



ADAM MICKIEWICZ UNIVERSITY IN POZNAŃ

Faculty of English

On visual processing of numbers and its effect on the accuracy of simultaneous interpreting

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Outline

- cognitive processing in interpreting
- visual materials in simultaneous interpreting
- **report on our pilot study**
- results and discussion



The cognitive approach (CA)

Interpreters' **working memory** (e.g. Daneman and Carpenter 1980; Padilla et al. 1995; Moser-Mercer et al. 2000; Chmiel 2012)

Processing models of SI (Darò and Fabbro 1994; Gerver 1975; Moser-Mercer 1978)

Gile's Effort Models (1995)- SI:

- the Listening and Analysis Effort (L)
- Short term memory Effort (M)
- the Speech production Effort (P)
- the Coordination Effort (C)





Visual materials in SI

H1: Access to visual materials → cognitive load reduced

H2: Access to visual materials may generate additional load on the part of the interpreter

Gile's Effort Models (based on Kahneman's capacity theory of attention, 1973)

Seeber's Cognitive Load Model (based on Wickens' Multiple Resource Model, 1984)



Processing of numbers

numerical data might be regarded as problematic due to their low predictability, low redundancy and high informative content (Mazza 2001)

number = (1) the arithmetic value, (2) the order of magnitude (e.g. million vs. billion), (3) the unit (e.g. currency), (4) the extra-linguistic element that the number refers to and (5) the relative value of a given number (e.g. increase vs. decrease) (Jones 2002: 117f.).



The study



The study

The purpose of the study:

- to verify whether simultaneous interpreters, while listening to the source speech and speaking themselves, look at numbers displayed on slides,
- to determine whether visual input in the form of numbers increased interpreting accuracy,
- to investigate inter-group differences (professionals vs. trainees) in terms of interpreting accuracy and eye-tracking measures.

Participants:

- 8 professional interpreters;
- 10 interpreting trainees.



The study

Materials/procedure:

- two 4-minute recordings to interpret simultaneously from English into Polish (presentation of European countries);
- (1) access to visual materials in the form of PPT slides; (2) no access;
- the order of presentations was counterbalanced across the participants.

Grading scale

1 – correct, 0.5 – approximation, 0 – incorrect/omission

Apparatus:

EyeLink 1000+ eye-tracker



The study

Hypotheses:

- H1: novices are characterised by longer gaze time and higher fixation count
- H2: access to visual input facilitates interpreting
- H3: professional interpreters provide more accurate interpretations than trainees

