

The IT Pro?

That elusive thing called professionalism

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What is it?

- Is a professional...
 - The scientist getting published in the Nature journal?
 - The artist having a personal exhibition in Manhattan?
- But what if
 - The scientist sends his manuscript to a wrong journal?
 - The artist attempts to open his exhibition of Oriental-themed nudes e.g. in Tehran?
- Still a pro?

...

- The main problem – no units, no scale and even no background!
- Can probably be defined just as meeting certain criteria in a time, place and context
- Yet there is a set of qualities considered 'professional' by most

A story of three surgeons

- Surgeon 1 – performs a certain complicated surgery in his clinic, makes good money
- Surgeon 2 – has invented a new techniques and goes around advocating it – but this takes time, and he earns less than Surgeon 1
- Surgeon 3 – has also developed a new method, yet has time for more typical surgeries, going abroad to propagate his method and training other doctors

Who is the most professional?

- Most would suggest Surgeon 3, as s/he
 - works at state-of-the-art
 - has pushed the limits further
 - shares knowledge on new things

Yet, what if...

- the Surgeon 3 dresses weird, stinks, swears or harasses people, still meeting the criteria above? (perhaps being a lost twin of Gregory House, MD...)
- there is another surgeon who dresses well, is likable and polite, and also almost meets the criteria, but not fully?

Personal opinion

- See the coping recipe for information society in the first lecture:
 - Good base in education (sufficient for the circumstances)
 - Adaptability (includes communication skills in various contexts)
- There are certain situations where absolute max in contribution is required – and that asocial ‘mad scientist’ will be tolerated (recall Steve Buscemi’s character in the Armageddon movie)
- For the rest, a social type with *sufficient* skills would usually be given preference

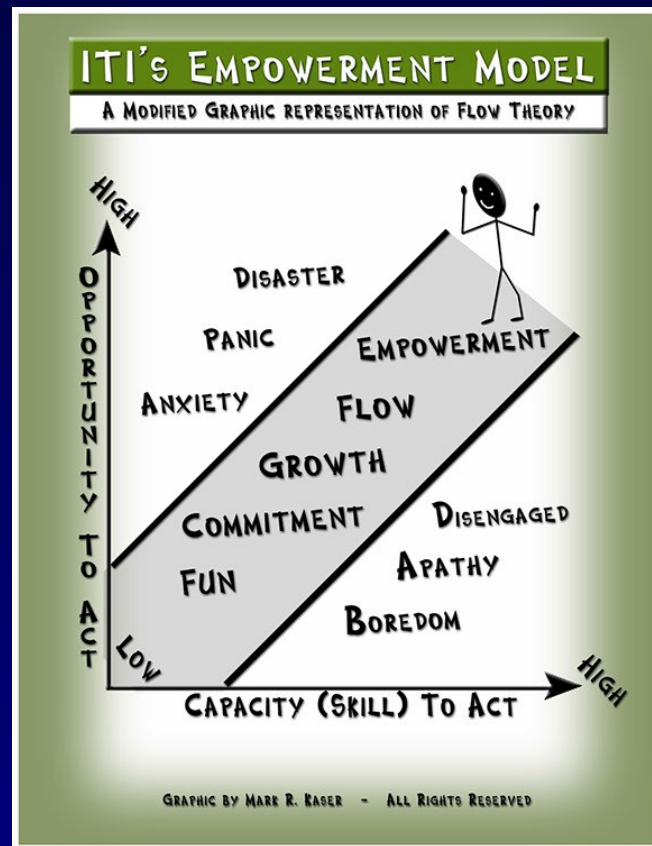
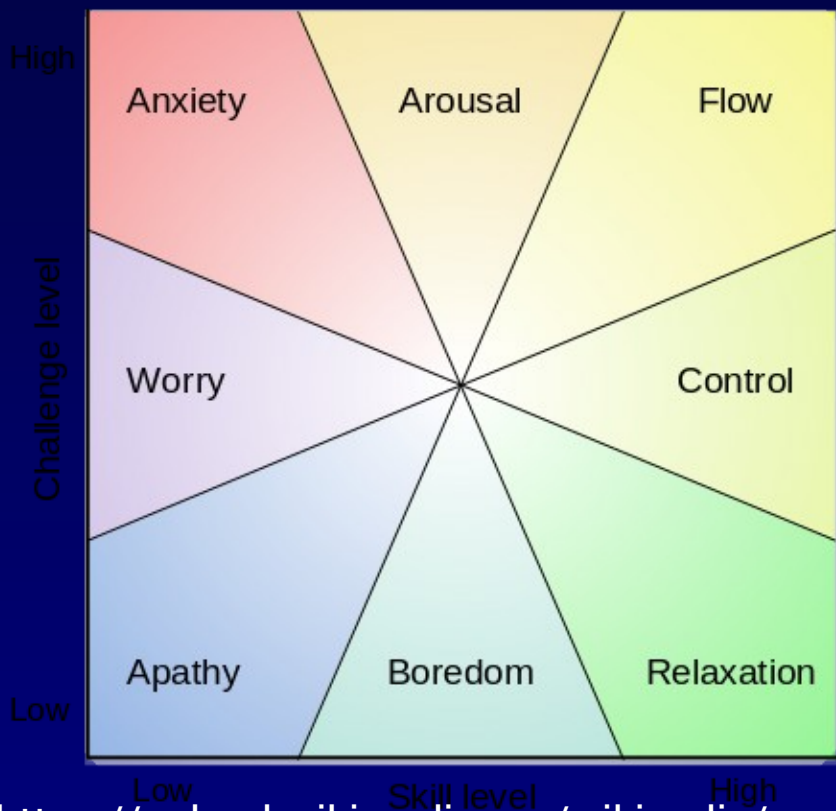
Almost similar

