IT, work environment and health

Bengt Sandblad

http://www.it.uu.se/research/hci

IT and the work environment

Stress at work

I said search!!
Successful introduction of IT...

- Requires that users are not harmed, not exposed to health risks...
- We must create good, healthy and sustainable work, where people can be efficient and where they like to stay....

Physical problems - pain

- Have problems, pain daily when working with computers > 50% of the day
- E.g. pain in arm, shoulder, back, stomach, head, sleeping disorders...
- ...is not only caused by physical load, but also by psychosocial or cognitive load and by stress!
- E.g. a user interface that “overloads” our short term memory can cause physical pain and damage.
Work environment
- Physical - ergonomics
- Psychosocial – relations, support etc
- Cognitive
  - You are not “allowed” to work efficiently
  - Something prevents us from using our competencies and skills in an efficient way.
  - Are extremely important to understand in computer supported work.

Cognitive work environment problems
- Give some examples....
- Why do they occur?
- How can they be prevented?

Ergonomics
- Much is known....
Ergonomics

The law?

- **Swedish work environment law**: all work must be characterized by:
  - variation,
  - social contact and cooperation,
  - consistency between work tasks,
  - possibilities for personal and professional development,
  - self control,
  - professional responsibility.

Laws and regulations

- Arbetsmiljöverkets (AV) föreskrift ASF 1998:5, “Arbete vid bildskärm” (work at computer screens):
  - Rules and advice concerning physical and psychosocial factors when working with computers, including software and IT-systems.
  - §7: “Arbete vid bildskärm som är starkt styrt eller bundet i fysiskt eller psykiskt avseende eller är ensidigt upprepat får normalt inte förekomma.” (Work that is strongly controlled, in a physical or psychic (mental) way, or is monotonously repeated, must not normally occur.)
ASF 1998:5 forts.

10§ systems and programs must:
- Be properly designed in relation to users and user tasks.
- Be easy to use, adaptable to users’ knowledge and skills,
- Give feedback about performed work,
- Show information in format and pace adapted to the users’ needs.
- Especial considerations should be taken to ergonomic principles regarding the ability to perceive, understand and process information.
- Monitoring of the employees’ work via the system must not be done without the subject’s knowledge.

Look at some computer systems......
- Do they meet requirements in relation to laws and regulations?

In many work situations, the demands are high
...experience heavy loads and react with stress!

We are in many respects still a cave man..
A good and sustainable work

- Karasek & Theorell:
  
  ![Diagram showing support, control, and demands]

A bad, unhealthy work

- ![Diagram showing work environment]

How do we feel at work?

- (Increased) Use of computers often leads to (experienced) increased demands.
- This must be combined with increased self control and social support.
- Today we often see the opposite! Experienced self control and social support is decreased.
- This will result in work environment problems.
Health aspects

- “Chefen kan göra dig sjuk”
- Nyberg, Anna: The Impact of Managerial Leadership on Stress and Health Among Employees

(This is about the effects of bad leadership. Can the results be relevant for bad computer systems?)

Demands, control and support?

- Give examples of demand aspects.
- Give examples of self control aspects.
- Give examples of social support aspects.

Stress

- The unbalance between demands and possibilities (resources) to live up to these demands.
- Long term stress is extremely harmful. The result can be irreversible damage.
- Stress requires recovery periods.
- Stress amplifies other (e.g. physical) problems.
The largest work environment problem

- ...is to feel that you are not doing a good work.
- Nothing must prevent us from doing so!

To measure things

- Can we e.g. measure demand, control, support?
- Yes, one example.

Changes in time at computer

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<th>Efter</th>
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<td>Mindre än 1 tim/dag</td>
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<td>1 - 2 tim/dag</td>
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<td>Mer än 6 tim/dag</td>
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Framtiden

Anser Du att systemet gör att Du kan arbeta effektivare?

Nu

Framtiden

0% 20% 40% 60% 80% 100%

Mycket effektivare Något effektivare Varken eller Något mindre effektivt Mycket mindre effektivt

Expectations

Changes in positive factors

Vad anser Du att införandet av det nya systemet inneburit beträffande

Ansvar som innebär utveckling

Möjligheter att påverka egnas arbetsförhållanden

Omskild i arbetet

Möjlighet att påverka arbetsgruppen påverkas planering

Egen kontroll av arbetsprestationen

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Minskat Ingen förändring Ökat

Changes in negative factors

Vad anser Du att införandet av det nya systemet inneburit beträffande

Andras kontroll av arbetsprestationen

Kvär på uppmärksamhet och koncentration

Ansvar som innebär påfrestning

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Minskat Ingen förändring Ökat
### Changes in self control

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<td>Alltid som styrende</td>
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<td>Oftast som styrende</td>
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<td>Ibland som styrende</td>
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<td>Sällan som styrende</td>
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### The example

- The introduction of the new system resulted in severe work environment problems.

### References, sources

- See the separate document listing several different sources of information!
Assignment (No 2)

Work environment and IT-supported work

- Select and define the assignment subject (see suggestions below)
- Perform the assignment work.
- Write a report
- Present your work orally (Thursday, Nov 19)

Assignment examples

- Study a workplace and analyse the work environment (e.g. somebody working with administration at the IT-department...). Observations, interviews, different work environment aspects....
- Read a PhD thesis on the subject and write a short summary and analysis.
- Study a work environment report in detail and analyse it.

Assignment examples cont.

- Search for work environment statistics from different sources and write a report about the present situation (in Sweden or another country. Or compare basic data from different countries).
- Compare the Swedish work environment law with similar laws from other countries. How are they applied in practice?
- Write a (theoretical, or apply it to your assignment 1??) report on the possibilities to base a work environment analysis on the result from a vision seminar process. (Preliminary methods exist – ask Bengt).
Assignment report

- The report should reflect the work (one work week per group member)
- Write a proper scientific report (even if it is short)
- Background, problem, theory, method, activities, results, evaluation, discussion, references...
- The report can be handed in as paper or electronically
- Collect all your assignment reports in a folder!