

# How to build an it operations expert

Kennie Nybo Pontoppidan  
SQLPass Virtual Chapter  
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# Who am I?



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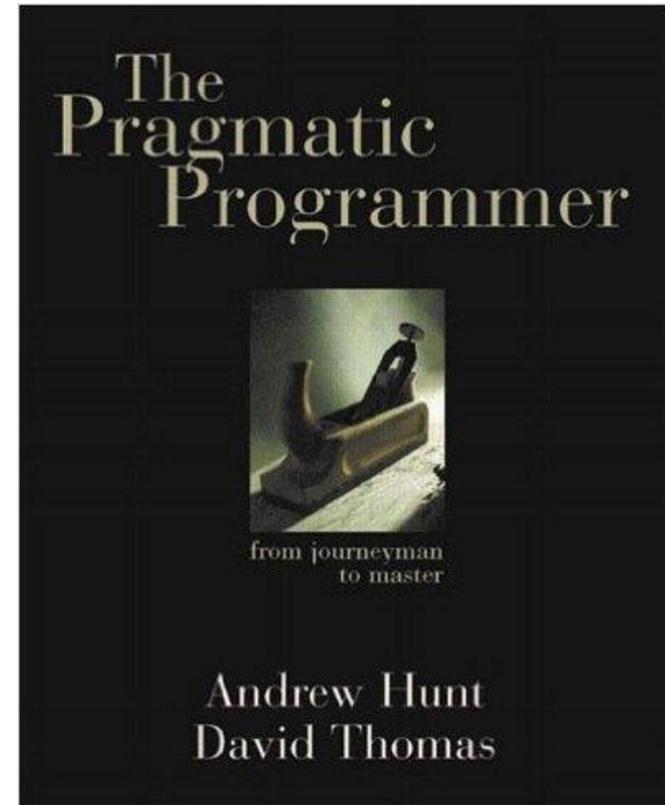
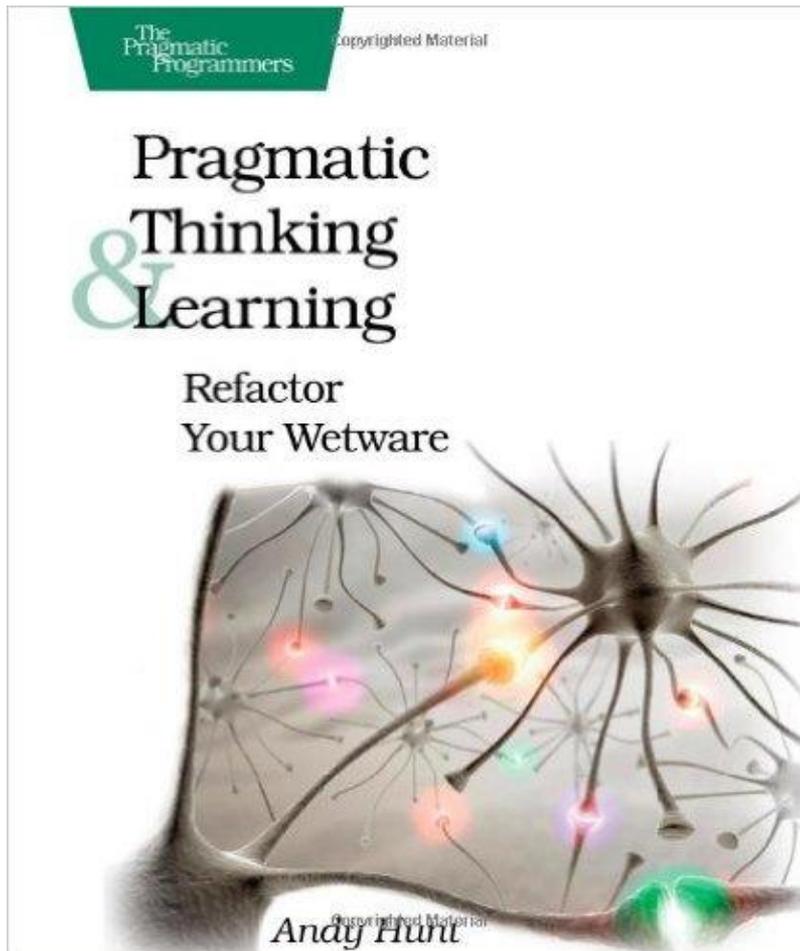
# This strange feeling...