- **Competency** – a set of skills and knowledge needed in a profession
- **Professionalism** = competency + something else...

The Flowing Pro (a bit of psychology)

- Mihály Csíkszentmihályi, *Flow: The Psychology of Optimal Experience* (1990) and later books
- A mental state of the person 'blending into' the activity
- Actually, old wine in new bottles (*dao*, *samadhi*, *mushin* etc; most martial artists are familiar with the concept)
- => ninja coding, script-fu, hacker koans ...

Challenge vs skills



https://upload.wikimedia.org/wikipedia/commons/thumb/f/f6/Challenge_vs_skill.svg/450px-Challenge_vs_skill.svg.png

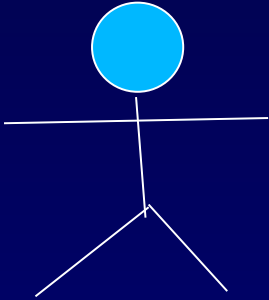
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How to achieve

- Csíkszentmihályi:
 - The task is clear and well-structured
 - Clear and immediate feedback
 - *Perceived* difficulty must match *perceived* skill level
- Two kinds of thinking:
 - **Convergent** – assumes there is the One and Only Correct Answer
 - **Divergent** – assumes that there may be more than one answer
=> new ideas

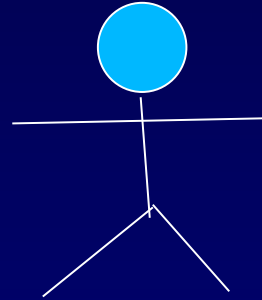
Then and now

1985



IT guy. Period.

20xx



IT-guy.
Businessman/woman.
Teacher/Trainer/Professor.
Sales Rep. Tech support.
Researcher. Designer...

1980s

- The heyday of “canned software”
- Mass production, software houses
- Narrow specialization
- Minimal creativity, top-down innovation
- Ideal: a brilliant craftsman
- Exception: academy

2000s

- Network society, social media, Web 2.0
- Alternative models: SME, open source
- Network enterprise => different management => more freedom and responsibility
- Ideal: a flexible, social and quick-learning professional

“Got motivation?”

- Linus’ Law (on levels of motivation) by Linus Torvalds
- Written as the preface of Hacker Ethic by Pekka Himanen:
 - Survival
 - Social life
 - Entertainment
- Parallels:
 - The Pyramid of Needs by Abraham Maslow
 - The Wozniak formula: $H = F^3$ (Happiness = Food, Friends, Fun)

Two approaches today

- Corporation
- Management, hierarchy, authority
- Product
- Trade secret
- Support
- Selling products
- Community
- Consensus, anarchy, meritocracy
- Service
- Free information
- Discussion
- Selling know-how

Diploma, certificate or experience?

- In early days: "computer science" == "rocket science". Big and complicated => diploma needed for access
- Somewhat later: minicomputers and early PC-s. Computers enter home. Certificates could be enough
- "The PC Generation" of 1990s: what is important is the ability to do something with the computer. Experience counts, no papers needed
- Recently: back to school?