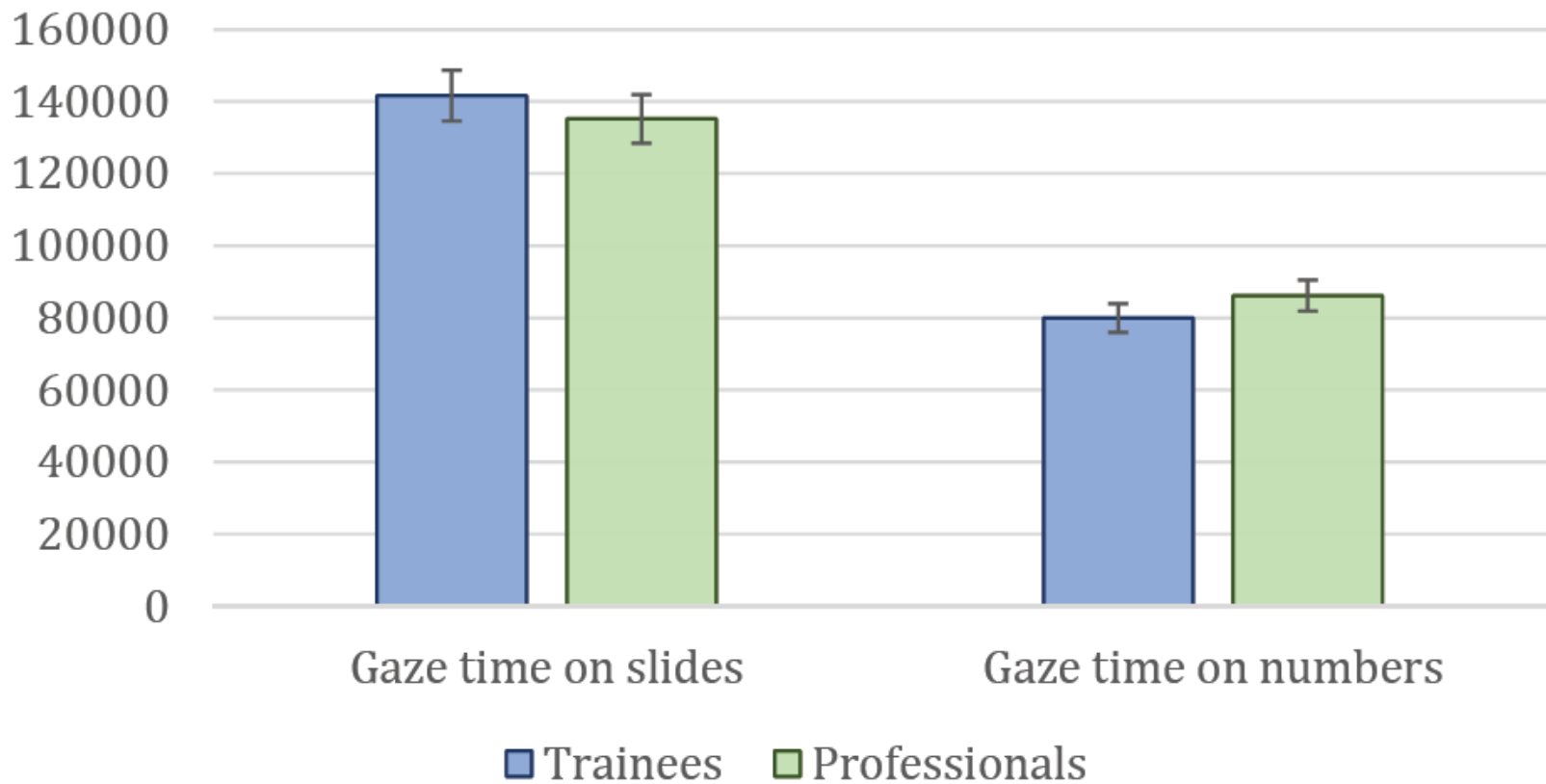


Results: H1

H1: novices are characterised by longer gaze time and higher fixation count

no statistically significant differences (slides: $p=0.773$; numbers: $p=.758$)

Gaze time [ms]