You are trouble shooting together with a really good systems administrator. Suddenly you get a feeling that something magical is going on.

If you ask her why he tries exactly the thing she rarely can explain it. It just feels right to try just this thing.

Oh yeah, she experienced something similar years back. Not quite the same, because the OS was different, but still...

# At an agile conference in 2007...



# Master in IT management



07-04-  
2016

# Research question

- "What makes the difference between a normal it operations employee and an expert?"
- From the perspective of a manager of an IT operations department/team, this leads to two additional questions:
  - "How do we upgrade kompetences of the normal it operations employees to something more expert like?"
  - "What can we do for our experts to keep them sharp?"

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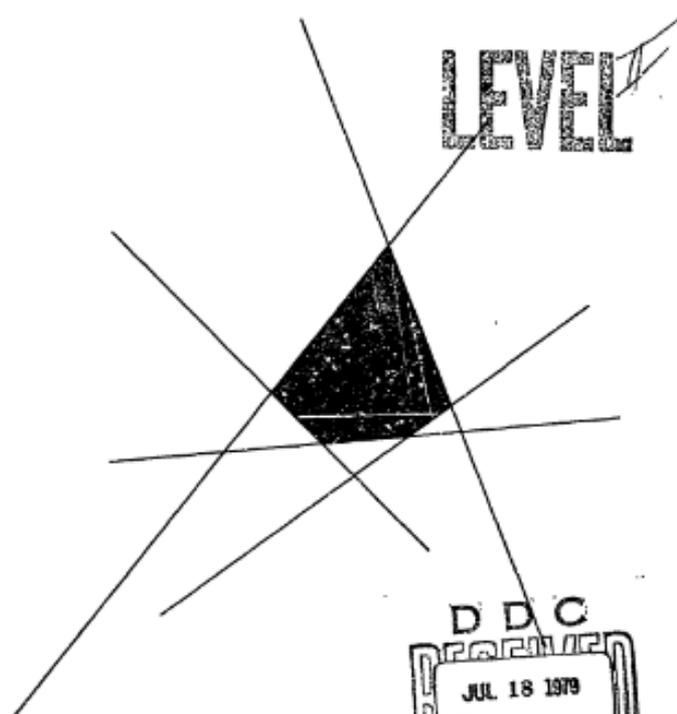
ORC 79-2  
FEBRUARY 1979

THE SCOPE, LIMITS, AND TRAINING IMPLICATIONS OF THREE  
MODELS OF AIRCRAFT PILOT EMERGENCY RESPONSE BEHAVIOR

by  
STUART E. DREYFUS  
and  
HUBERT L. DREYFUS

LEVEL

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# The Dreyfus<sup>2</sup> expert model

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# Dreyfus level 1 - novice

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Fresh from school – no experience

Needs rules to make decisions

Without experience these rules are context free

# Example

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A Mac user calls a support center, and is asked to press the Windows button



# Dreyfus level 2 - advanced beginner

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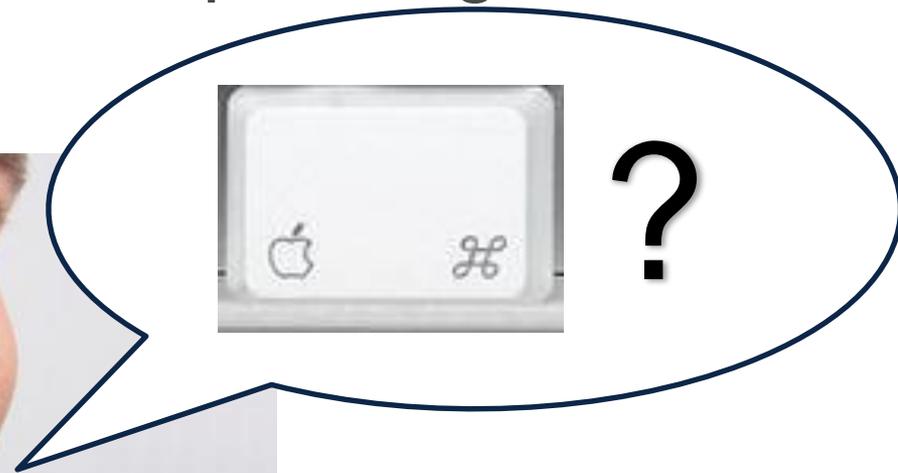
Recognizes features in a situation

Expands the set of context free rules with rules based on elements from the situation

# Example

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Asks for the user OS in the beginning of the support call. Then follows OS specific guide



# Dreyfus level 3 - competent

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Uses a hierarchical decision procedure.