Why

- The field of IT started to expand rapidly
- Got entwined with many other fields
- Sharp, rapid changes

- Experience can be substituted with flexibility plus good social and learning skills. Nothing can replace good, well-rounded education

Estonia

- ...went through similar processes with delay
- The FoxPro generation of early nineties has either started to retire or has mostly come back to school
- Academic education seems to be valued again
- Due to its small size, the country can be strongly impacted by a) cycles of economics, b) international politics, and c) *force majeure* (e.g. COVID-19). In these situations, good education gives one an extra edge

Note: professional certificates

- Ain't the diploma enough?
- Estonians do not know Wollongong University, Aussies do not know Tallinn University of Technology, or IT College
- Some certs are hard currency all around the world
- You could look around for
 - Microsoft
 - Cisco
 - Oracle
 - Linux Professional Institute
- Note: all those listed were officially present at the old College

FLOSS: stuff for amateurs?

- Free and open-source software also challenges previous understanding of professionalism
- „The Bazaar“ (Raymond) => a notable share of project staff works for fun – some earn their living with IT as well, some do something totally different
- In FLOSS projects, IT folks sometimes fill different roles: artists, composers, writers => crossing over to fields they are not professionals in?

...

- Still, the final results are professional enough – might be the flow factor:
 - people are only willing to invest their free time into something they are passionate towards
 - competition is (ideally?) more merit-based
 - lack of routine and time pressure of paid workers?
- Consumers do not care about development models!
- Most FLOSS projects do follow the surgeon example above
- Extra stress on free flow of information, continuity and training the next generation. E.g. GNU Emacs is currently at version 29.1

A four-letter issue

- Doing groupwork online places extra stress on language and expression
- Indecency => reaction => disruption of communication
- A good specialist who is also social is preferable to an asocial elite guy, especially in community-heavy models
- BUT: `grep -r fuck /usr/src/linux ...`

On a lighter note: not professional

- "H3ll0 d00d, br0k3 s0m3th1ng?"
- <message> "Why is it that way?" </message>
- "Don't understand! HEEEEELP!!!"
- "You are encouraged to inform the auxiliary manager of the deployment division of the precise results of your calculation."
- "A musical instrument comes on tall beauty"
- "Im a loser, cant find there webpage in yer server"

Professional associations

- Like certification, can increase international competitiveness (exchange of contacts and useful information)
- Two main players:
 - IEEE Computer Society
 - ACM (Association for Computing Machinery)
- Both have student memberships – worth checking out

ACM Code of Ethics and Professional Conduct

- 1. General ethical principles
 - Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing
 - Avoid harm
 - Be honest and trustworthy
 - Be fair and take action not to discriminate
 - Respect the work required to produce new ideas, inventions, creative works, and computing artifacts
 - Respect privacy
 - Honor confidentiality

- 2. Professional responsibilities

- Strive to achieve high quality in both the processes and products of professional work
- Maintain high standards of professional competence, conduct, and ethical practice
- Know and respect existing rules pertaining to professional work
- Accept and provide appropriate professional review
- Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks
- Perform work only in areas of competence
- Foster public awareness and understanding of computing, related technologies, and their consequences
- Access computing and communication resources only when authorized or when compelled by the public good
- Design and implement systems that are robustly and useably secure

- 3. Professional leadership principles
 - Ensure that the public good is the central concern during all professional computing work
 - Articulate, encourage acceptance of, and evaluate fulfillment of social responsibilities by members of the organization or group
 - Manage personnel and resources to enhance the quality of working life
 - Articulate, apply, and support policies and processes that reflect the principles of the Code
 - Create opportunities for members of the organization or group to grow as professionals
 - Use care when modifying or retiring systems
 - Recognize and take special care of systems that become integrated into the infrastructure of society

- 4. Compliance with the Code
 - Uphold, promote, and respect the principles of the Code
 - Treat violations of the Code as inconsistent with membership in the ACM

<https://www.acm.org/code-of-ethics>

Some recommendations

- Study diligently (that's elementary, Watson...) and GRADUATE
- Learn foreign languages (the more the better)
- Know different platforms and standards in hard- and software (having preferences is OK)
- Take part in a student exchange
- Participate in a community project or two (FLOSS is a good bet)
- Join a professional association (starting a local chapter is especially cool)
- Obtain some professional certificates

Summing up

- Professionalism is more than just vocational skills
- The context can be important
- Expansion of necessary skills and knowledge!
- Network and new models => a pro must be able to catch up
- Again, stressing a) well-rounded education and b) adaptability (including good social skills and extensive social network – and that does not mean Facebook)

Thanks