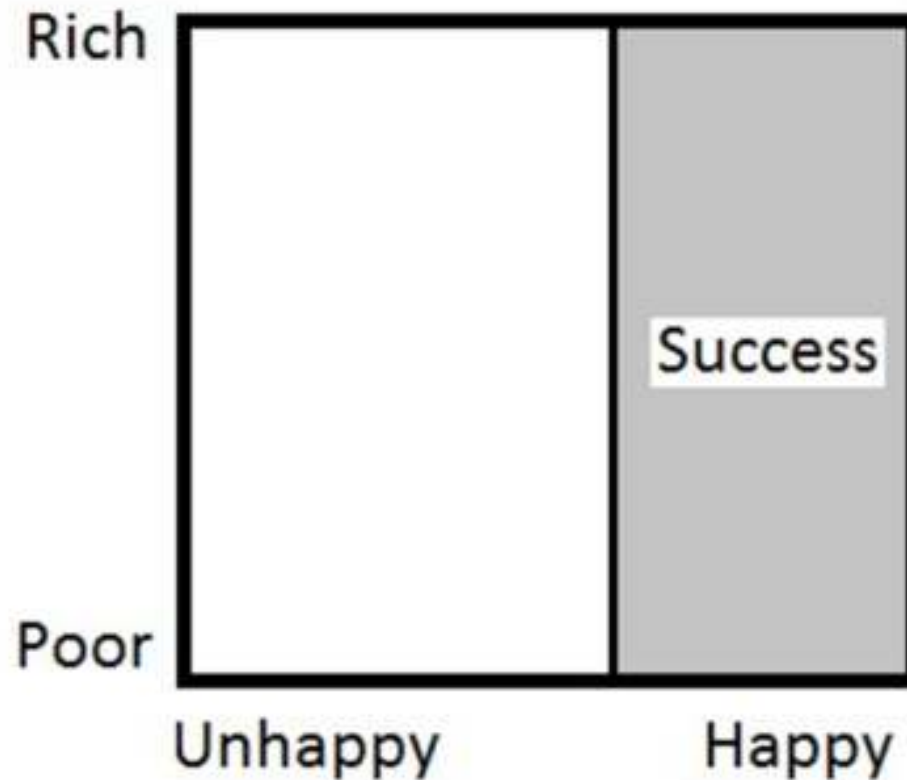
What is Success

Stable Financially



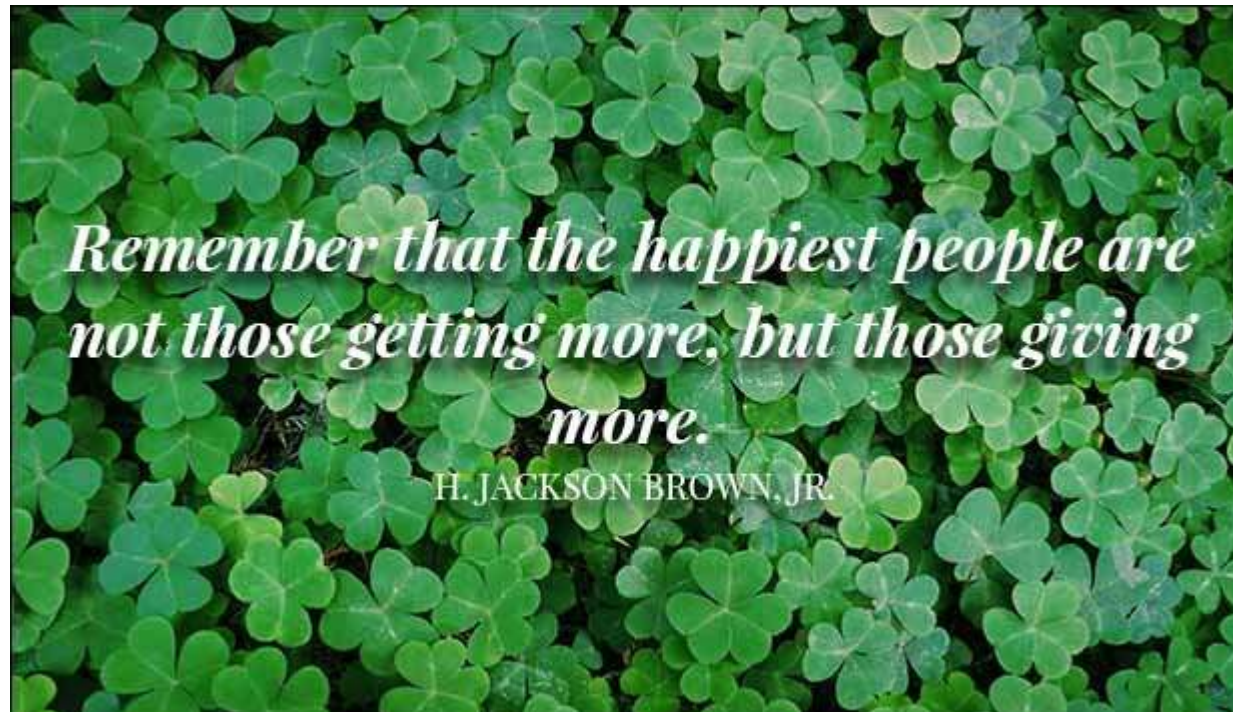
What is Success

Stable Financially



What is Success

Giving Back



How can I be Successful?

- 1. Health**
- 2. Friendship**
- 3. Family**
- 4. Stable Financially**
- 5. Giving Back**

2. Understand Who You Are

**You need to understand who you are
and what is possible. You need to
assess yourself**

What is your IQ

What is your Personality

What is your EQ

2. Understand Who You Are

What is IQ

"The whole of cognitive or intellectual abilities required to obtain knowledge, and to use that knowledge in a good way to solve problems that have a well described goal and structure."

Your ability to learn – there are many people with very high IQs that are not successful.