Chooses a number of relevant elements (makes a plan) and follow it

# Example

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In a trouble shooting situation where a changed configuration now gives an error, the set of elements are "what did we change?"

The plan is then: revert all changes, and then for each thing changed, enable it until you see the error again

Not considering if the things changed could have caused the symptoms

# Dreyfus level 4 - proficient

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The proficient uses maxims to guide him/her

Maxim:

- An expression of a general truth or principle
- a principle or rule of conduct

- Dictionary.com

# Examples of maximes

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From eXtreme Programming:

- ``simplest thing that could possibly work''
- ``test everything that could break.''

In IT operations

- ``automate!''

# Dreyfus level 4 - proficient (cont.)

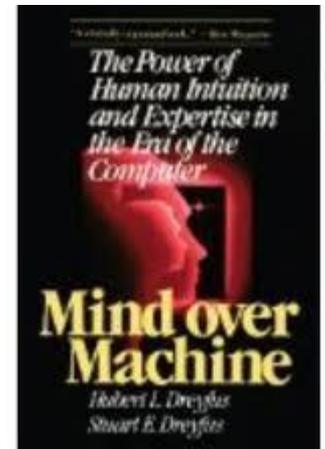
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The proficient uses maxims to organize and understand the task at hand in an *intuitive* way

Then uses analysis to find out how to solve it

# Intuition (Dreyfus<sup>2</sup> definition)

... [intuition is] the understanding that effortlessly occurs upon seeing similarities with previous experiences



Hubert L. Dreyfus og Stuart E. Dreyfus, Mind Over Machine: the Power of Human Intuition and Expertise in the Era of the Computer

## Dreyfus level 4 - proficient (cont.)

In contrast to the use of rules on the first Dreyfus levels maxims are *rules interpreted in the given context*

# Example

Take the maxim

- ``test everything that could break''

A beginner would ask: "but what exactly do I test?"

The proficient will look at the situation, draw on his experience and then be able to make a list of relevant tests

# Dreyfus level 5 - expert/master

Read my work on expertise in IT operations  
(in Danish only)



