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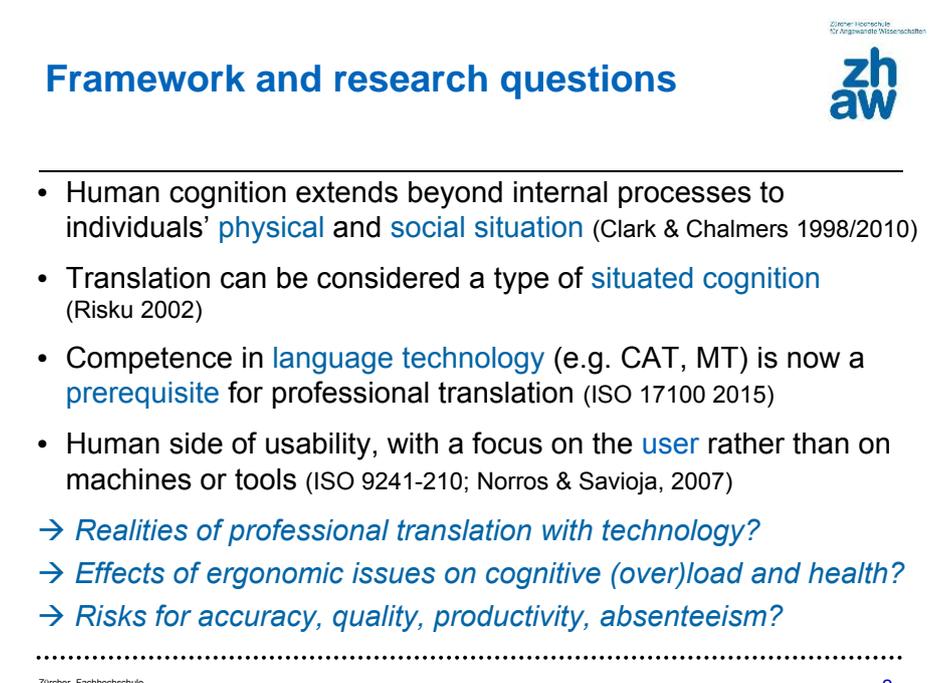
English
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Why ergonomics matters in translation

Maureen Ehrensberger-Dow & Gary Massey
Next Generation Translation Tools, 19 July 2016, Swansea



Framework and research questions

- Human cognition extends beyond internal processes to individuals' **physical** and **social situation** (Clark & Chalmers 1998/2010)
- Translation can be considered a type of **situated cognition** (Risku 2002)
- Competence in **language technology** (e.g. CAT, MT) is now a **prerequisite** for professional translation (ISO 17100 2015)
- Human side of usability, with a focus on the **user** rather than on machines or tools (ISO 9241-210; Norros & Savioja, 2007)

→ *Realities of professional translation with technology?*
 → *Effects of ergonomic issues on cognitive (over)load and health?*
 → *Risks for accuracy, quality, productivity, absenteeism?*

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Design of the *ErgoTrans* project

1. Ergonomics in *Capturing Translation Processes* corpus (n=18)
→ screen recordings, eye tracking, keylogging, exploratory surveys
2. Workplace observations (commercial, institutional, freelance: n=31)
→ screen and video recordings, ergonomic assessments, interviews
3. Hypothesis testing in usability lab (n=30)
→ screen recordings, eye tracking, keylogging, commentaries, interviews
4. International online survey (n=1,850)
→ de, en, es, fr, it, pt
5. Validation of workplace findings (n=19)
→ in-depth individual and group interviews



1. Ergonomic issues in *CTP* corpus

*“Ergonomics (or human factors) is the scientific discipline concerned with the understanding of **interactions** among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to **optimize** human **well-being** and overall system **performance**.”* (IEA 2016)

