

How to build an it operations expert

Kennie Nybo Pontoppidan
Cambridge, September 12th 2015



He or she?

- I flipped a coin
- She won

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...

Master in IT management



15-09-
2015

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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JUL 18 1979
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The Dreyfus² expert model



Dreyfus level 1 - novice

Fresh from school – no experience

Needs rules to make decisions

Without experience these rules are context free

Example

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



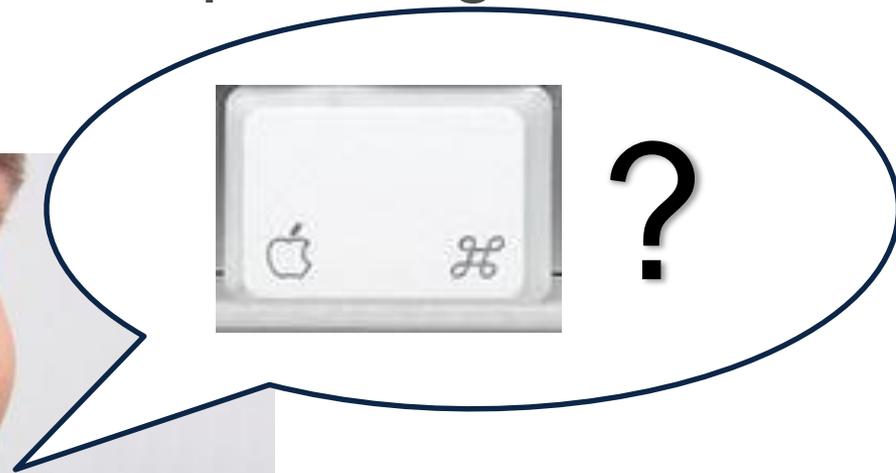
Dreyfus level 2 - advanced beginner

Recognizes features in a situation

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

Example

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



Dreyfus level 3 - competent

Uses a hierarchical decision procedure.

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

Example

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

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

From eXtreme Programming:

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

In IT operations

- ``automate!''

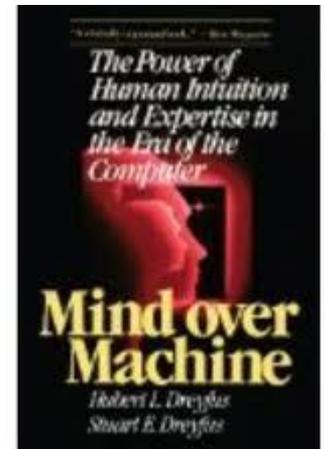
Dreyfus level 4 - proficient (cont.)

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 (Dreyfus² 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