<http://itu.dk/people/kennie/masterprojekt/>

# Patricia Benner

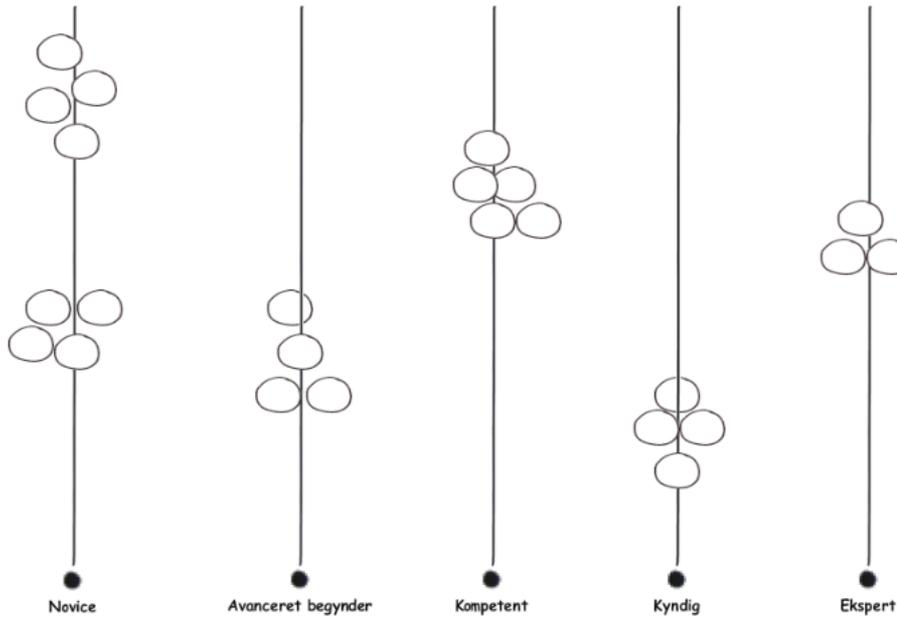
## Patricia Benner, RN, PhD, FAAN, FRCN



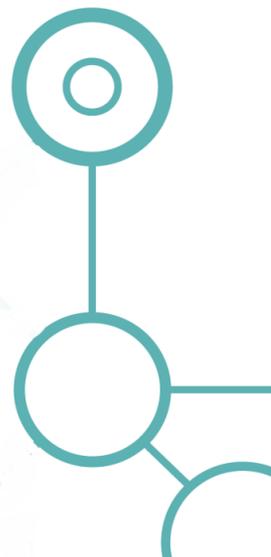
### Patricia Benner

<b>Born</b>	August 1942 Hampton, Virginia
<b>Nationality</b>	American
<b>Fields</b>	Nursing theory, nursing education
<b>Institutions</b>	University of California, San Francisco (UCSF)
<b>Alma mater</b>	Pasadena City College Pasadena College UCSF University of California, Berkeley
<b>Known for</b>	<i>From Novice to Expert: Excellence and Power in Clinical Nursing Practice</i>
<b>Influences</b>	Hubert Dreyfus, Stuart Dreyfus, Maurice Merleau-Ponty, Martin Heidegger
<b>Notable awards</b>	Living Legend of the American Academy of Nursing (2011)

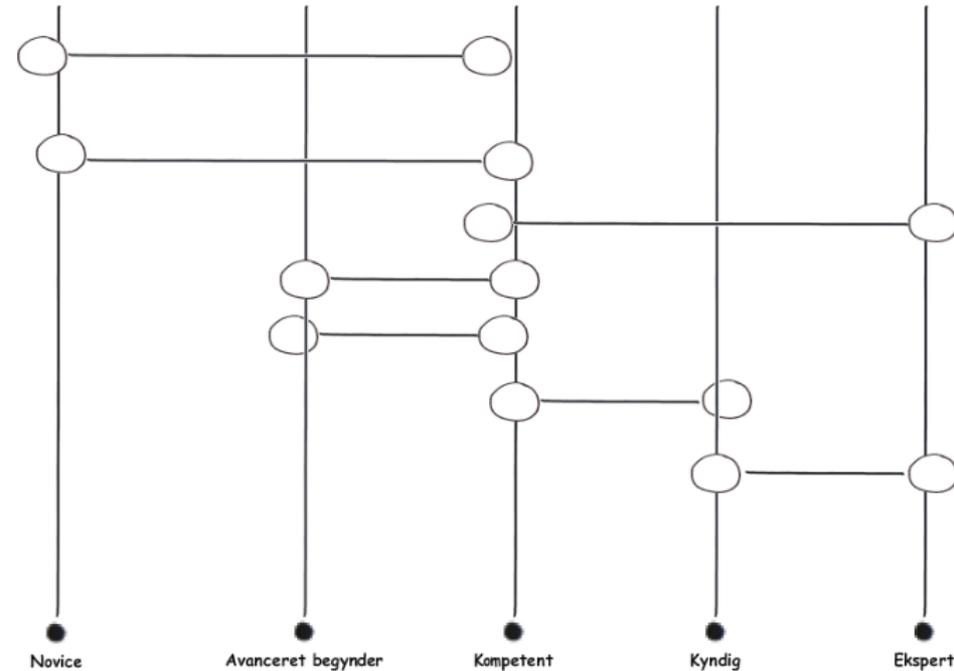
# Benners experiences - 1



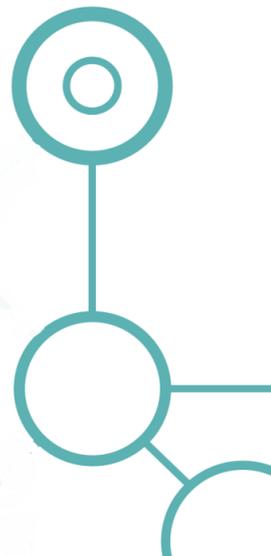
- Create knowledge sharing groups along the Dreyfuss scale