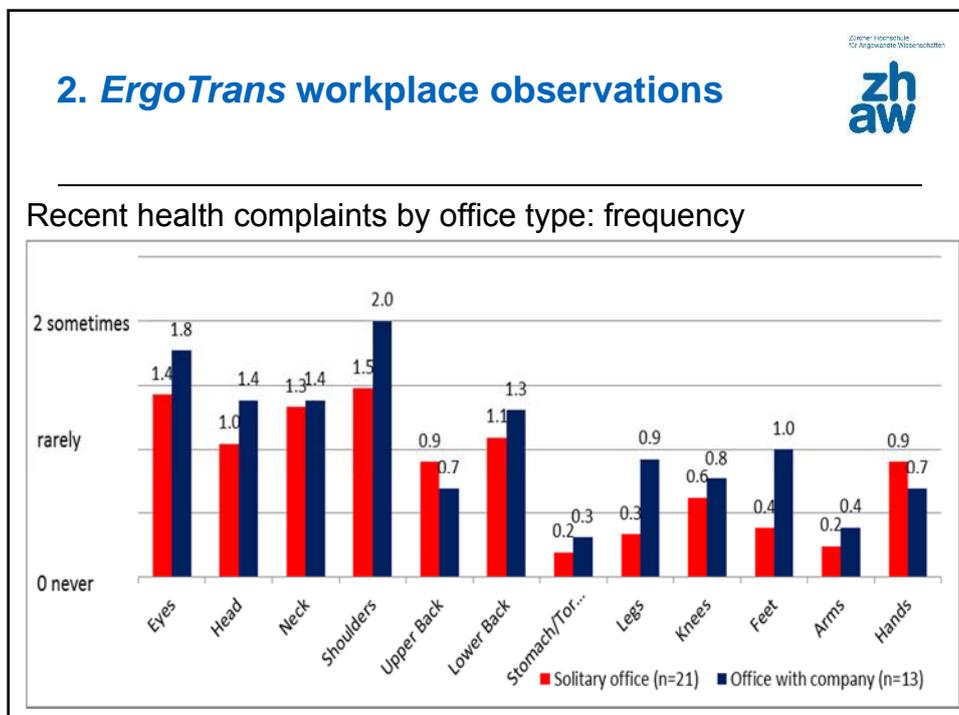
- software issues: usability, stressors and distractors
 - inappropriate auto-correction (abbreviations, technical terms)
 - wrong language as default for spellcheck
 - “Invisible” cursor
 - non-mnemonic shortcuts (e.g. Ctrl-V for “paste”)
- influence of tools (e.g. choosing first entry of concordancer)
- user interfaces (e.g. too many ribbons)

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2. ErgoTrans workplace observations

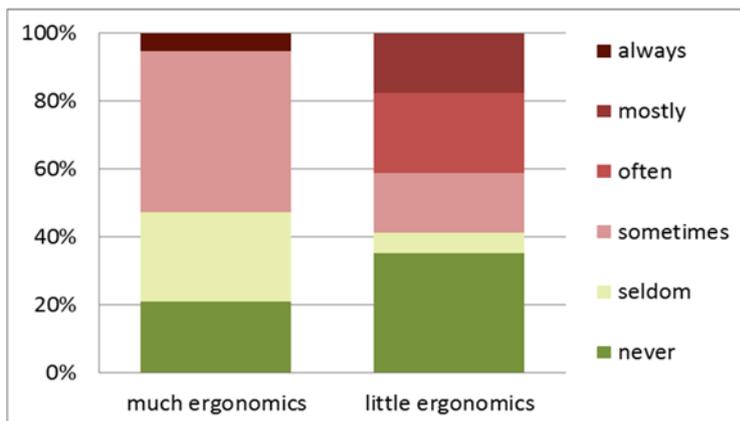
Aspect	Ergonomic	Problematic
Ambient noise	up to 65 dB (n=27)	over 65 dB (n=9)
Temperature	up to 23° C (n=8)	over 23° C (n=28)
Lighting	adjustable (n=17)	non-adjustable (n=19)
Desk height	appropriate for user (n=17)	too high or low (n=19)
Chair height	adjusted correctly for user (n=17)	not adjusted correctly (n=19)
Chair back	movable (n=19)	static (n=16)
Feet	can touch ground (n=22)	cannot touch ground (n=14)
Screen height	5-10 cm under eye level (n=8)	too high (n=28)
Screen distance	60-80 cm away (n=25)	too far (n=11)
Keyboard	10-15 cm from desk edge (n=14)	too close or far away (n=22)
Documents	between keyboard + screen (n=13)	not in front of person (n=18)

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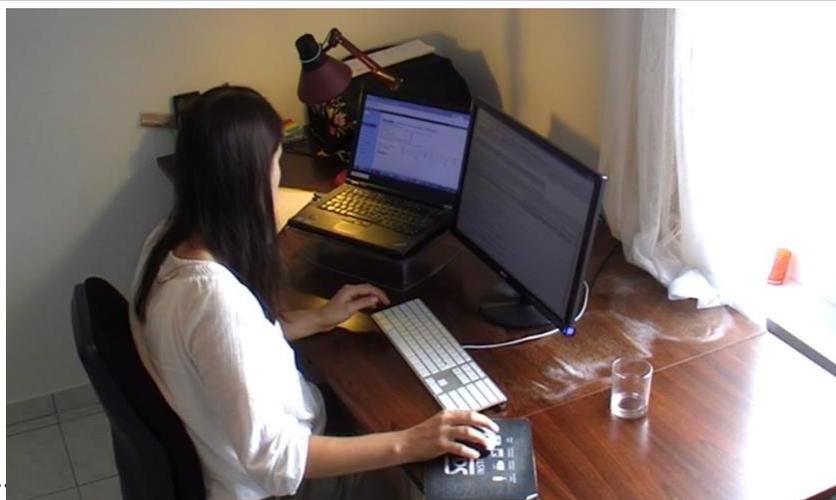


