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<td>Author(s)</td>
<td>Low, Joel Jia Wei</td>
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Task Switching in English-Chinese Bilinguals: A Life-span Approach

Switching between tasks is essential in daily function. The current study investigated the life-span development of cognitive flexibility in Singaporean English-Chinese bilinguals. Task switching involves maintaining and updating information, integrating task sets, suppressing previously active task sets, and disinhibiting previously suppressed task sets.

Hypotheses:
1. Life-span studies with monolinguals have found that task switching improves during childhood and adolescence and declines during senescence (Cepeda et al., 2001; Zelazo, Craik, & Booth, 2004). The current study hypothesized that bilinguals also follow such lifespan developmental pattern.
2. Total change condition mainly involves maintaining and updating information. Thus, the switch costs in the TC condition should be smaller than those in the standard condition.

Methodology
- Peabody Picture Vocabulary Test (PPVT), 4th Ed. (Dunn & Dunn, 2006)
  • To access proficiency level of English and Chinese (translated)
  • Select the picture that best represents the meaning of the spoken word
- Ishihara Colour-Blindness Test (Ishihara, 1917)
  • Identify digits embedded in 6 coloured plates
- Dimensional Change Card Sort (DCCS) Task (Zelazo, Müller, Frye and Marcovitch, 2003)
  • Computer task tested in either English or Chinese
    a) SD Condition – To sort a series of bivalent test cards according to one dimension first (e.g. Colour) and then according to the other (e.g. Shape)
    b) TC Condition – Values of both dimensions (shape and colour) are different for both pre-switch and post-switch tasks

Data Analysis
1. The trend of switch costs decreasing and increasing across the lifespan can be observed in SD condition, but not in TC condition. Different from previous work with monolinguals, bilingualism senior adults have similar switch costs as young adults.
2. Switch costs in TC condition are smaller than those in SD condition.

Results & Conclusions
1. Bilingualism may slow down the decay of flexibility in senior adults (Bialystok, Craik, & Ryan, 2006).
2. Task switching can be easier when task context is completely changed.

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