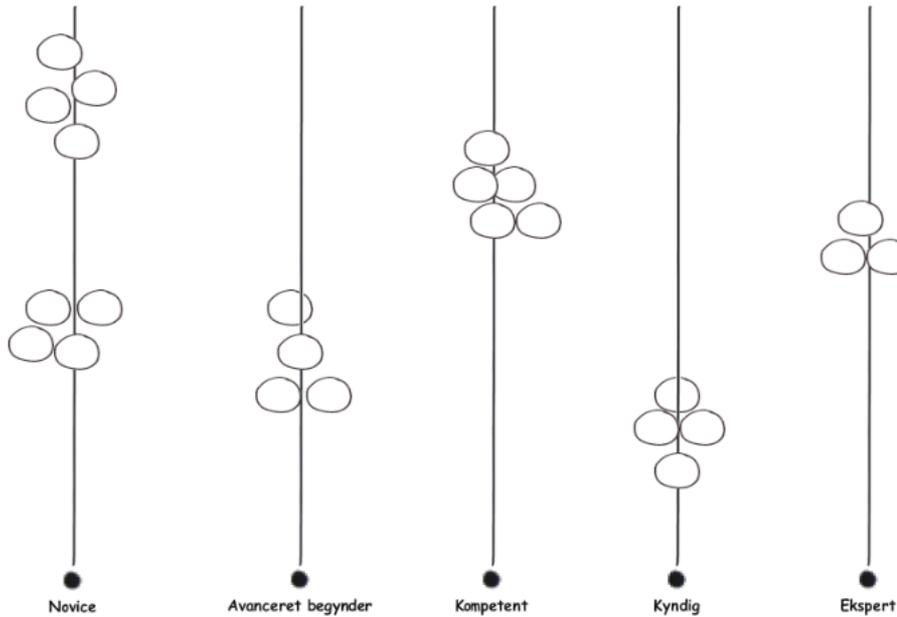
Patricia Benner, RN, PhD, FAAN, FRCN



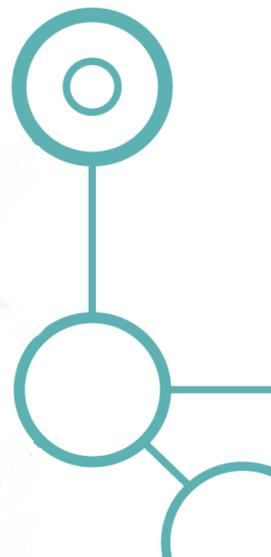
Patricia Benner

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

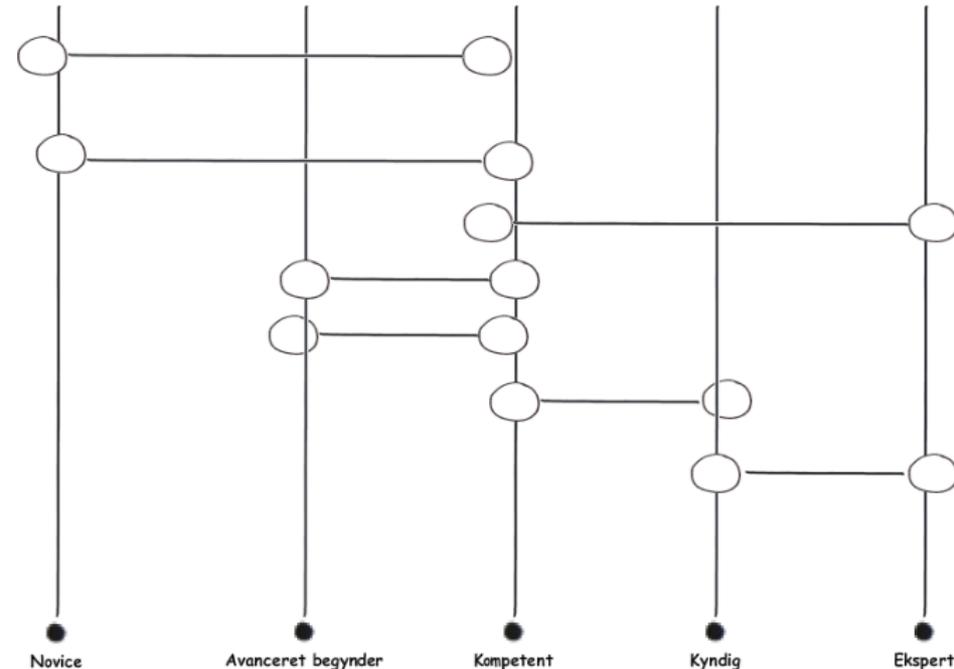
Benners experiences - 1



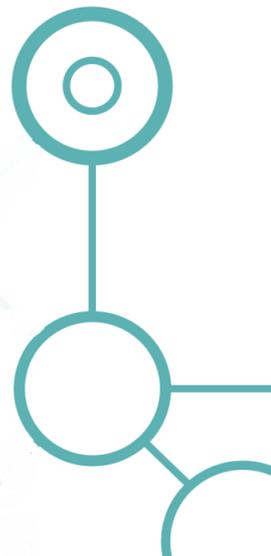
- Create knowledge sharing groups along the Dreyfuss scale



Benner's experiences - 2



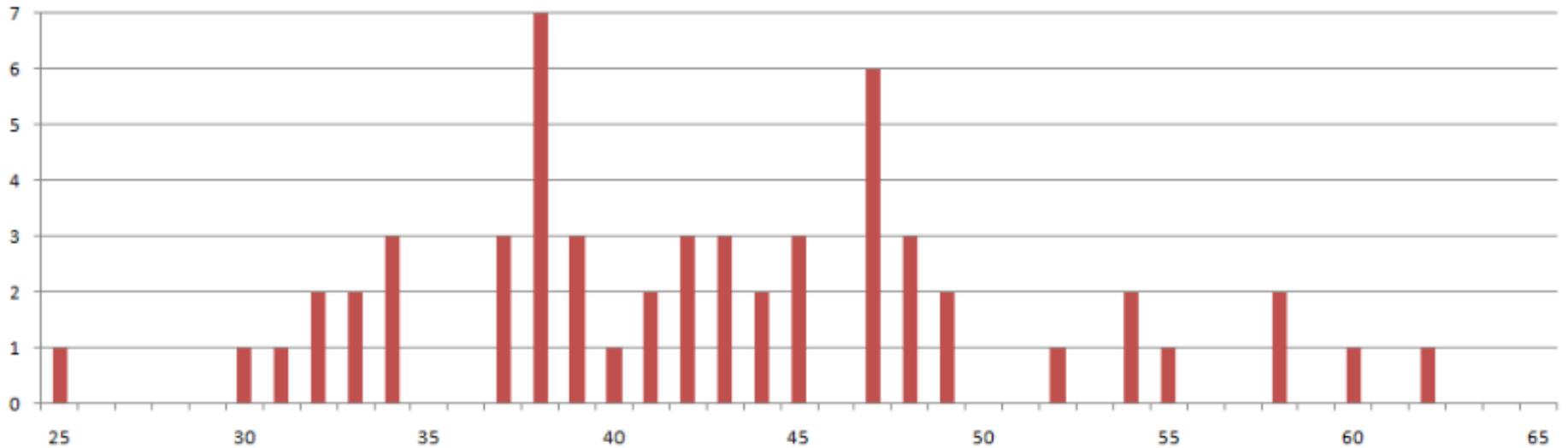
- Create mentor pairs between levels
- Don't make the gaps too wide



