Evaluation of training

- Learning objectives
  - Design a possible evaluation procedure for Assignment 5
- Core literature
  - Chapter 11
- Auxiliary literature
  - Holton III (1996) The flawed four-level evaluation model
  - Ngoma, Kaasbøll, Aanestad (2008) From user training to in-service support
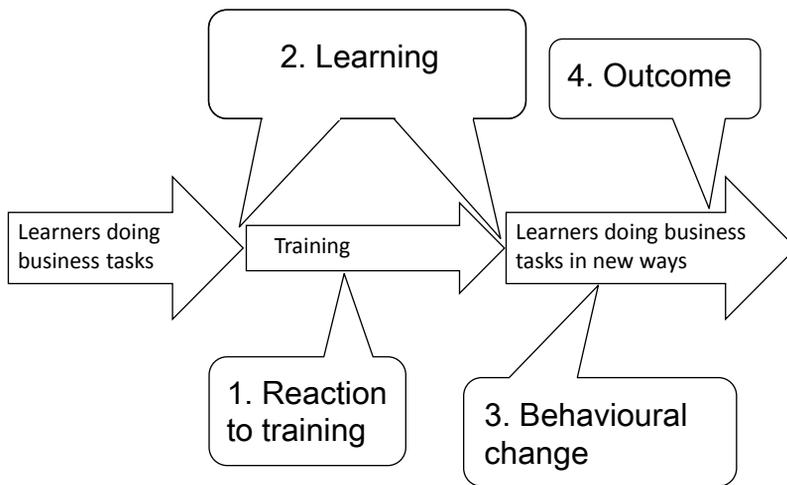
Kirkpatrick's 4 level model

1. Evaluation of reaction to training
   - Trainee perceptions and opinions on aspects of course design, structure, content and presentation
2. Evaluation of learning
   - Pre and post assessments of competence
3. Evaluation of behavioural change
   - During practice after the teaching
4. Evaluation of result or outcome
   - Changes in organisational performance

Kirkpatrick, D.L., "Techniques for Evaluating Training Programs", Journal of American Society for Training and Development, Vol 13 Nos 11-12, 1959

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Time of evaluation

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        2. Learning              4. Outcome

  Learners doing      Training      Learners doing business
  business tasks                    tasks in new ways

              1. Reaction        3. Behavioural
              to training        change
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1. Reaction to training

- Method
  - Questionnaire
  - Interview
  - Observations
- Topics
  - Learning
    - What was the most important ingredient in the course for your learning?
  - Motivation
    - Was this useful?
  - Equipment
    - Was this the same system as you have in your work?
  - Possible support person
    - Was there any other participant whom you can consult later?

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2. Assessment of learning

- Skills and problem solving
  - Give the learner a task to do
  - Observe the performance and the result
- Understanding and problem solving
  - Ask a question
    - What is a pivot table?
  - Compare the answer to the intended
- Topics
  - IT
  - Information
  - Activity fit

Skills
Understanding
Problem solving
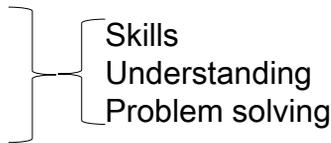
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2. Multiple choice for understanding

- What is the similarity between master slides in presentation programs and styles in text processors?
  a. They guide the printer.
  b. They provide information for the table of contents.
  c. They enable coherent formatting of the file.
  d. They enable import of slides into word processors.

Comparing applications

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2. Multiple choice for problem solving

- You have attached a file to an e-mail to Bob. Then you discover that the file contains some statements which you do not want Bob to read, so you make some changes in the file and save it. You wonder whether Bob will get the changed file. Which of the alternatives below will give you the answer you need? Beware that the alternative should also tell us how to do it the next time.
a. Ask Bob about the name of the file he received.
b. Check which file that disappeared from your disk.
c. Remove Bob from the list of receivers and enter yourself instead.
d. After sending, check the mailbox containing sent messages.
e. Send the file to yourself from another e-mail account.
f. Remove the attachment and then re-attach the file before sending.

The question needs to target learning, not just solving the problem

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2. Formative assessment

- Teacher assesses learner progress during training
- Teacher adjust teaching according to learners
    - Clarify misunderstandings
    - Repeat
    - Speed up
    - Slow down
    - Guide individuals and groups
- Improves learning by 0.9 standard deviations d
    50%

    30 studies of school teaching

Second most efficient means for improving teaching

Adjusting level of abstraction to children's development
Hattie 2009, p.181   8

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3. Behavioural change

- Evaluating transfer of competence from course to work
- 3 weeks – 6 months after training
- Do people use the IT differently?
- Method
  - Observation of use
  - Interview
    - Can you demonstrate how you do a purchase?
  - Questionnaire
    - How many times per week do you use the purchase system?
- Trouble
  - Is the change due to the training or to something else?
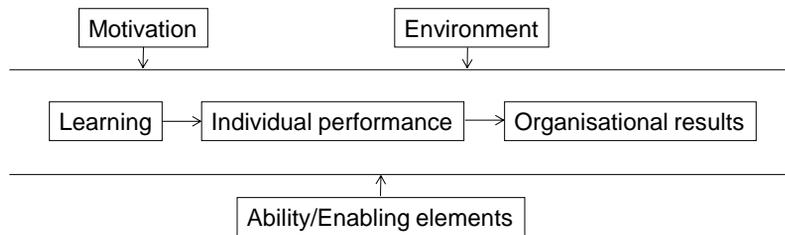
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4. Result or outcome

- The effect of the IT
  - Did it save time?
    - Can we handle more customers?
  - Did it generate a better outcome?
    - Happier customers?
- Method
  - Observations of results/products
  - Interviews of customers, managers, …
  - Questionnaires
- Trouble
  - Is the change due to the IT or to something else?