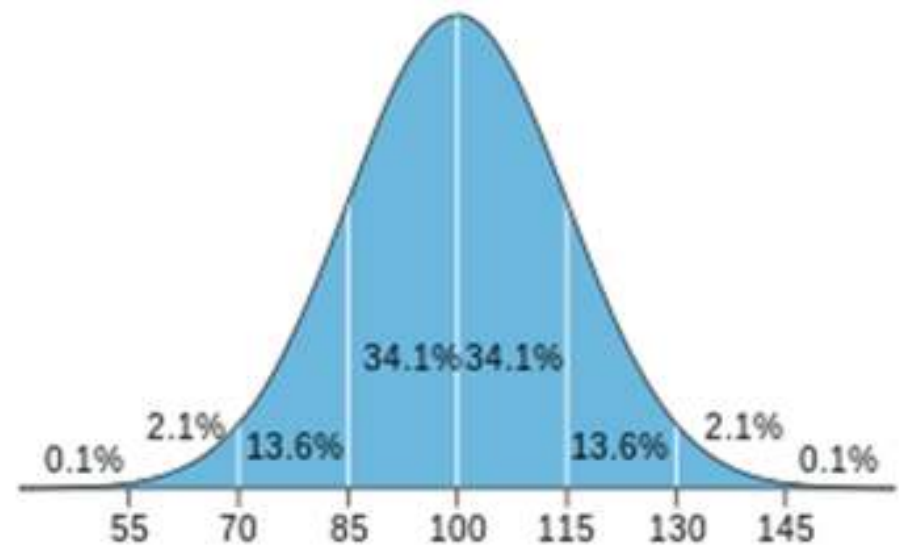
2. Understand Who You Are

What is your IQ

If you are higher than 120 – you are in the top 10% of the world – you need about 110 to 115 to pass calculus.

If you are higher than 130 – you are in the top 2% of the world.

If you are higher than 145 – you are in the top 0.1% of the world



2. Understand Who You Are

What is your IQ

Go take an IQ Test – there are many free ones on the web – take several – look at the average of your scores

This is your ability to learn – If you are below 110 – you can still be very successful – you just have to study harder than some one with 125

2. Understand Who You Are

What is your Personality

- 1. Are you shy – may not want to do public speaking**
- 2. You need to understand who you are and what is possible**
- 3. You need to assess yourself**

