

Introduction

The importance of intuition

How could we mould a highly intuitive workforce?

Conclusion

Importance of Intuition in Engineering

Vipin Ajayakumar

Rolls-Royce

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2 The importance of intuition

- What is intuition?
- How is intuition helpful?
- Why is intuition particularly relevant today?

3 How could we mould a highly intuitive workforce?

- Natural factors in developing intuition
- Promoting intuition in the workplace

4 Conclusion

About me

- Aeroacoustics Engineer



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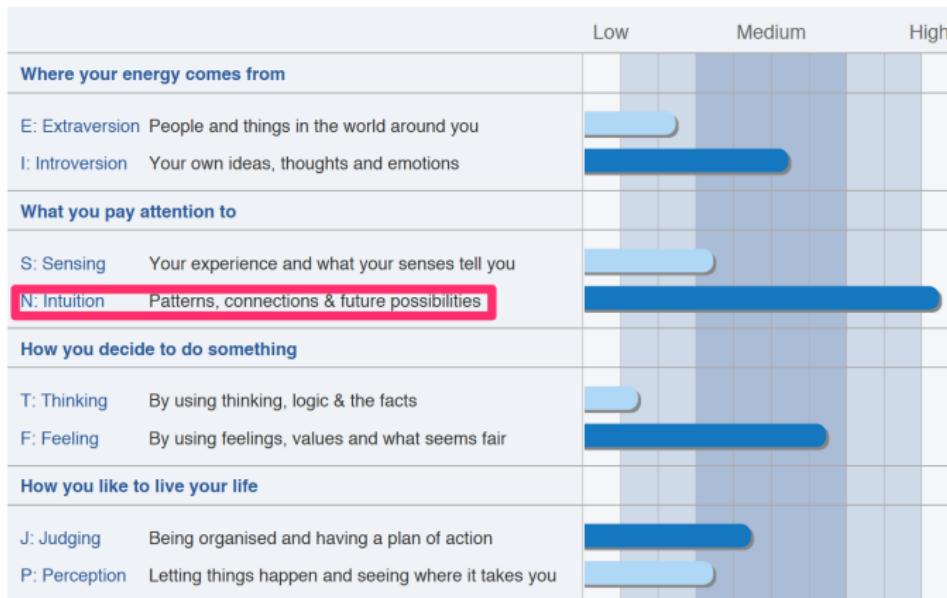
About me

- Aeroacoustics Engineer
- Data analysis and visualisation



Source

Some of us are dependent on intuition!



Context



Figure 1: In the past, the slow pace of work forced us to think

Source

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Intuition

Definition

The Oxford Dictionary defines **intuitive** as using or based on what one feels to be true even without conscious reasoning.

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What is intuition?

How is intuition helpful?

Why is intuition particularly relevant today?

Example



Figure 2: Driving

Source

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What is intuition?

How is intuition helpful?

Why is intuition particularly relevant today?

Example



Figure 3: Deciding whom to marry

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Example



Source

"That doesn't look right. Can we check the calculations again?"

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Deal with complexity

- Instinctively understand what information is unimportant
(Gigerenzer 2007)



Figure 4: Machines can't do what we can, at least not yet!

Source

High quality decisions in very little time

"From a managerial perspective, the speed of intuiting is not only taken for granted but is often seen as a primary motivator for developing and employing intuition at work (Dane and Pratt 2007)."



Figure 5: Intuition is fast!

Source

Continued career progression

"The effective use of intuition has even been seen as critical in differentiating successful top executives and board members from lower-level managers and dysfunctional boards (Dane and Pratt 2007)."



Figure 6: For a climber intuition is a necessity

Source

Intuitive tools cost less time in the long run

- Tools that employees use repeatedly
 - Organisational structures
 - Processes
 - User guides
 - Websites
 - Computer programs [off the shelf and in-house]
 - Data
 - Machinery
- Reduced training costs, times
- More effective training
- Reduced tool usage times



Figure 7: Intuitive designs are "understandable without the use of instructions" (Humphries 2012)

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Our work is getting more and more complex

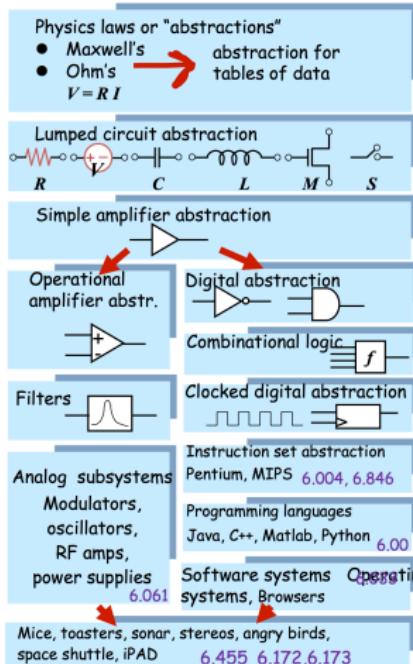


Figure 8: Lumped abstraction (MIT 2017)

