

BILINGUALISM & INTELLIGENCE

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GROUP 5

THE MYTH

02

GROUP 5

BIG PICTURE RESEARCH QUESTION

03

GROUP 5

MEASURABLE RESEARCH QUESTION

04

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METHODOLOGY

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DATA GRAPHIC INTERPRETATION

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THE MYTH Being bilingual impacts your intelligence, either in a <i>negative</i> or <i>positive</i> way. In the past century, researchers have been debating the <i>benefits</i> and <i>consequences</i> of bilingualism, particularly when it comes to intelligence & cognitive abilities. Many studies—including the one we’ll be covering—have begun to suggest that the <i>mental exercise</i> associated with becoming bilingual may have positive, long-term effects. “The Longitudinal Effect of Bilingual Immersion Schooling on Cognitive Control and Intelligence” Woumans et al. (2016)		
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BPQ BIG PICTURE QUESTION Does bilingualism affect the intelligence of children acquiring an L2 compared to the intelligence of purely monolingual children of the same age? Does becoming bilingual impair cognitive development, or does it make children smarter? "The Longitudinal Effect of Bilingual Immersion Schooling on Cognitive Control and Intelligence" Woumans et al. (2016)		
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MRQ

Is there an **increase in domain-general cognitive effect** for both cognitive control and general intelligence for **5 year old children becoming bilingual** compared to monolingual children over the span of 1 year?

Specifically: What increase, if any, occurs, for bilingual compared to monolingual children when measuring general cognitive effect by IQ ?

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METHOD

Participants

- 54 preschool monolingual French children.
- Recruited from 6 schools in the Walloons Community in Belgium.
- Questionnaire for child and parent linguistic background, socioeconomic status, and confirm that the child didn't have any learning, language, comprehension, or sight problems.
- **Parents = monolinguals & children had no prior exposure to another language.**

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METHOD Conditions Condition 1: 27 enrolled in monolingual program Condition 2: 27 enrolled in bilingual program. 50% of classroom communication in - Either half days or alternating 50% skills & competencies taught in L2 - Guided activities: songs, poems, stories, crafts - Free activities (e.g. playground games): teachers ensured communication remained in the correct language for that time.		
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Design & Procedure

- All tasks **administered twice**: Once at the beginning (T0) and once once at the end of the school year (T1)
- Sessions no longer **30 min.** per child.
- **3 tasks:**

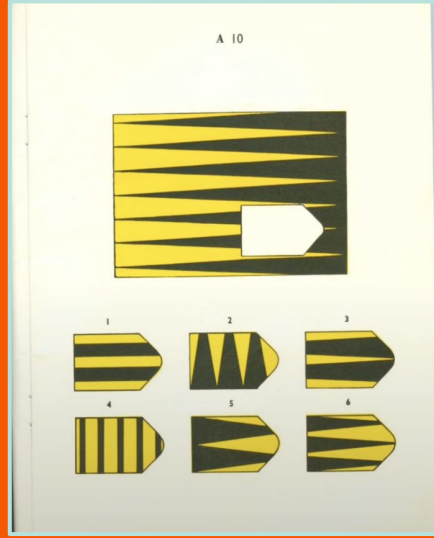
Measure L1 Proficiency

Non-verbal test of analytic reasoning. Accepted measure of fluid intelligence.

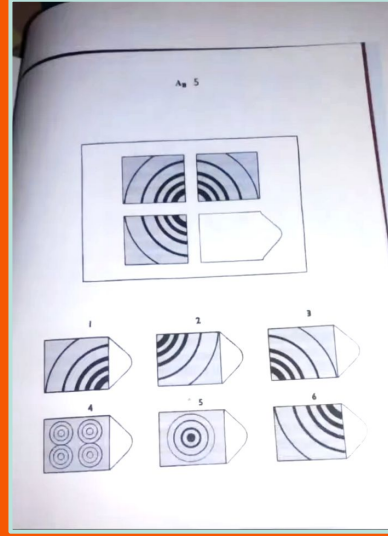
Measure cognitive control –
a spatial incompatibility task
requiring rapid responses

Raven's Coloured Progressive Matrices

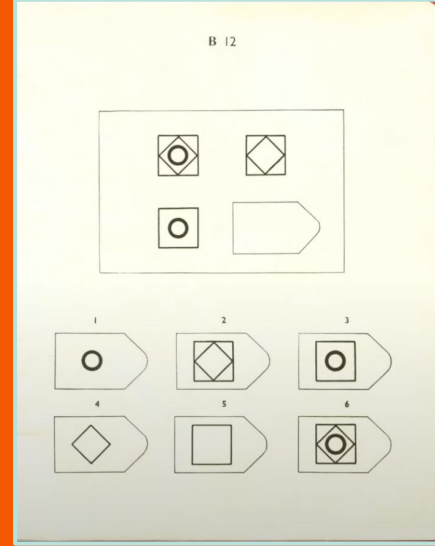
- Non-verbal test of analytic reasoning – measure of “fluid intelligence”
- **36 items** over **3 sets**.
- Within a set, colored items are ordered by difficulty
- Missing segment with six possible solutions
- Participants asked to pick the best fit.
- The participants **percentile scores** were calculated from their raw scores in accordance with Raven’s instruction manual, and **equated to an IQ measurement**.