# Benner's experiences - 2



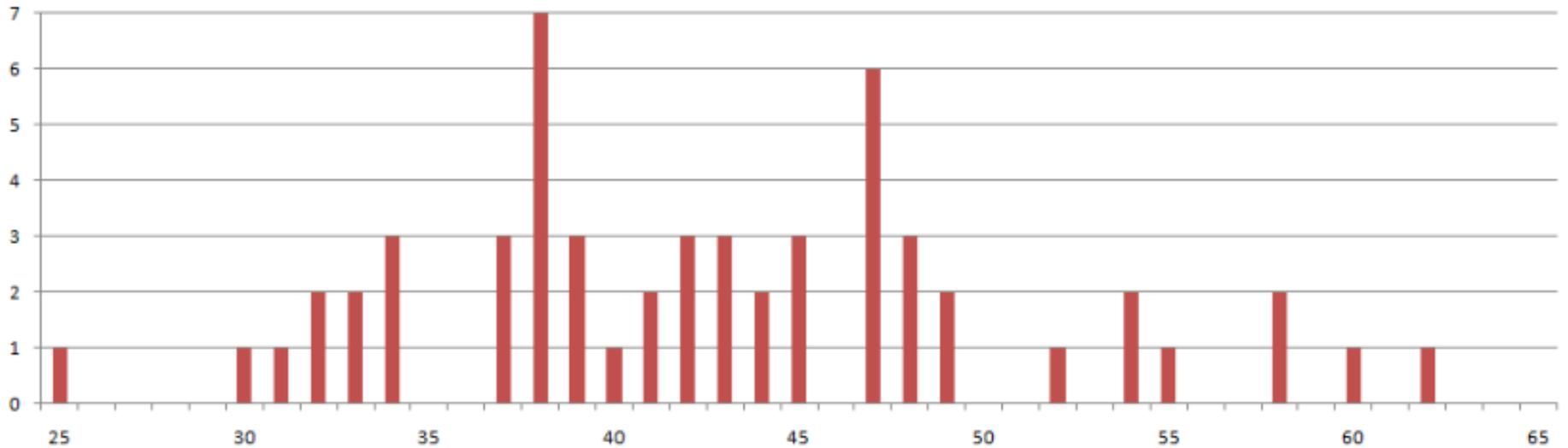
- Create mentor pairs between levels
- Don't make the gaps too wide



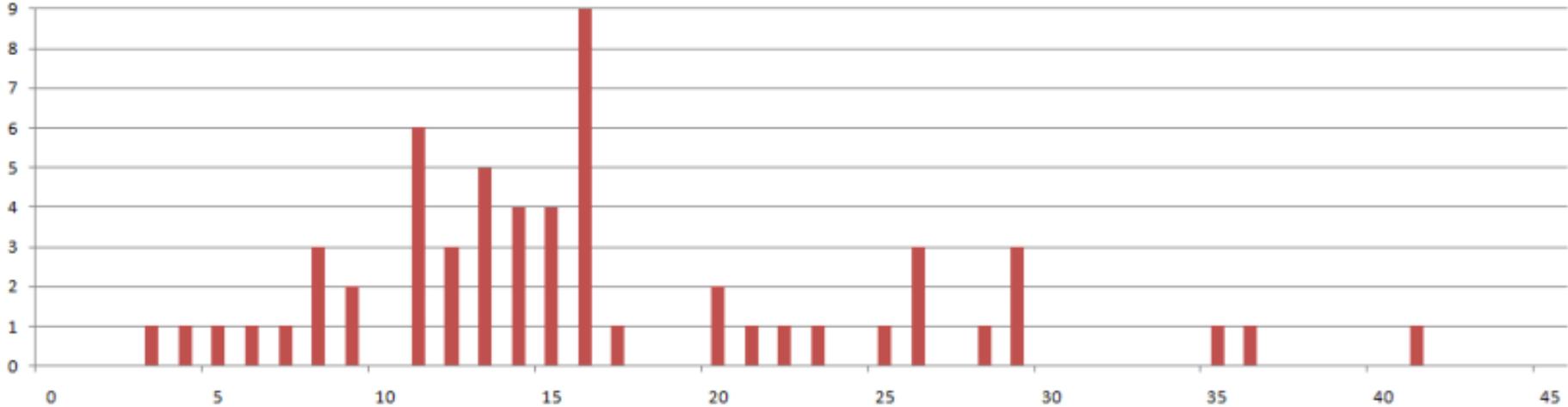
# Thesis research method

- 4 qualitative interviews
- Questionnaire
  - 5 different it departments
  - Small/big organisations
  - Public/Private sector
  - Capital/Jutland