2. ErgoTrans workplace observations

Recent health complaints by office ergonomics: shoulders



2. ErgoTrans workplace observations



2. ErgoTrans workplace observations



entries are deleted according to selection

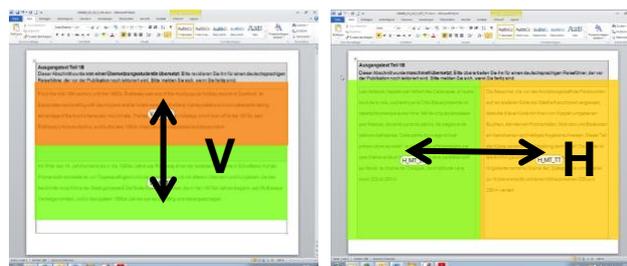
- according to selection
- according to selection
- according to selection
- according to customer
- according to KAG
- according

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3. ErgoTrans testing in usability lab



Phase 3	Experiments in usability lab: screen recording, eye tracking (Tobii T60), keylogging, retrospective commentaries, interviews; 2 related travel guide extracts split into three tasks:
MAs N=10/12	Task 1: revise 1 st paragraph, designated as MT or human (HU) output
Pros N=14/18	Task 2: revise 2 nd paragraph, designated as human or MT output
	Task 3: translate 3 rd paragraph from scratch (TR)
	Layout: Vertical (V) or horizontal (H) arrangement



3. ErgoTrans testing in usability lab



ET results: mean fixation duration

	<i>MA students</i>		Professionals	
	<i>Vertical</i>	<i>Horizontal</i>	<i>Vertical</i>	<i>Horizontal</i>
Mean fixation duration (ST)	0.34	0.32	0.23	0.25
Mean fixation duration (TT)	0.38	0.37	0.25	0.31
MT revision (TT)	0.36	0.35	0.25	0.30
HU revision (TT)	0.36	0.37	0.24	0.30
Translation (TT)	0.44	0.41	0.28	0.35

4. ErgoTrans international survey



1. General information (12 questions)
2. Workspace and working environment (15 questions)
3. Computer workstation (13 questions)
- 4. Tools and resources (7-14 questions)**
5. Workflow and organization (6 questions)
6. Health and related issues (9 questions)
 - pilot-tested with commercial and freelance translators (Ehrensberger-Dow & O'Brien 2015)
 - revised and adapted to cover institutional translators
 - available online from Aug-Dec 2014 (de, en, es, fr, it, pt)
 - distribution through professional associations, conference attendees, companies, institutions, blogs, etc.
 - **1,850** completed surveys from almost **50** countries

4. ErgoTrans international survey

- 73% of respondents use at least one CAT tool
- almost all (97%) of CAT tool users say they are helpful
- most users rarely or never switch between tools (64%)
- just over half use the default settings (54%)
- if they do not use the default settings, they customize:
 - the layout (82%)
 - the tag visibility (63%)
 - the colors (45%)
 - font type (63%)
 - other aspects (19%)
- irritated about certain features (59%)
 - 592 comments about these

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5. Validation of workplace findings

Cognitive ergonomics is concerned with mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system.

(International Ergonomics Association IEA)

Positive aspects

linguistic challenges

domain knowledge challenges

interruptions by people

CAT tools

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5. Validation of workplace findings

Cognitive ergonomics is concerned with mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system.

(International Ergonomics Association IEA)

Positive aspects	Negative aspects
linguistic challenges	poor quality source texts
domain knowledge challenges	monotony
interruptions by people	e-mail interruptions
CAT tools	irritating CAT features
	crowded screens
	time pressure

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Some conclusions and further directions

- There is room for improvement in the ergonomics of most translators' tools and workplaces .
- Freelancers seem to compensate for poor physical ergonomics with more freedom and self-determination.
- Professionals in our sample spent inordinate amounts of time doing very routine tasks (formatting, etc.).
- Layout (and possibly other features of CAT tool systems and user interfaces) seems to have an effect on the cognitive ergonomics of translation, at least for professional translators.
- Irritating features of tools, interruptions, and disturbances negatively affect concentration and productivity as well as potentially the quality of TTs.

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