2. Understand Who You Are

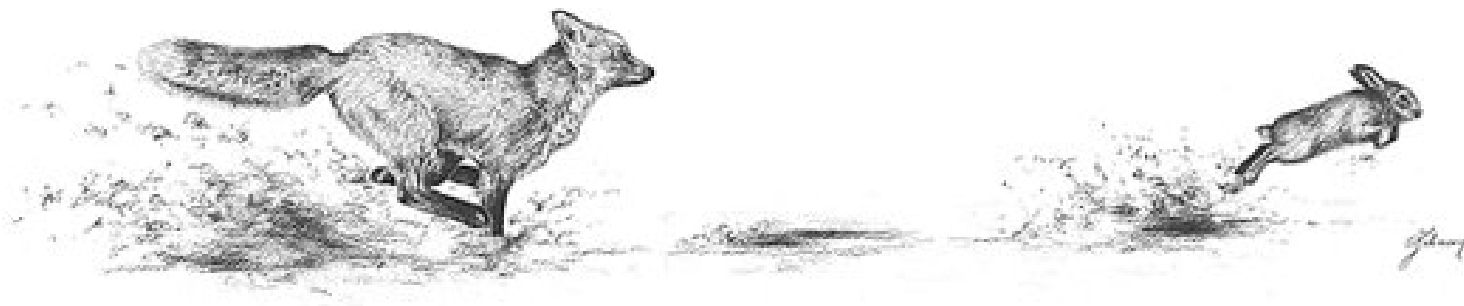
What is your Personality

- 1. Take a SWOT Review**
- 2. Take a Briggs / Meyers Personality Test
– free on the internet**
- 3. Ask someone you trust and like to
analyze you**

2. Understand Who You Are

What is your Personality

1. Figure out what you are good at, and concentrate your efforts in those areas.
2. A smart fox only chases one rabbit.



2. Understand Who You Are

What is EQ

“Your EQ is the level of your ability to understand other people, what motivates them and how to work cooperatively with them,”

How well you work and play with others.

2. Understand Who You Are

What is Your EQ

Most engineers like to think that being smart is all that matters.

Engineers tend to think of themselves as race horses – will win any race



2. Understand Who You Are

What is Your EQ

If you have a 145 IQ (top 0.1% of the world) and you will have a brilliant research career this is true. You do not have to work and play well with others.

If you have a 120 IQ and 10% of the world is just as smart as you are – your EQ matters.

2. Understand Who You Are

What is Your EQ

If you have a 130 IQ and only 2% of the world is just as smart as you are – your EQ still matters.

If you are smart and kind – people will help you.

2. Understand Who You Are

What is Your EQ

If you are smart and not polite – people will go out of their way not to help you.

Some will actually try to hurt your career and succeed.



3. Resources

Resources

Today you have unlimited access to knowledge. The internet started in 1990's. This was my internet as a child.



3. Resources

Resources

Prior to the 1990s you needed access to books and knowledge.

Prior to 1990s there was a distant advantage for students that has access to good libraries.

3. Resources

Resources

Today you are on equal playing field with every student in the world.

Today, if someone obtains more knowledge than you, it is because they worked harder than you.

3. Resources

Take advantage of the enormous opportunities the information age presents.

You have everything you need to go make something meaningful. Something you may deeply care about.

3. Recourses

Go Back to Your EQ

The development of good interpersonal skills is tantamount to success in your life and career.

In today's always-connected world, everyone has immediate access to technical knowledge.

Thus, “people skills” are even more important now because you must possess a high EQ to better understand, empathize and negotiate with others in a global economy.

4. Education

Education then, beyond all other devices of human origin, is the great equalizer of the conditions of men, the balance-wheel of the social machinery.

Horace Mann - 1848

4. Education

Education – The amount of knowledge that you have acquired.

What percent of your education will you acquire in college?

4. Education

I am 63 years old – my father passed away at 87, my mother is still alive at 88. There is a good chance that I will live to be 85.