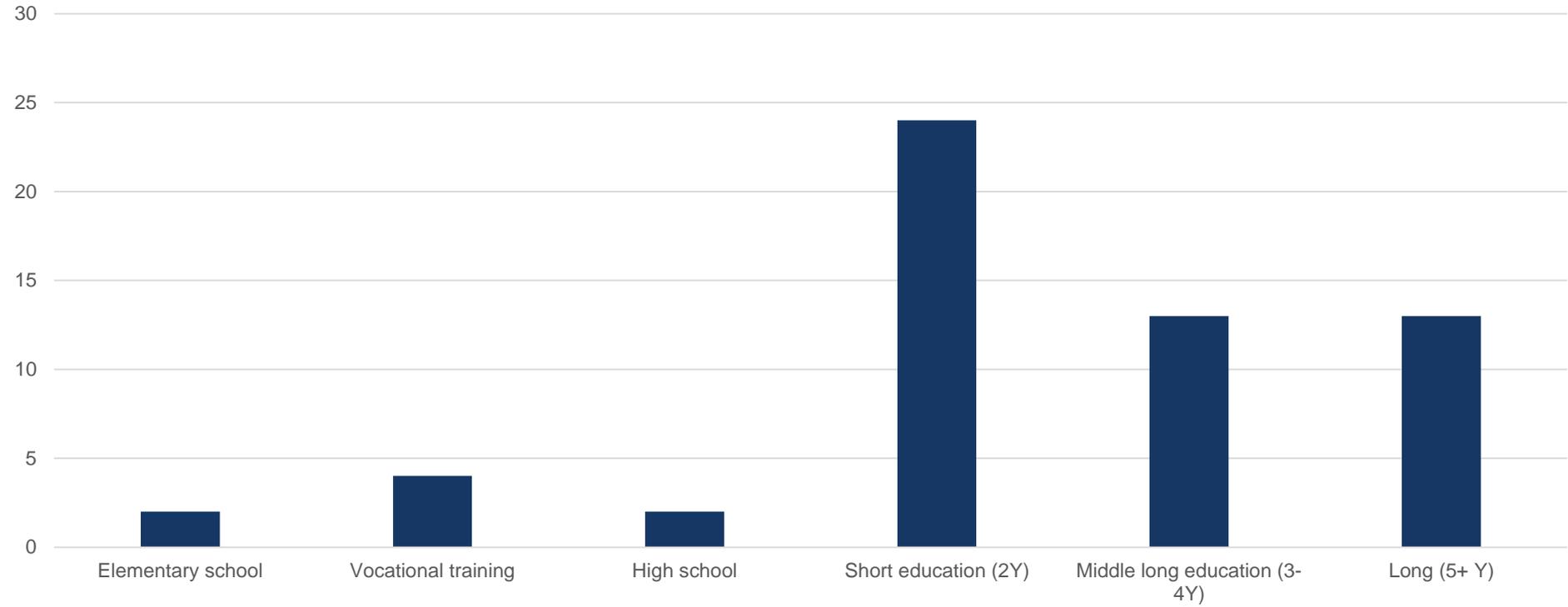
# How old are they (in years)?