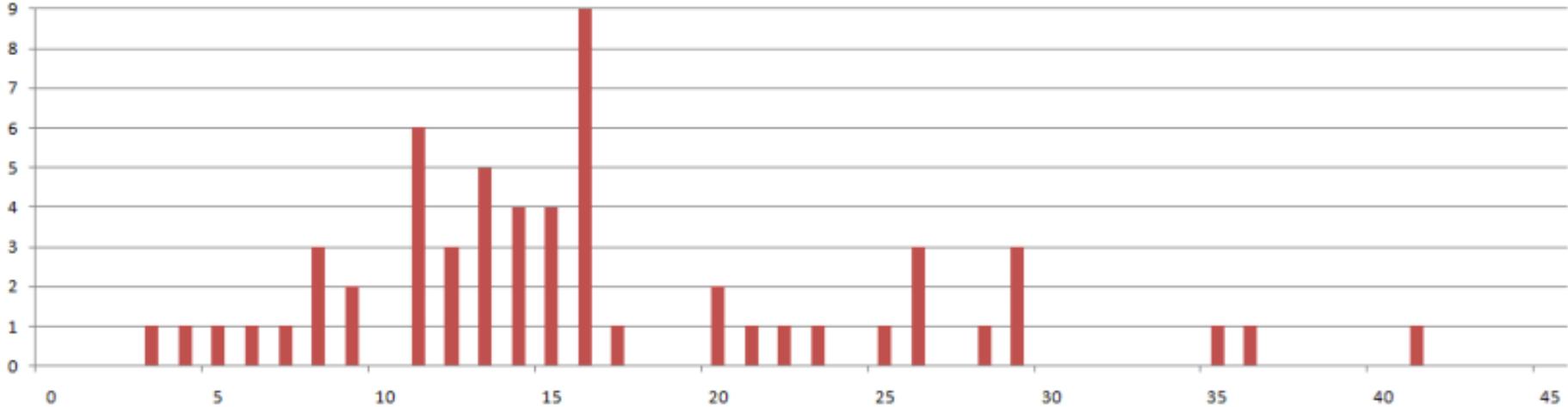
Thesis research method

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

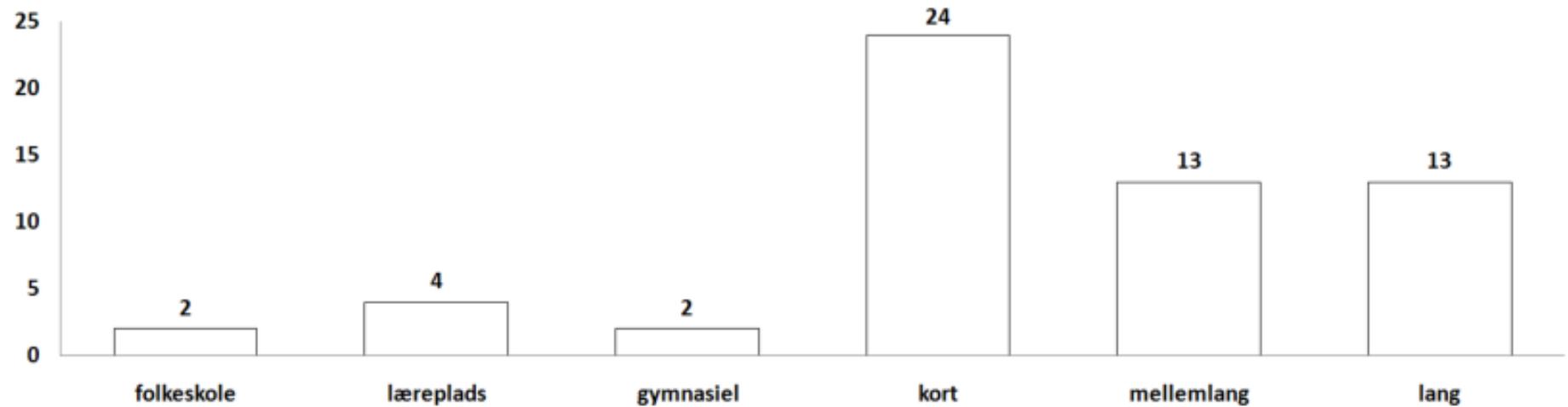
How old are they (in years)?