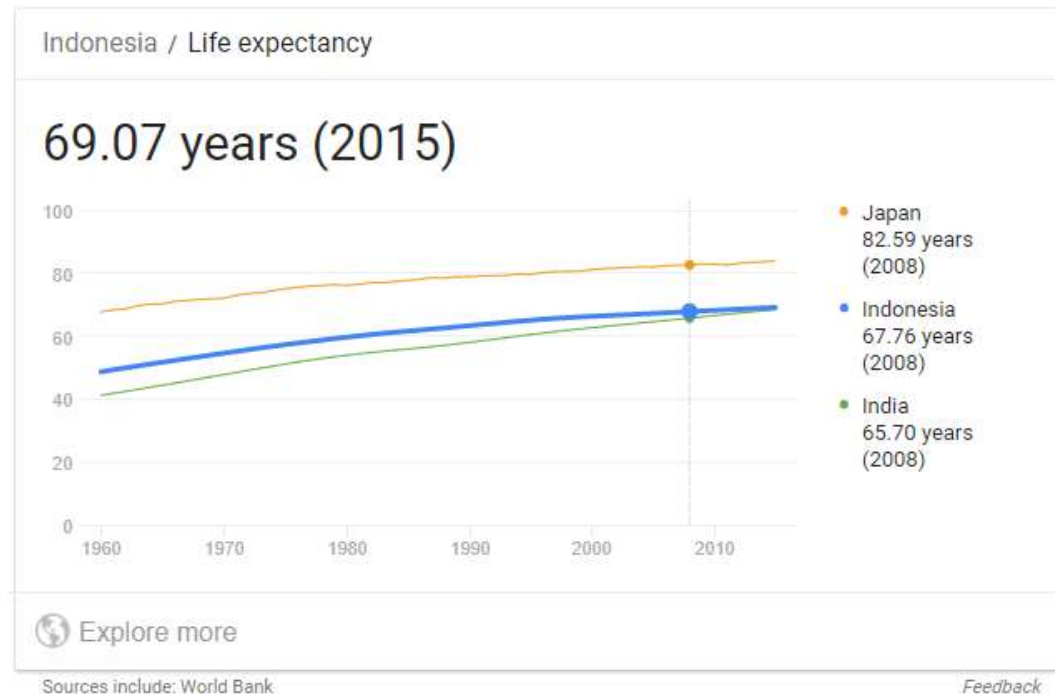
Average live span in the USA is about 78 years. In the last 50 years life span has increased 18 years.

If in the next 50 years life span increases 18 years - my son may live to be about 100.



4. Education

Most students are less than 25 years old. Lets take Indonesia as an example. Average live span in Indonesia is about 69 years. Since 1960 it has increased 24 years. There is a good chance if you are less than 25, will live 90+ years.



4. Education

Ask the Question Again

What percent of your education will you acquire in college?

Most people think they have acquired most of their education in college.

4. Education

Ask the Question Again

What percent of your education will you acquire in college?

4 / 90 is about 5% - lets be nice and say 10%

At age 30 – you should have acquired 30% of your knowledge

4. Education

A large problem in the world is that most people stop learning below age 20, and many have less than 10 years actual training.

There is a direct relationship between the amount of knowledge you obtain and your happiness in life.

Most of this knowledge will be gained outside of a class room.

4. Education

If you are going to be world class you must continue your education (studying learning) every year of your life.

The best people are those who continue to learn all of their life.

This is why we put two hours continuing education in IACPE. Maybe we need to raise this – two hours is not nearly enough.

5. Horse vs Camel

Which is better for a race – a horse or a camel?



5. Horse vs Camel

Which is better for a race – a horse or a camel?

It has to do with the length of the race. For a 5km race, a horse might be best.

For a 300km race, a camel might be best.

5. Horse vs Camel

Horses

- 1. They need food and rest daily**
- 2. They can survive about five days without water**
- 3. Easy to break a leg**
- 4. Easy to develop stomach issues called colic - can only eat special diet**
- 5. Very temperamental – they will actually hurt themselves**
- 6. Need constant attention**

5. Horse vs Camel

Camels

- 1. A camel can easily survive a journey without water for three days, and in cool weather it can live without water for as long as a month by feeding on vegetation.**
- 2. They can eat cactus – live on almost any vegetation.**
- 3. Camels can travel 200km per day carrying a rider. Arabian baggage camels are heavier build and capable of carrying a 200 kg load up to 100km per day.**

5. Horse vs Camel

- 1. Horses are temperamental and more or less or pets.**
- 2. Camels do the hard work that is required – solid contributor to any team.**
- 3. You are getting ready to run a 90 year race – which are better attribute's to have in for your race?**
- 4. Temperamental or Solid Contributor**

6. Make Art

1. Art is not just about the canvas or the gallery. It's all around us. Art is what we're doing when we do our best work.



6. Make Art

2. Humans have amazing capacity to create anything, no matter how small, out of nothing.

Every occupation – from painter to business person, engineer, teacher to chef – requires us to imagine, create, and execute ideas.



6. Make Art

3. No matter what task you have – do it the very best you can – make art.
4. Even if you are sweeping the floor – do it the best you can, and people will notice – and open doors of opportunity for you.