# Experience (in years)



# Educational background



# Characteristics (Results from interviews)

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## Non-experts

- Procedures
- No use of intuition
- Ask people with experience
- Less personal dedication

## Experts

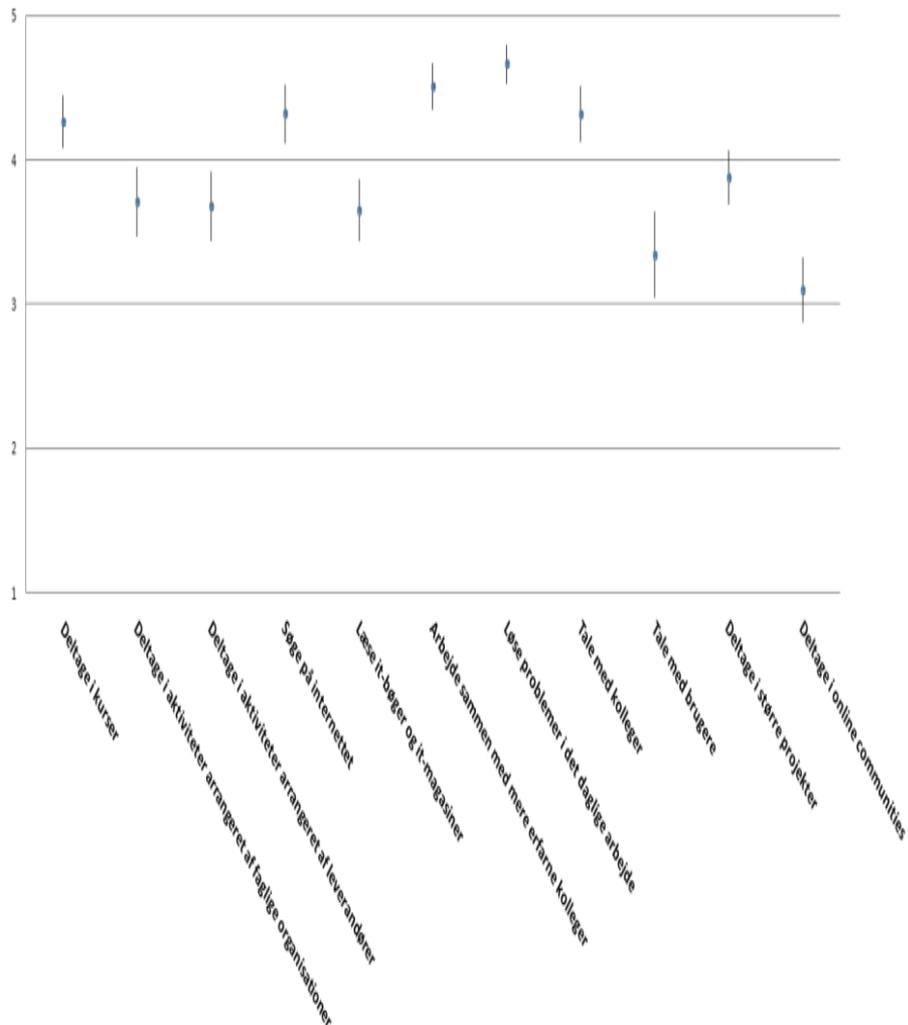
- Hard problems
- Engaged
- Experience
- Intuition
- Reflection

# Eksperts preferences for learning methods (interviews)

Method	Sum score
On the job training	8
Help a colleague	8
Reflection	8
Reading on the internet	4
Networking	4
Internal courses	3
Team work	3
Read a book	2
Teach	1
Academic courses	0
Internet for a	0
Role models	-4
Vendor courses	-5
To have a mentor	-6

\* answers were coded -2 to 2

# Importance of different activities to develop IT related expertise (questionnaire)



- Courses
- Search the internet
- Work together with more experienced people
- Solve problems in daily work
- Speak with colleagues

# Findings (1) – all

- People with no or short education prefers courses compared with people with middle to long education
  - Could be seen from data in questionnaires
  - Yes, t-tests showed a significant difference

# Findings (2) – all

- If you keep on putting employees on new tasks (where they need to learn new competences), then you keep letting them operate on the lower Dreyfus levels. Therefore you newer get to see them acting on the expert levels

# Findings (3) - experts

- If you use your experts as mentors, you might need to help them learn how to be a good mentor
- Experts
  - do not learn from role models or mentors
  - think vendor courses are a waste of time

# Findings (4) - experts

- Do not "promote" your experts to managers and/or project managers
- Use ITIL as a number of maxims, interpreted in the context you use it in. Not as a book of rules, which is followed out of contexts

**I DON'T ALWAYS  
SAY THANK YOU**



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