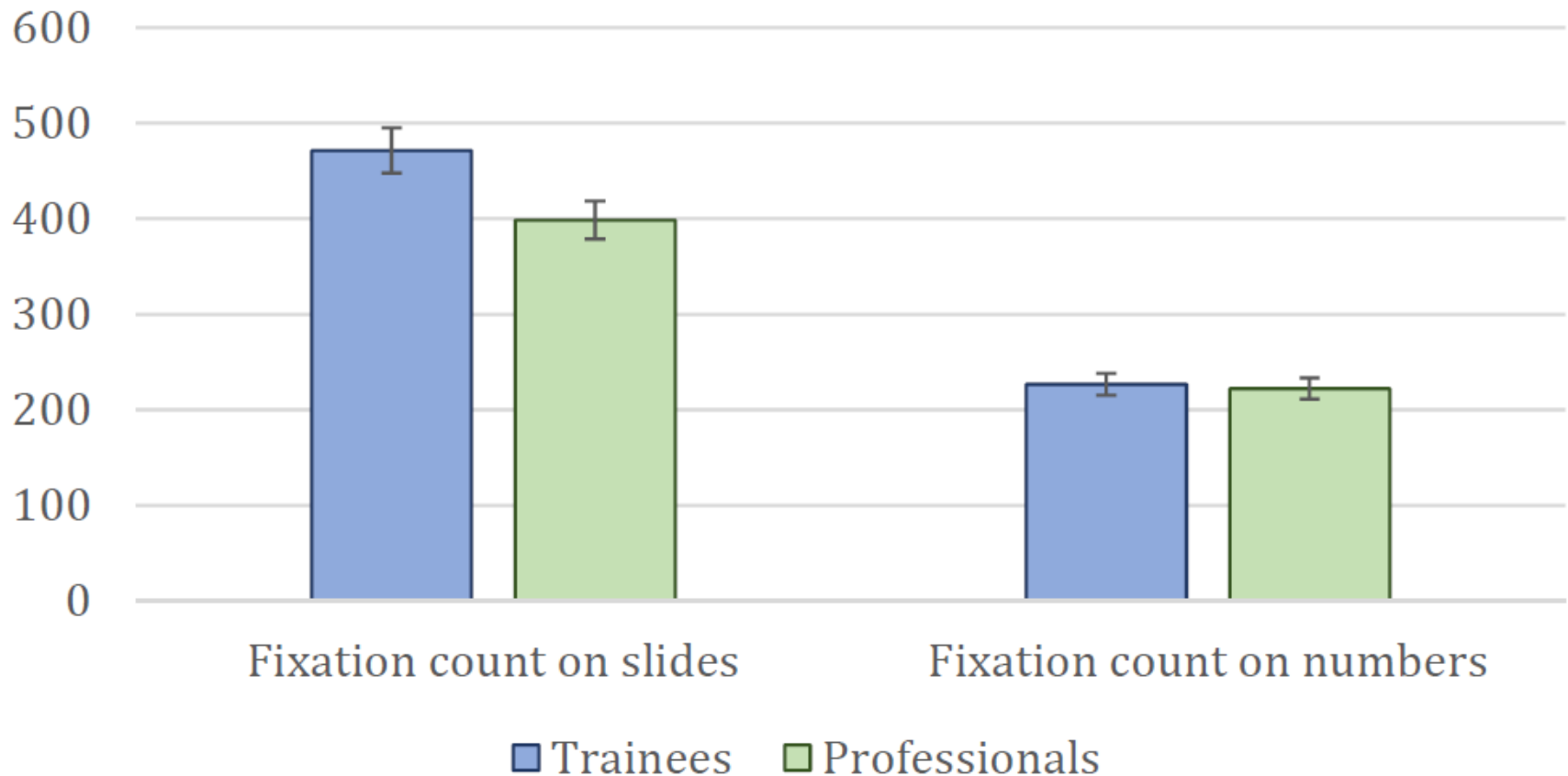


Results: H1

H1: novices are characterised by longer gaze time and higher fixation count

no statistically significant differences (slides: $p=0.336$); numbers: $p=.939$)