6. Make Art

It will not work so well if you sweep things under the rug – life has a way of equaling things out.

If you consistently do good work, people will notice slowly. If you consistently do poor work, people will notice quickly.



7. Learn from Failure

Who here has failed before?

If you are honest – it is 100%.



7. Learn from Failure

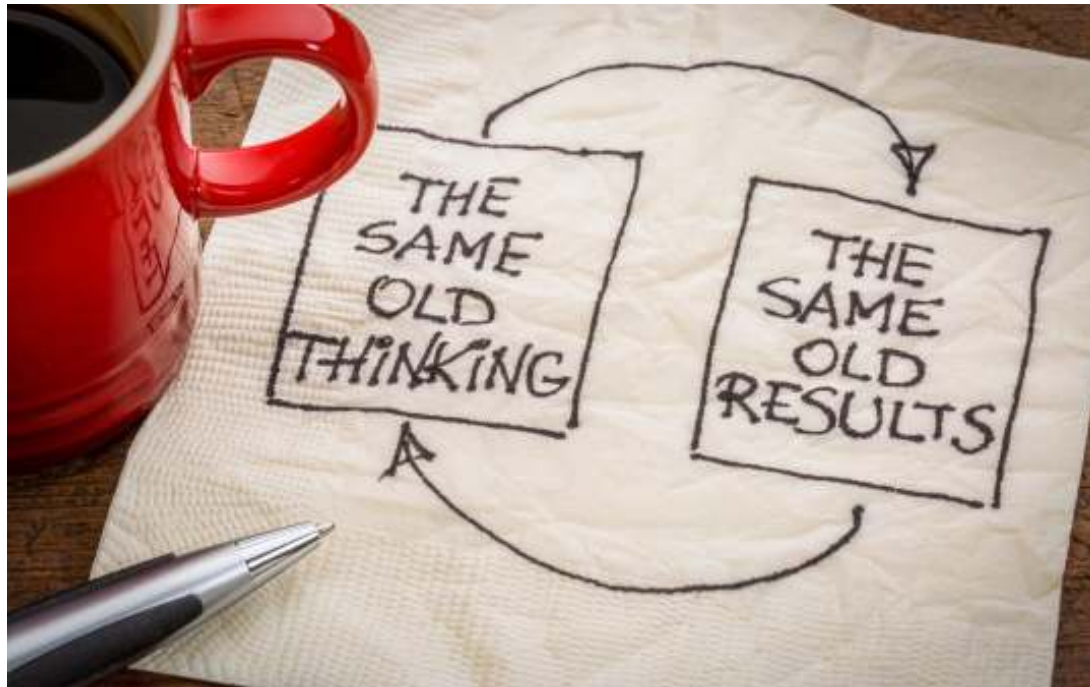
Failure is a fundamental part of success.

F.A.I.L.