Set A Example



Set Ab Example



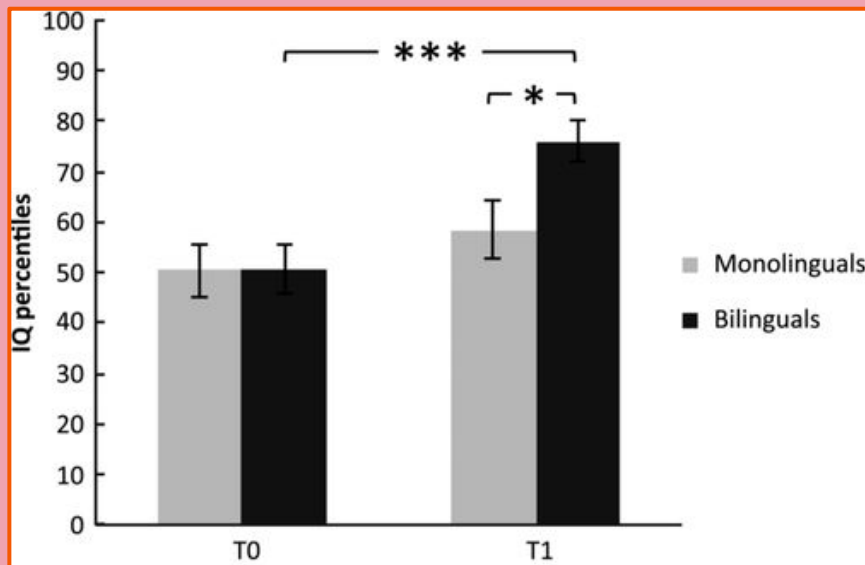
Set B Example

METHOD

DATA GRAPHIC

X-axis: timepoints, T0 (start of school year) and T1 (end of school year)

Y-axis: IQ percentiles, measured with Raven's Coloured Progressive Matrices and scores extrapolated using Raven's instruction manual normative scores



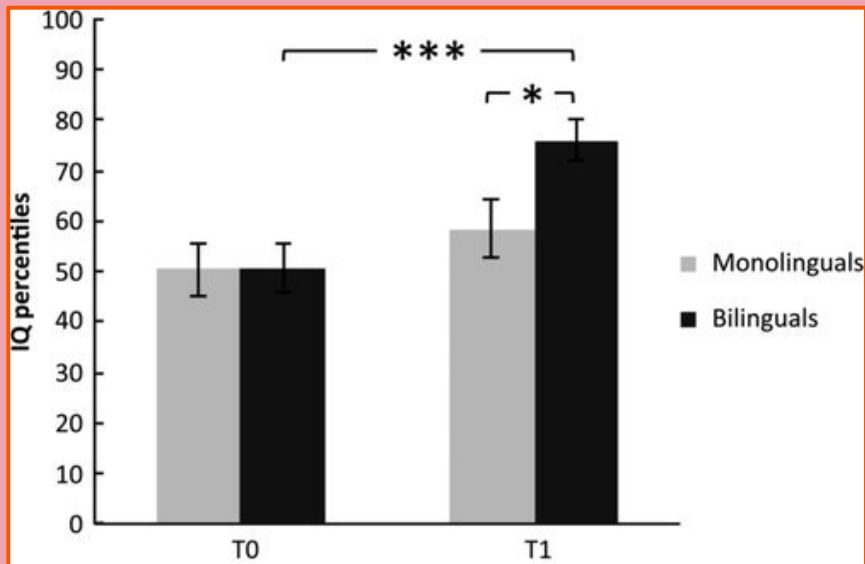
Groups:

Light gray: data from monolingual children
Dark gray: data from bilingual children

Figure 1: Woumans et al. (2016: 84)

DATA GRAPHIC

1. Both groups had IQ scores that were similar at T0
2. Bilingual children's IQ scores improved significantly over time
3. Bilingual children's IQ scores were significantly better than monolingual children at T1



Being bilingual had a positive effect on the intelligence scores of children in the study.

Figure 1: Woumans et al. (2016, 84)

CONCLUSION

BPQ: *Does becoming bilingual impair cognitive development, or does it make children smarter?*

MRQ: *What increase, if any, occurs, for bilingual compared to monolingual children when measuring general cognitive effect by IQ?*

Wouman et al.'s study suggests a couple ideas:

- L₂ exposure doesn't reduce L₁ fluency
- Bilinguals have an advantage for nonverbal intelligence

Thus, this **supports** Kaplan's myth that *being bilingual impacts your intelligence*. It does so in a **positive way** .

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REFERENCES

1. Kaplan, Abby. 2016. Being bilingual makes you smarter (or dumber). *Women Talk More Than Men:... And Other Myths about Language Explained*, 132-152. Cambridge: Cambridge University Press.
2. Woumans, Evy, Jill Surmont, Esli Struys, & Wouter Duyck. 2016. The Longitudinal Effect of Bilingual Immersion Schooling on Cognitive Control and Intelligence. *Language Learning* 66 S2: 76-91.

thank you.

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