Fixation count

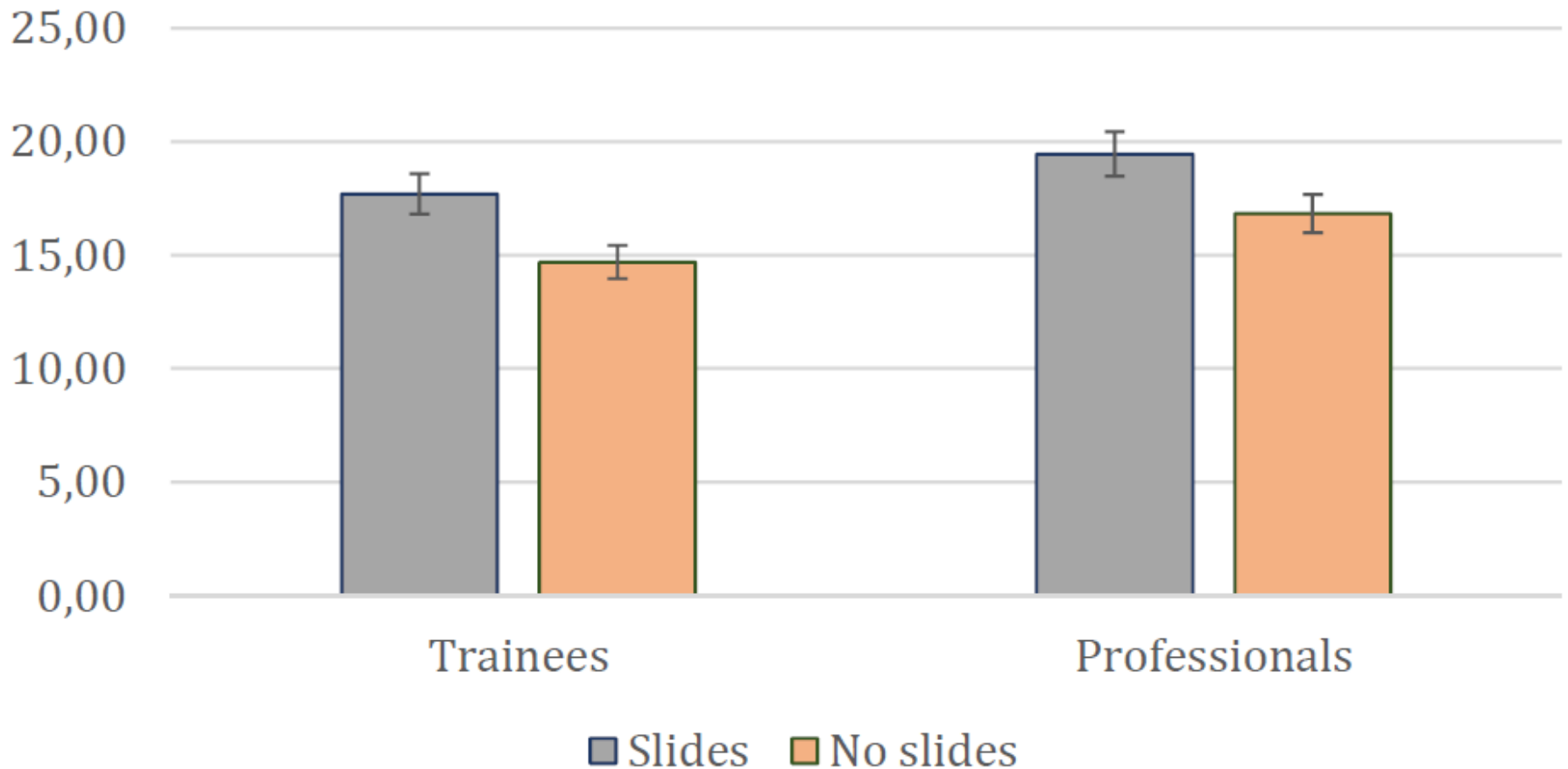




Results: H2

H2: access to visual input facilitates interpreting ($p < .001$)

