Influence of conference interpreting on executive functions

1. INTRODUCTION

Many studies show that the use of two or more languages is a cognitive advantage (Craik, Bialystok, & Freedman, 2010 ; Gold, Johnson, & Powell, 2013). Some of these studies have focused on executive functions in the bilingualism. Conference interpreting is a cognitively demanding activity that involves executive functions and bilingualism. The requierement comes from the need to keep two active languages, switch continually from one to the other, to avoid interference and all simultaneously under high time pressure.

The results showed that conference interpreters have better performance in test requiring cognitive flexibility (Yudes et al., 2011), allocation of attentional resources (Lee, 2011) or in tasks assessing working memory (Signorelli et al., 2012; Yudes et al., 2011). So it seems that beyond the benefits of bilingualism, particularly demanding work activity of conference interpreters contributes to a better executive functioning. However, these studies are often conducted on small samples and focus on one executive function.

2. PARTICIPANTS

	Characteristics		
	Interpreters (n=60)	Translators (n=60)	Monolingual (n=60)
Age	44.28 (11.68)	44.98 (11.83)	44.02 (11.58)
Experience	18.57 (12.07)	21.22 (11.54)	17.78 (10.63)
Eductation	16.58 (1.39)	16.15 (0.36)	16.7 (1.23)
Men/Women	23/37	26/34	29/31

3. TASKS

• A Computer-based Brown Peterson (Multitasking)

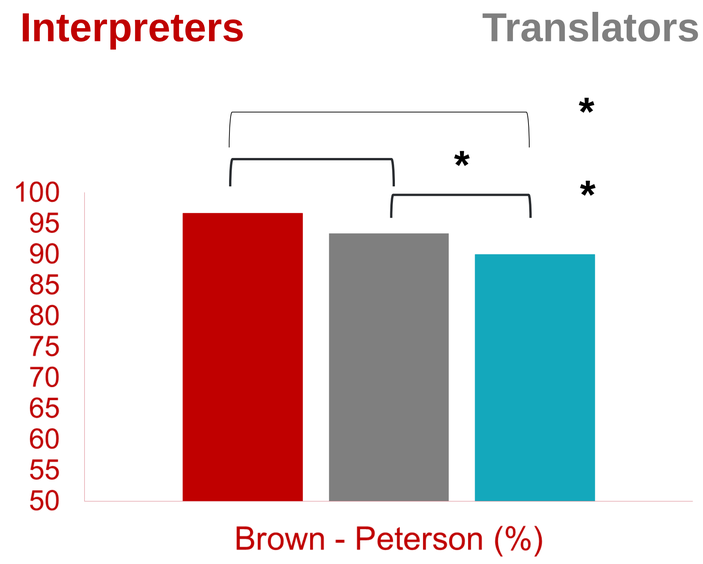
On E Prime 2.0 :

• Two tasks of reaction times (Motor – Oral)

• Three tasks from the model of executive functions (Miyake et al., 2000)

- Letter Memory (Updating)
- Plus-Minus (Flexibility)
- Antisaccade (Inhibition)

4. RESULTS



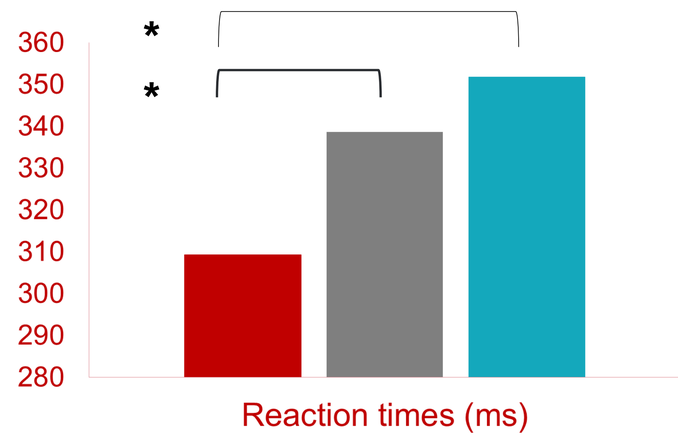
Multitasking:

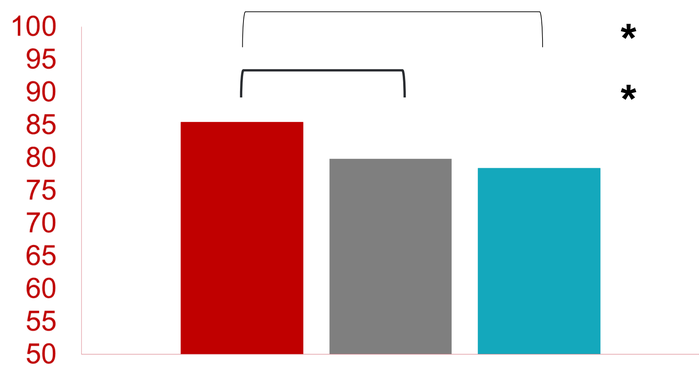
Interpreters are more efficient than translators (p = .001) and monolingual (p = .001).

Moreover, translators are more efficient than monolingual (p = .03).

Reaction times :

Interpreters are faster than translators (p = .001) and monolingual (p = .001).



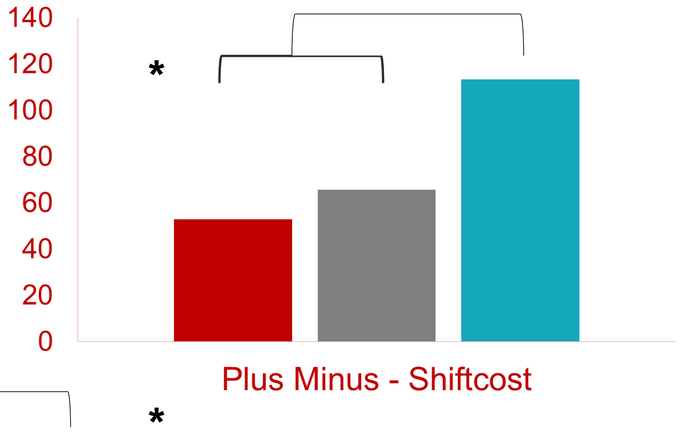


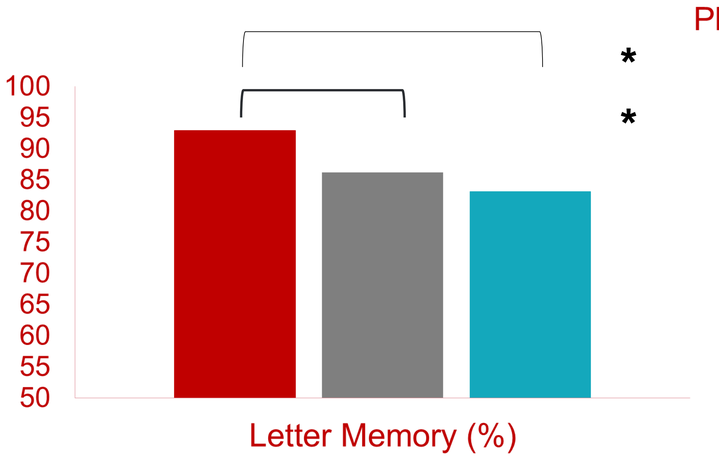
Inhibition :

Interpreters are more efficient than translators (p = .006) and monolingual (p = .001).

Flexibility :

Interpreters and translators have a significantly lower shift cost than monolingual (p = .001).





Updating :

Interpreters are more efficient than translators (p = .001) and monolingual (p = .001).

5. DISCUSSION

These results show that except cognitive flexibility, interpreters have better performance in all tests. It seems that beyond the effects of bilingualism, the work activity of conference interpreters can contribute to a better executive functioning. Future analyzes will take into account the age effect on the cognitive performance among the three groups.

Université de Mons

Sébastien Henrard & Agnès Van Daele
Service de Psychologie du Travail. 18, Place du Parc, 7000 Mons, Belgique