Multitasking and Multiple Object Tracking in Bilinguals

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INTRODUCTION

• It has been argued that bilinguals have an enhanced general executive system due to constant monitoring required to keep the languages separate (e.g. Bialystok, 2017; Surrao & Luk, 2019).

• In control of attention, the results are robust – bilinguals are either better or no different than monolinguals at monitoring attention; they are never worse (e.g. Antoniou, 2019; Bialystok, 2017; Hartanto & Yang, 2018; Lehtonen, et al., 2018; Sörman, et al., 2019).

METHOD

Participants

• 36 Bilingual Speakers (25 women; Age: M = 20.03, SD = 2.74)
  – All speak more than one language consistently for at least 8 years at home, school and/or work
  – 33 have English as mother tongue
• 36 Monolingual English Speakers (22 women; Age: M = 20.43, SD = 3.08)

Task & Procedure

Multiple Object Tracking

With distraction

Track the target disks while counting backward in your mother tongue

Without distraction

Track the target disks

Count backward or count forward as participant

Participants were randomly assigned to one of two groups: in the without distraction condition, participants were instructed to track the target disks and count backward or count forward at a rate of 1 number per second. In the with distraction condition, participants were instructed to track the target disks while counting backward in their mother tongue.

RESULTS

The threshold speeds of bilinguals vs. monolinguals with and without distraction. The error bars represent ± 1 SE of the mean.

• Without distraction, bilinguals’ threshold did not differ from that of monolinguals ([8.80 ± 0.84 vs 7.19 ± 0.92 deg/s]).

• With distraction, bilinguals’ threshold was significantly higher (better) that of monolinguals ([5.54 ± 0.89 vs 4.36 ± 0.62 deg/s]).

CONCLUSIONS

• When multitasking is required, bilingualism confers advantages even in visual attention.

• Bilingualism constantly requires dynamic attention in the verbal domain which may lead to an adaptation/resilience of the executive control system (as suggested by Bialystok, 2017).

• This adaptation affects visual attention.

References

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