Accuracy

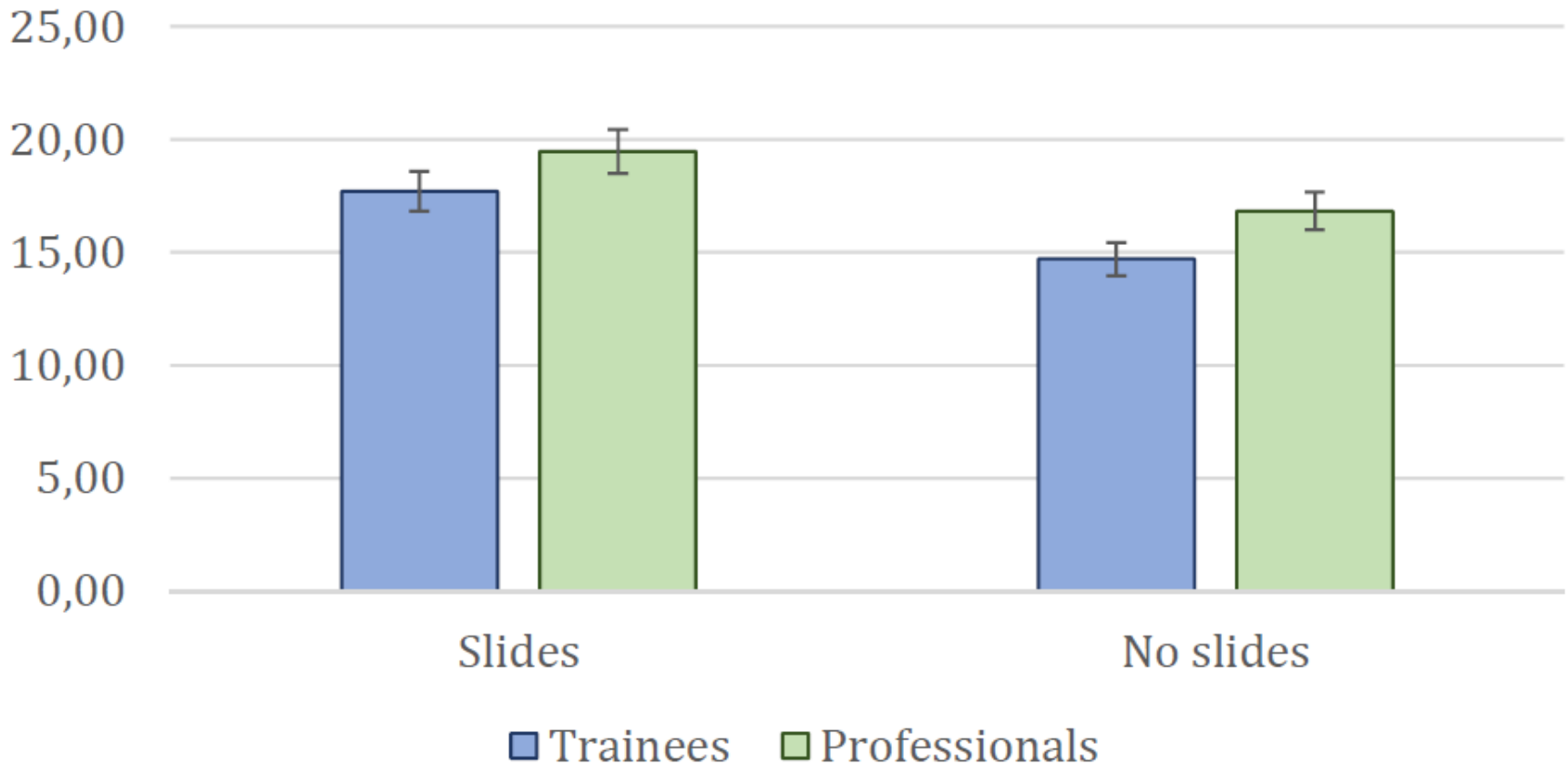




Results: H3

H3: professional interpreters provide more accurate interpretations than trainees (p=.004)

Accuracy





Conclusions and practical applications

- professionals are better at assigning their cognitive resources to particular sub-tasks in simultaneous interpreting,
- access to visual stimuli may facilitate the process of simultaneous interpreting,
- applicability of results to conference interpreting training; interpreter trainees should be aware of what their task encompasses and learn to coordinate the processes of aural and visual input processing.



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Selection of references

- Christoffels, Ingrid and Annette de Groot. 2005. "Simultaneous interpreting: A cognitive perspective", in: Judith F. Kroll and Annette de Groot (eds.), *Handbook of bilingualism: Psycholinguistic approaches*. New York: Oxford University Press, 454-479.
- Darò, Valeria and Franco Fabbro. 1994. "Verbal memory during simultaneous interpretation: Effects of phonological interference", *Applied Linguistics* 15(4): 365-381.
- Gile, Daniel. 1995. *Basic concepts and models for interpreting and translation training*. Philadelphia: John Benjamins.
- Moser, Barbara. 1978. "Simultaneous Interpretation : A Hypothetical Model and its Practical Application", in Gerver, David (ed.), *Language, Interpretation and Communication*, New York/London: Plenum Press.
- Gerver, David. 1976. "Empirical studies of simultaneous interpreting: A review and a model" w: Brislin, Richard (red.) *Translation*, New York: Gardner Press.
- Mazza, Cristina. 2001. "Numbers in Simultaneous Interpretation", *The Interpreters' Newsletter* 11, 87-104.
- Seeber, Kilian G. 2011. "Cognitive load in simultaneous interpreting: Existing theories – new models", *Interpreting* 13: 2, 176-204.