1. Interpreting – what is it?
2. Expertise – who is an expert?
3. Concreteness effect in recall of words:
   - word span test results
   - possible explanations
4. Concreteness effect in recall of prose:
   - prose recall test results
   - possible explanations
   - qualitative analysis
5. Plans for future research
Interpreting: classified by time delay

Simultaneous interpreting (SI)
- Translating and speaking while listening to source language text
  - delay 3-5 s or 3-4 words
- usually by means of technical equipment:
  - soundproof booths
  - incoming voice through headphones
  - outgoing voice through a microphone
  - unhindered view of speaker and audience
- working in pairs: 20 min each
- translation into mother tongue (L1)
- several languages at once (one booth per language)

Consecutive interpreting
- in two phases:
  - listening and note-taking
  - speaking
- a few sentences at a time
  = 1-3 min
- BUT: expert interpreters
  - 5-10 min, up to ½ h
Interpreting: where?

**Simultaneous interpreting**
- conferences
- congresses
- symposiums
- large-scale meetings
- UN – six official lang’s
- EU – 23 languages
- relaying
- bi-active: into L2
- courts
- remote interpreting: phone & video

**Consecutive interpreting**
- courts
- negotiations, meetings
- community interpreting
  - in Finland mostly refugees and immigrants
- conferences
  - usually 1-2 languages
- no technical equipment needed
**BUT** time consuming: +2/3 of the speaker's time

Interpreting: how is it possible?

- excellent knowledge in both languages:
  - automatized search for equivalent words and phrases
- excellent general knowledge in:
  - politics, culture, research etc. of the countries where the languages are spoken
- thorough advance preparation:
  - background knowledge of subject in question
  - terminology and new words and their equivalents in both languages – excellent learning abilities
Interpreting: how is it possible?

**Simultaneous:**
- attention divided betw. 
  listening AND:
  - reformulation
  - speaking
  - error monitoring
  - eventual error corrections
  - monitoring overall message
- anticipation
  - conference = hypertext

**Consecutive:**
- analysis of sentence meaning (message)
- compressing
  - chunking
- efficient reformulation
- anticipation:
  - structure in general
  - phrases, speech patterns
  - ends of sentences

Who is an expert?

Ericsson and Smith, 1991:
- expert performance – consistently superior performance on a specified set of representative tasks for a domain
- intensive dedication = deliberate practice in one domain of expertise 10 yrs at a minimum
Levels of expertise
Chi, 2003, 22

- Novice – noviisi
- Initiater – aloittelija
  - passed initiation rituals
- Apprentice – oppipoika
- Journeyman – ammattilainen, asiantuntija
- Expert – ekspertti, huippon, eliitti-
- Master – mestari, opettaja

Participants:
- consecutive interpreters (13-14)
  - average age 47.5 y
  - experience 16.8 y (7-25 y)
- foreign language teachers (13-15)
  - average age 45.3 y
  - experience 16.2 y (5-32 y)
Memory tests of consecutive interpreters

Experiment design

Stimuli:
- concrete and abstract Finnish nouns:
  - 5-6 letters, 2-3 syllables
- concrete and abstract passage of prose in Finnish

Listening and auditory recall

Short-term memory span (Unsworth and Engle 2007)

- words presented in blocks of 3-10 words
- 2 blocks of each length
- Strict span = simple memory span = number of words in the largest block correctly recalled

<table>
<thead>
<tr>
<th></th>
<th>Recalled best block, number of words</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interpreters</td>
</tr>
<tr>
<td>Strict conc</td>
<td>5.37</td>
</tr>
<tr>
<td>Strict abstr</td>
<td>5.39</td>
</tr>
</tbody>
</table>
Working memory span (Unsworth and Engle 2007)

- Complex memory span = Working memory span 
  = total number of correctly recalled words (out of 104 words)

Results: complex span

- **NO** concreteness effect
- **both** groups performed equally well:
  - in simple span
  - in complex span

![Complex memory span graph](chart.png)

- **Interpreters**:
  - Total recall: 79.77%
  - Concrete: 77.29%
  - Abstract: 80.4%
- **Teachers**:
  - Total recall: 77.54%
  - Concrete: 77.29%
  - Abstract: 77.54%

© S. Hiltunen/17.11.2010
Why no differences between the groups?

- in span tests (where influence of experience is excluded) usually no differences between experts and novices (Ericsson & Delaney 1999)

Explanations

- complex memory span was not complex enough?
  - Christoffels et al. 2006:
    - 3 blocks of each size
    - Proactive interference (PI)
Explanations

Why no differences between the groups?

- both groups were foreign language experts
- compared to other expert groups?
- or to novices??