First Attempt In Learning

7. Learn from Failure

The Past = The Future
Perfect Formula for Misery



7. Learn from Failure

**The Past = The Future
Perfect Formula for Misery**

**The Future does not equal the Past if
You learn from your failures**



7. Learn from Failure

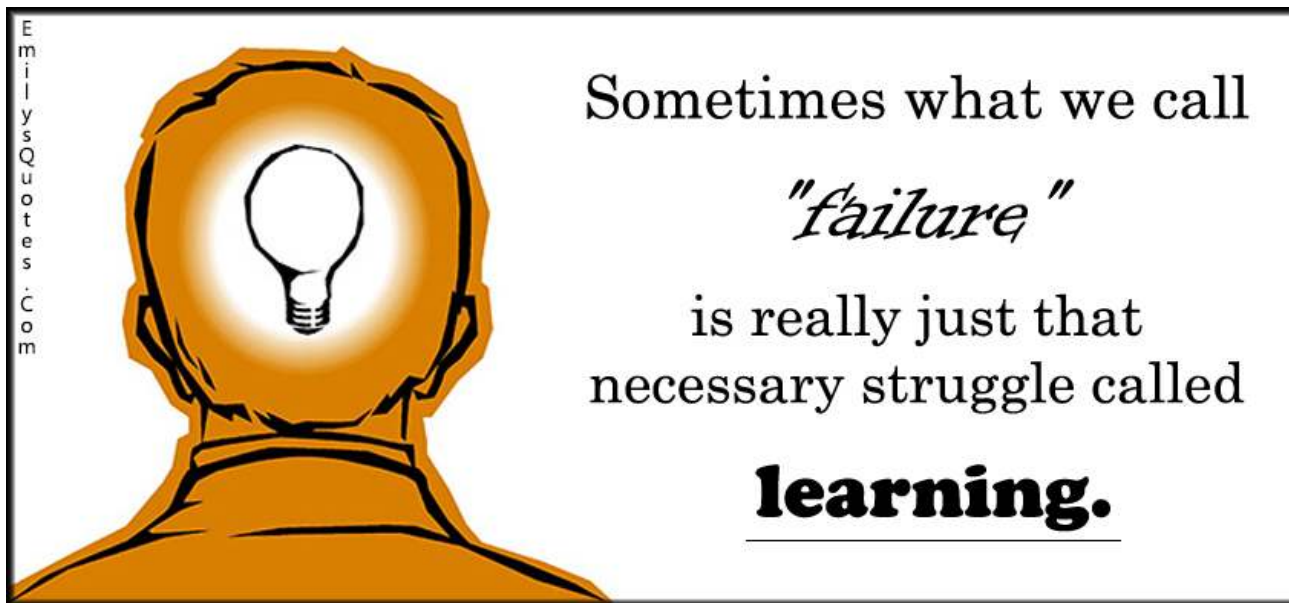
Fear of failure (or even fear of success) often prevents us from taking an action and putting our creation out there in the world.



7. Learn from Failure

Nothing will ever be perfect, no matter how much we try.

But a lot of opportunities will be lost if we wait for things to be right.



The Best People in the World

- 1. Work Hard**
- 2. Kind and Honest**
- 3. Act like a Camel**
- 4. Make Art**
- 5. Learn From Failure**

Keys to Become a Success Engineer

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IACPE has three Levels

CPE Level 1

CPE Level 2

CPE Level 3

IACPE has three Levels

CPE Level 1 – assures fundamentals of engineering

CPE Level 2 & 3 – takes the fundamentals and gives practical knowledge you will utilize the rest of your career

CPE Level I

- **CPE Level I candidate would: Study and understand the six (6) Fundamental Engineering Training Modules**
- **Review a sample test of one hundred (100) questions on each of the six (6) Fundamental Engineering Training Modules**
- **Pass a test of twenty-five (25) questions from each of the six (6) Fundamental Engineering Training Modules**

Fundamentals of Solid and Fluid Mechanics

Fundamentals of Thermodynamics Heat and Mass Transfer

Fundamentals of Engineering Materials and their Strength

Fundamentals of Physics and Electromagnetism

Fundamentals of Inherently Safer Equipment Design

Professional Engineering Ethics Part 1

The value of these modules if purchased separately would be greater than USD \$1,000.00

CPE Level II

- **Enrollment in CPE Level II would follow the completion of CPE Level I. CPE Level II candidate would: Study and understand the three (3) required and four (4) of the other listed Fundamental Engineering Training Modules**
- **Attend one (1) webinar (internet based training)**
- **Review a sample test of one hundred (100) questions on each of the six (7) chosen Fundamental Engineering Training Modules**
- **Pass a test of twenty-five (25) questions from each of the seven (7) chosen Fundamental Engineering Training Modules**
- **Complete a unique design assignment to certify Fundamental Engineering Training Modules understanding**

CPE Level II

Required Modules (3)

Piping Fluid Flow Hydraulics Line Sizing and Material Selection
Project Management
Statistical Process Control

Additional Modules (4)

Choose four additional modules from the 50+ chapters of the Kolmetz Handbook of Process Equipment Design.

These seven modules are valued at USD \$3,500.00 if bought separately at KLM Technology Group Website. The real value of the CPE Certification is Level II and Level III.

CPE Level III

The three (3) required Curriculum Modules for CPE Level III include:

**Production Control Engineering
Professional Engineering Ethics Part 2
Professional Reports and Presentations**

Additional Modules (4)

Choose four additional modules from the 50+ chapters of the Kolmetz Handbook of Process Equipment Design.

These seven modules are valued at USD \$3,500.00 if bought separately at KLM Technology Group Website. The real value of the CPE Certification is Level II and Level III. Total value is over USD \$8,000.00.

- **Knowledge**
- **Certification**
- **Networking**





Thank You