Experience (in years)



Educational background



Characteristics (Results from interviews)

Non-experts

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

Experts

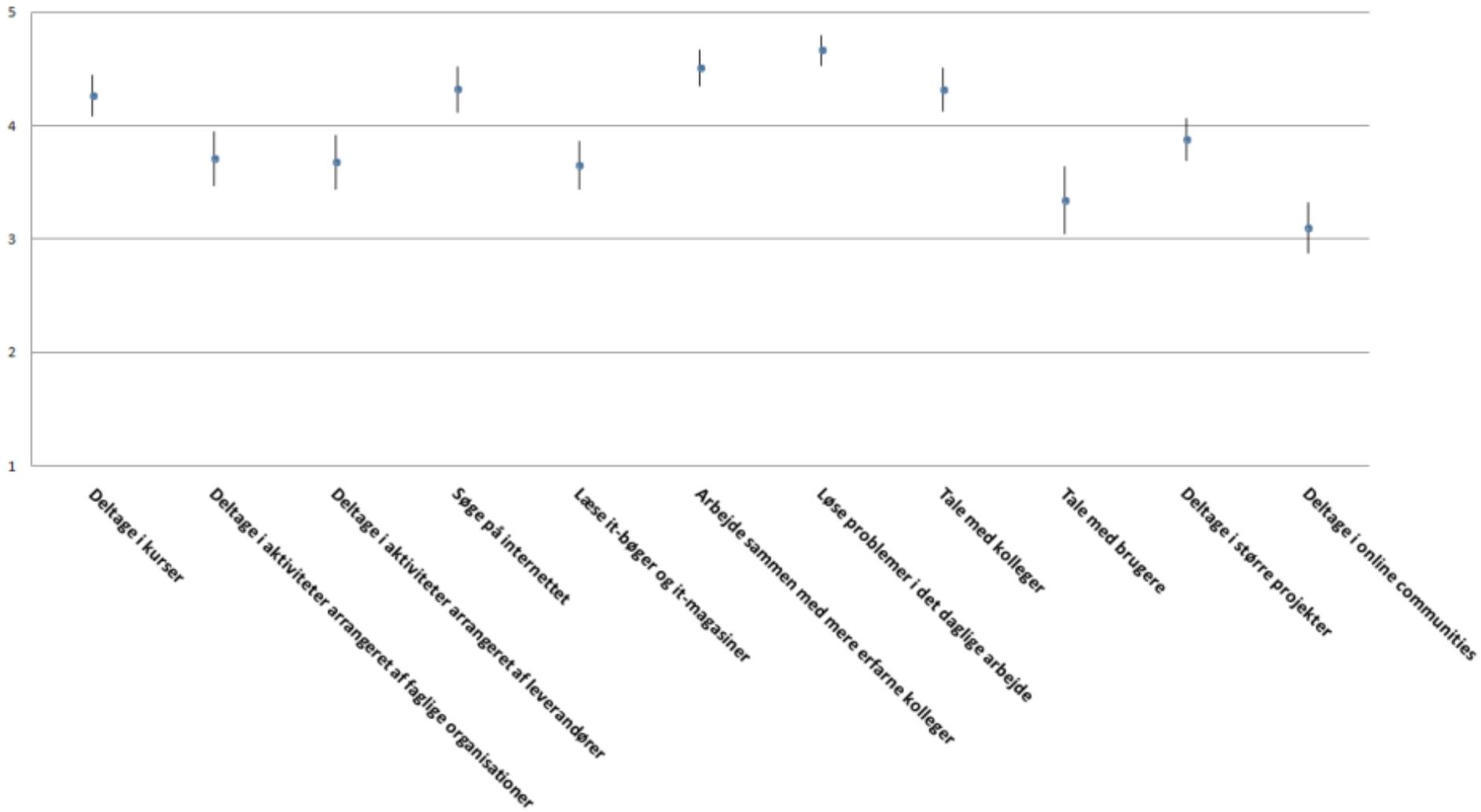
- Hard problems
- Engaged
- Experience
- Intuition
- Reflection

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)



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