

Theory of Mind and Language Similarity in Bilingual Children

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Background

- Recent research suggests bilingual children outperform monolingual counterparts in **Theory of Mind (ToM)** tasks (Goetz, 2003).
 - Possibly due to executive control advantages observed in bilinguals.
- A majority of ToM studies relied on bilinguals within the Indo-European language family (Spanish, German, etc.; Schroeder, 2018).
 - Evidence is mixed for ToM tasks that involve complex language processing.
- Executive Function (EF)** research on bilingual adults suggests that language dissimilarity does not improve performance in nonverbal tasks (Oschwald et al., 2018).
 - Hypothesized that this effect may be different in children.

Hypothesis

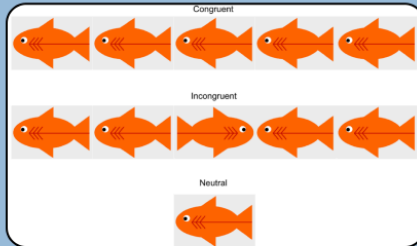
Bilingual children, ages 3-5 years old, speaking languages similar to English will show better EF and ToM skills than those speaking languages less similar to English.

Methods

Participants

- N=7 total participants ages 3-5
 - Parents were emailed through the Children's Research Center (CRC)
- Three **LS Groups**
 - M = Monolingual (N=2)
 - C = Close (N=2)
 - D = Distant (N=3)
- Language Similarity** was grouped based on language family trees (for example: Indo-European = C vs. Austroasiatic = D).
- Bilingual standing was self-reported through a demographic form.

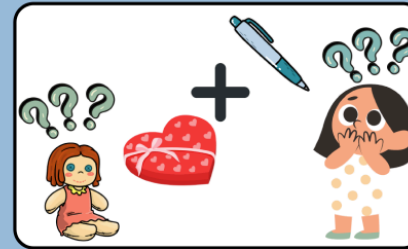
Flanker Task



Flanker Task

- Child states the center fish's direction while ignoring the surrounding fish's direction for each condition.
- 24 trials for each condition: congruent, incongruent, neutral.
 - *Neutral was not analyzed

False Belief Task



False Belief Task

- Child is asked what is in an M&M's box and shown that there is a pen inside.
- Child is then asked what an uninformed individual (doll) will say is in the box.
- Pass = Child says "M&M's" or "Candy"
- Fail = Child says "Pen"

False Belief Data

FBT Pass	Language Category			Total
	C	D	M	
0	2	1	0	3
1	0	2	2	4
Total	2	3	2	7

- Monolinguals tended to pass the false belief task at a higher rate than the bilingual groups.
- Distant bilinguals tended to pass the false belief task more frequently than close bilinguals.

Conclusions

- The preliminary flanker task results align with Bialystok et al.'s (2012) research, highlighting enhanced executive function skills for bilinguals when compared to monolinguals.
- The flanker results do corroborate Oswald et al.'s (2018) hypothesis that language effects of language dissimilarity are different in children.
 - But do not align with adult findings.
- The false belief results were not consistent with a bilingual advantage (eg, Schroeder, 2018)
- These results should be treated with caution due to the low participant count.
 - Data collection is ongoing

Flanker Data

	FlankerRTCon			FlankerRTIncon		
	C	D	M	C	D	M
Mean	1.373	1.089	1.586	1.716	1.131	2.415
Std. Deviation	0.472	0.399	0.221	0.689	0.415	0.178

C = Close Language, D = Distant Language, M = Monolingual

	ErrorIncon			ErrorCon		
	C	D	M	C	D	M
Mean	0.167	0.014	0.563	0.063	0.014	0.146
Std. Deviation	0.000	0.024	0.324	0.029	0.024	0.088

C = Close Language, D = Distant Language, M = Monolingual

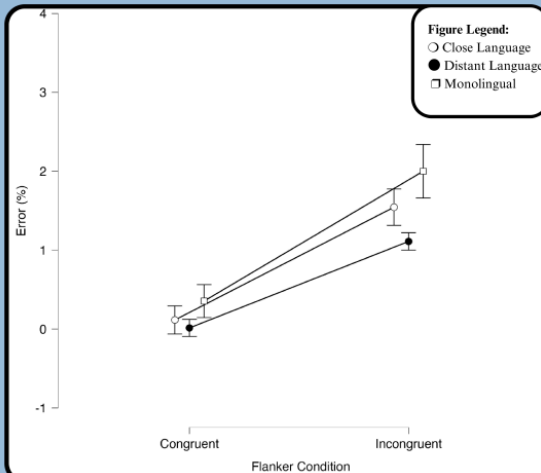


Figure Legend:
 ○ Close Language
 ● Distant Language
 □ Monolingual

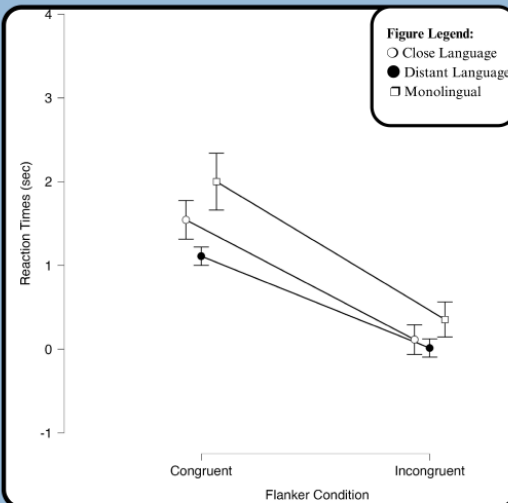


Figure Legend:
 ○ Close Language
 ● Distant Language
 □ Monolingual

Distant bilinguals tended to show faster reaction times and fewer errors than close bilinguals for both flanker conditions.

Both bilingual groups tended to perform better than the monolinguals in both flanker conditions.

References

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