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No causality between levels 1-4

- Behavioural change
  - Does not necessarily tell anythong about training
  - Other confounding factors
- A causal model

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  ┌────────────┐                    ┌─────────────┐
  │ Motivation │                    │ Environment │
  └─────┬──────┘                    └──────┬──────┘
        ↓                                  ↓
────────────────────────────────────────────────────────────
  ┌──────────┐   ┌────────────────────┐   ┌──────────────────────┐
  │ Learning │→→ │ Individual performance │→→ │ Organisational results │
  └──────────┘   └────────────────────┘   └──────────────────────┘
────────────────────────────────────────────────────────────
                      ↑
              ┌───────────────────────┐
              │ Ability/Enabling elements │
              └───────────────────────┘
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Holton (1996)The flawed four-level evaluation model

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Example

Training objectives
 • improve levels of awareness, understanding and
 technical skills in relation to data collection, processing,
 reporting and utilization
 • motivate the culture of using data collected for patient
 and health facility management.

- Clinics
  - 2 hours session
  - 39 participants
  - 12 facilities
    - 6 well attended
  - Supervision monthly

- Districts
  - Also computer skills
  - 2 hours session daily
    - for 2 weeks
  - 11 signed up
  - 4 showed up
  - Supervision weekly

Ngoma, Kaasbøll, Aanestad (2008) From user training to in-service support

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Results, level 1 and 2

1. Training Reaction
   - Feedback on training used to modify the training materials and presentation
   - "I wish I had known earlier I wouldn't have been making these mistakes"
2. Learning
   - Exercises done indicated improvements
     - skills and knowledge on filling in data collection tools
     - using DHIS software package
     - using the collected data for calculating indicators, drawing tables and graphs.

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Results, level 3 and 4

3. Change of work practice
   - Application of learned practices in daily activities
   - Improvement of teamwork
4. Change of organisational performance
   - Districts:
     - Data was entered into the computer system
     - Monthly reports were generated and sent to the zones
     - Data was analyzed and used to prepare quarterly reports
       » in one district.

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Level 4, compared to clinics not trained

Control group **No training**   **Trained**
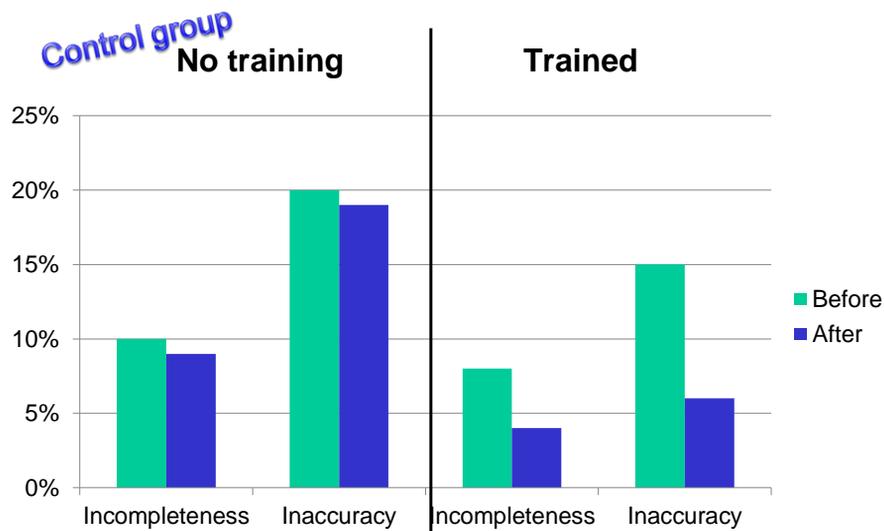
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Measuring learning in courses and transfer

- Software for personal use
  - Voluntary
- Introductory course 4 hours
- Follow-up training sessions 8 x 1 hour per year
- Informal chats
- Systematic evaluation through questionnaire
- Transfer
  - Use of learning material at home

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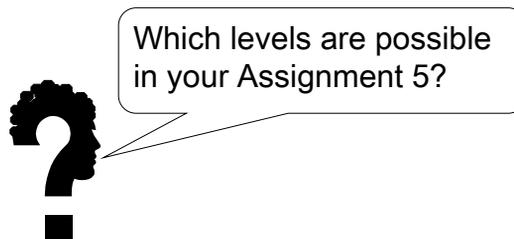Illustration type 1. Instructions. User interface with sequence of operations for completing a task.

Illustration type 2. Data. Relatonships between data elements which we have entered in the database.

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Questionnaire and results

	To which extent does this type of illustration contribute to learning what the illustration concerns …			
	when you watch an illustration of this type on the projector? 1=nothing, 6=lots	when you watch an illustration of this type while using the software in the group / course? 1=nothing, 6=lots	I access this type of illustration at home. 1=never 6=often (*)	When I use the software at home, this type of illustration is 1=useless 6=very useful *
Instructions Mean	4,71	5,03	3,82	4,67
Structural models Mean	4,42	4,80	3,42	3,90

- 34 useful responses
- The learning material was surprisingly useful at home
- Instructions were more useful than structural models at home

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Which levels are possible in your Assignment 5?

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