IT, work environment and health

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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

- Ryggens nedre del
- Händer/handleder
- Armbåge/armbågar
- Nacke/skuldror/axlar

Kvinnor vs Män
Physical problems

- 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.)
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.
- Special 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:
A bad, unhealthy work

Control

Support

low

high

Demands

weak

A dangerous work
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.
Hur länge arbetar du i genomsnitt med datorstöd?

- Mindre än 1 tim/dag
- 1 - 2 tim/dag
- 2 - 4 tim/dag
- 4 - 6 tim/dag
- Mer än 6 tim/dag
Anser Du att systemet gör att Du kan arbeta effektivare?

Framtiden

Nu

- Mycket effektivare
- Något effektivare
- Varken eller
- Något mindre effektivt
- Mycket mindre effektivt
Changes in positive factors

Vad anser Du att införandet av det nya systemet inneburit beträffande

- Ansvar som innebär utveckling
- Möjligheter att påverka egna arbetsförhållanden
- Omväxling i arbetet
- Möjlighet att i arbetsgruppen påverka planering
- Egen kontroll av arbetsprestationen

Minskat, Ingen förändring, Ökat
Changes in negative factors

Vad anser Du att införandet av det nya systemet inneburit beträffande

Andras kontroll av arbetsprestationen

Krav på uppmärksamhet och koncentration

Ansvar som innebär påfrestning

Changes in negative factors:

- Minskat
- Ingen förändring
- Ökat
Changes in self control

Hur uppfattar du datorns roll?

Före

Efter

Alltid som styrande  Oftast som styrande  Ibland som styrande  Sällan som styrande
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 25)
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!