Rapidly changing environments

- The business environment is changing more rapidly than ever before
- Intuition helps us focus on what is important, and to seize opportunities

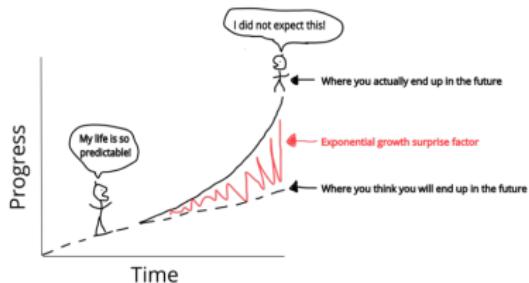


Figure 9: Exponential growth

Source

People are staying in the same job for less time!

- Job-hopping is on the rise
- Less time to develop intuition
- Potential loss of expertise

Average Number of Companies Each Cohort Worked For

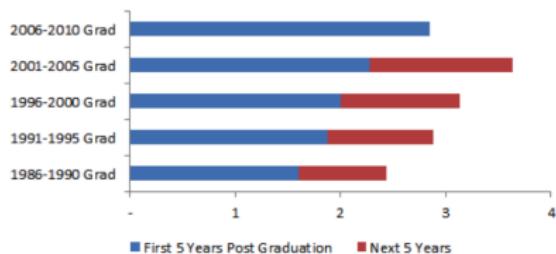


Figure 10: Job-hopping is on the rise
(Berger 2016)

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Natural factors in developing intuition



Figure 11: Intuition comes naturally with time, repetition and experience, but time is a finite resource

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Hold on to our employees - Retention rates

- Show an appreciation
- Provide exposure to a lot of opportunities
- Offer training and development
- Encourage job changes between related disciplines
- ... this topic is worth a presentation on its own right



Figure 12: A good salary isn't enough to keep good employees.

Source

Invest in intuitive tools

- Invest upfront in developing really good, intuitive User Interfaces [UI]
- This would require training people to create good UIs
- People are generally bad at designing tools for themselves or their teams!
- **The lifecycle costs of using those tools will be much less as a result**



Figure 13: The iPod click wheel

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Explicit training - Active

- Analogy
- Online lectures
- Static images
- Animations
- Interactive animations
- Augmented reality
- Virtual reality

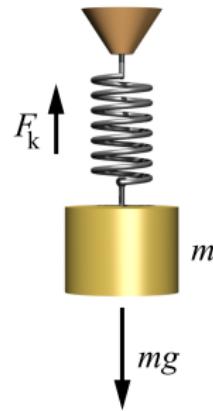


Figure 14: The famous mass-spring analogy

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Explicit training - Active

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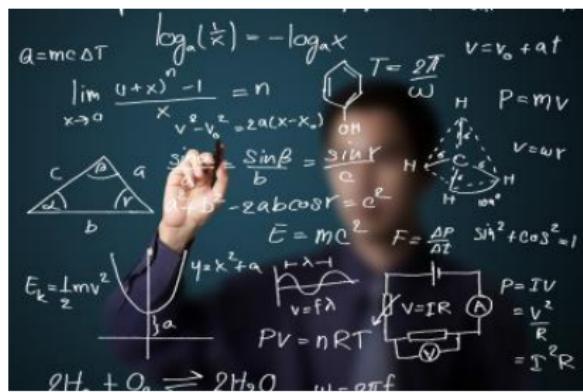


Figure 14: Teaching style has a significant impact

Source

Implicit training - On the job, natural

- You can try, but you just can't replace an experienced person with documentation
- Mix experts and novices and encourage collaboration
- Repetition
- Encourage asking questions
- Encourage asking for help
- Provide feedback



Figure 15: Experts and novices can learn from each other

Source

Implicit training - On the job, natural

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Figure 15: Experts and novices can learn from each other

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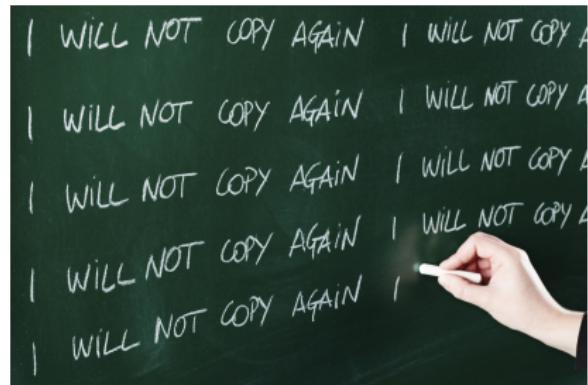


Figure 15: Repetition

Source

Albert Einstein

“The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.”

- Intuition is **important**
- Intuition is particularly relevant **today**
- We can **promote** intuition. We just need to make the effort!
- The future is looking good! I am excited! Aren't you?

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