Explanations

Why no concreteness effect?
Concreteness effect

Marschark, Hunt, Einstein (several papers in 1980-1989), concreteness effect emerges only IF:
- instructions in favour (imagine, familiarity)
- enough time for imagining: 2-8 s/word
- cued recall (e.g., word pair tests)
- repeated tests of same lists
- None of these requirements were present

Prose recall

Two prose passages:
- **concrete**: short novel by Sinikka Nopola (abstract)
  - 186 words, presented in 10 speech sequences (auditorily)
- **abstract**: short research article by Raimo Raitasalo in Kelan sanomat (website)
  - 197 words, presented in 11 speech sequences (auditorily)
Prose recall

Concreteness at word level
(scale: 0 – abstract; 10 – concrete):
- concrete prose - 6.39 (2.23)
- abstract prose - 4.28 (1.65)
(difference: $p < .001$)

- without note-taking
- oral recall
- recall of message and important details emphasized

Idea unit – merkityksellinen yksikkö

Mills et al., 1993, 289:
- sentence or part of a sentence
  - that expresses a complete idea
    - contains an actual or implied verb
    - and is usually a phrase-size unit
- in Finnish – clause (lause) or shortened clause (lauseenvastike)
**Abstract**

Prose passage was recalled better than concrete prose.

Interpreters recalled both passages better than teachers:
- abstr. $p < .001$
- concr. $p < .05$

**Prose recall**

Recall of medium and long speech sequences by group:

- Abstract: long speech sequences (22-25 words) were recalled better than concrete speech sequences
  - $p < .001$
Why recall of concrete prose worse?

Concrete prose cannot be defined by concreteness at word level

- concrete passage was literary!
- text – a logical, coherent entity:
  - the title alone would have helped in figuring out the red thread (especially in the concrete passage) but was not given! (Bransford & Johnson 1972 and others)

Why interpreters better (even in recall of concrete prose)?

- Both foreign language groups fluent readers, but interpreters more used to listening?
- Interpreters used to quickly inferring the clue even from tiny hints?
Qualitative analysis

1. **Medium** speech sequences, conrete prose:
   - better recall of **tiny details** by interpreters:
     - “En keräisi legopaloja talteen...”
     - “Kuka rakentaisi palapelin joskus uudelleen?”
   - essential in understanding the storyline
   - about **half of the interpreters** were court interpreters used to paying attention to details!

2. **Long** speech sequences, abstract prose:
   - better recall of leading phrases of passages by **interpreters**:
     - “Ikääntyvien väliset suhteet muuttuivat...”
   - usually **only the example part** at the end of the passages was recalled by most of the participants
   - **BUT:** “recency effect”?
Memory errors

1. Time definitions:
   • …vakiinnutti asemansa 1970-luvun lopulla:
     was recalled as:
     • sai alkunsa, tehtiin, lähti käyntiin, aloitettiin, on tehty...
     • by 10 teachers vs. 8 interpreters

Memory errors

2. Causal relations:
   • …masentuneisuuteen liittyvää yksinäisyttä:
     was recalled as:
     • yksinäisyteen liittyvää masentuneisuutta
     • although the whole passage was about lonelines!
     • by 5 teachers vs. 2 interpreters

➢ or the causal relation was totally missing:
   • by 2 teachers vs. 3 interpreters
Synonymous expressions

- Yllättävältä saattaa tuntua se...
  - was recalled as:
    - on/oli se, saattaa olla:
      - by 7 teachers vs. 4 interpreters
    - kuulostaa/kuulosti:
      - by 2 teachers vs. 1 interpreter
    - exactly the SAME word:
      - by 4 teachers vs. 8 interpreters (>½)

Synonymous expressions

- Tämän katsottiin johtuvan...
  - was recalled as:
    - uskottiin, vois liittyä, johtua, ovat:
      - by 5 teachers vs. 4 interpreters
    - selitettiin/selitetään:
      - by 1 teacher vs. 1 interpreters
    - exactly the SAME word:
      - by 6 teachers vs. 8 interpreters (>½)
Synonymous expressions

NLP (neuro-linguistic programming) - hypothesis:

- "translating" or interpreting an expression in one representational system to one’s own favorite representational system
- e.g. a visual system word “see” into an auditory system word “hear”
- interpreters NOT so prone to this phenomenon?

Expertise in interpreting - summary

Interpreters are better and slightly more accurate than teachers in recall of essential details:

- of thread or storyline
- important to the speaker
Excellence

4 best performers in prose recall were ALL interpreters:
- abstract AND concrete prose
- the only perfectly correct recalled long speech sequences (22-25 words) were from interpreters
  - measured in idea units

Criticism and questions

- relatively few participants
  - 13-15 in each group
  - statistically not very persuasive...
- comparison to other expert groups or novices?
- role of attention (master thesis from 2008)?
- role of innateness – temperament?
Second phase - started

More groups and more participants:
- consecutive interpreters (20)
- BOTH simultaneous AND consecutive (16)
- foreign language teachers (22)
- non-linguistic experts (24)
- mother tongue Finnish (early bilinguals < Finnish learned before 3 to 4 years of age)
- bachelor-level education or equivalent
- minimum of 10 years' expertise in professional field

Memory tests
- recall of words (concrete and abstract)
- prose recall
- Attention test: cocktail-party – dichotic listening
- Temperament inquiry (Cloninger)
Third phase: EEG planned

- Experiment(s) – which?
  - Any ideas?
- New research questions?

also by e-mail, please
www.muistikuisti.net

Third phase: EEG planned

- possible research assistants – for bachelor and master thesis
  - contact in 2 years if still interested

www.muistikuisti.net

© S. Hiltunen/17.11.2010
Literature
