

Bilingual Education (CLIL) and attentional control : a longitudinal study from kindergarten to second grade

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1 Background

A number of studies suggest that bilingualism has a positive impact on cognition and in particular on attentional control (Bialystok et al., 2004; Prior & MacWhinney, 2010; Bialystok et al., 2008; Costa et al., 2008).

- These advantages have also been reported for children attending linguistic immersion classes (Nicolay & Poncelet, 2013; 2015; Barbu et al., submitted; Puric et al., 2017).

However, other studies did not observe positive effects of bilingualism on cognition (Gathercole et al., 2014; Ross & Melinger, 2016; Karlsson et al., 2015; Kaushanskaya, Gross, & Buac, 2014; Woumans et al., 2016; Simonis et al., submitted).

The aim of this study was to re-examine the links between bilingualism (children attending language immersion school) and cognition by using a longitudinal study design, a type of design rarely used in previous studies.

2 Methods



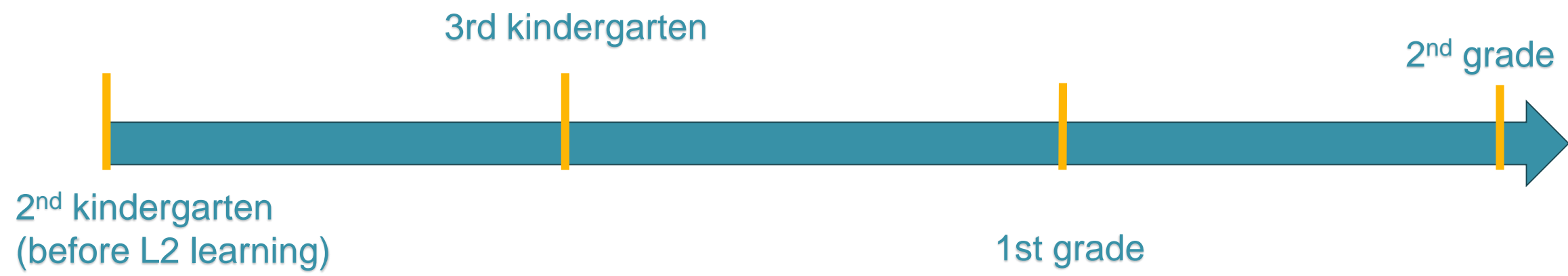
Participants.

- forty-nine children learning a second language (Dutch) via a **language immersion school curriculum**.
- fifty children following a **regular school curriculum**

matched on : age, sociocultural level, vocabulary level, nonverbal intelligence and academic performance

Design.

Longitudinal (4 years)

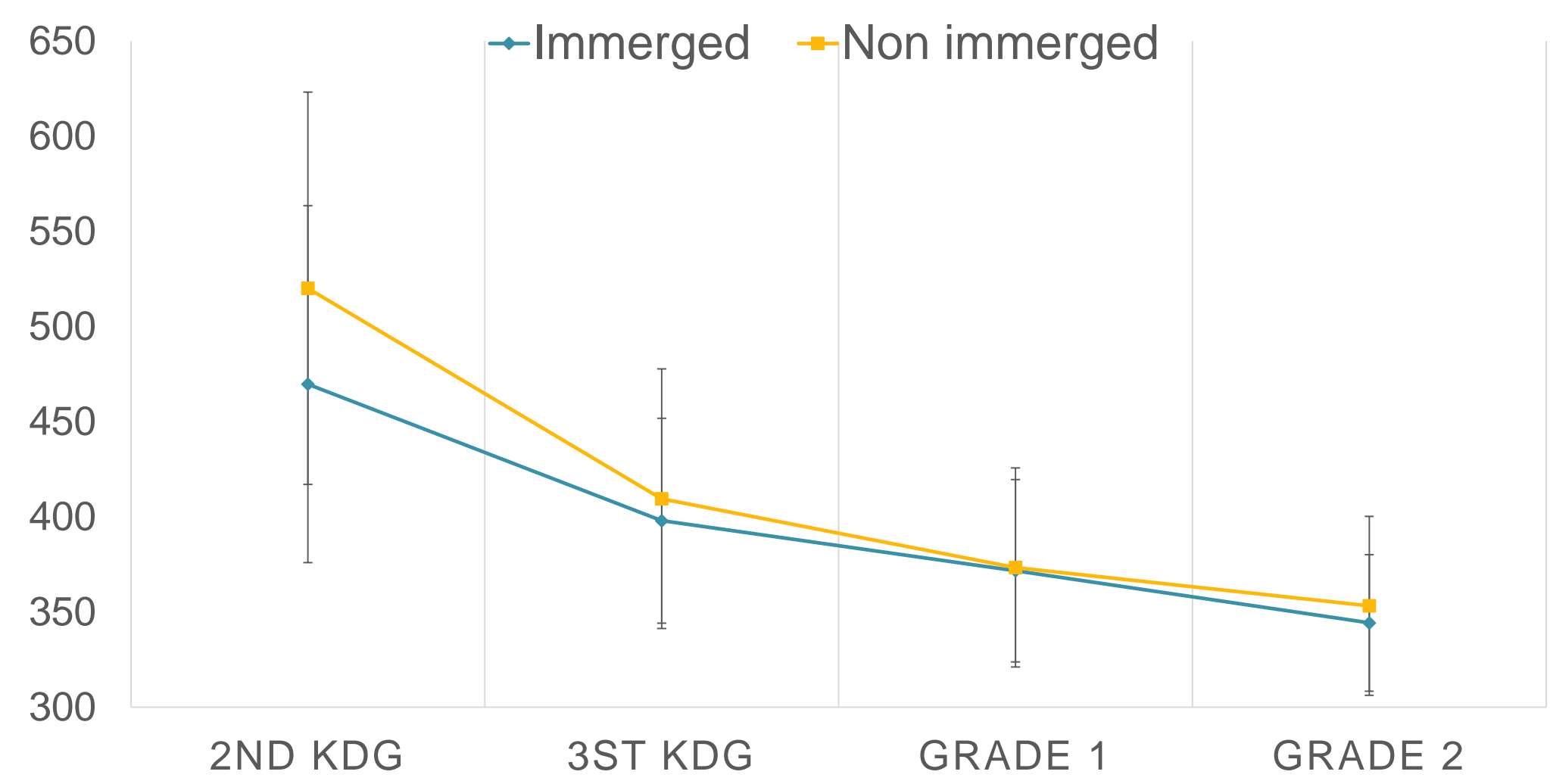


Attentional control tasks (Kitap battery; Zimmermann & Fimm, 2005) :

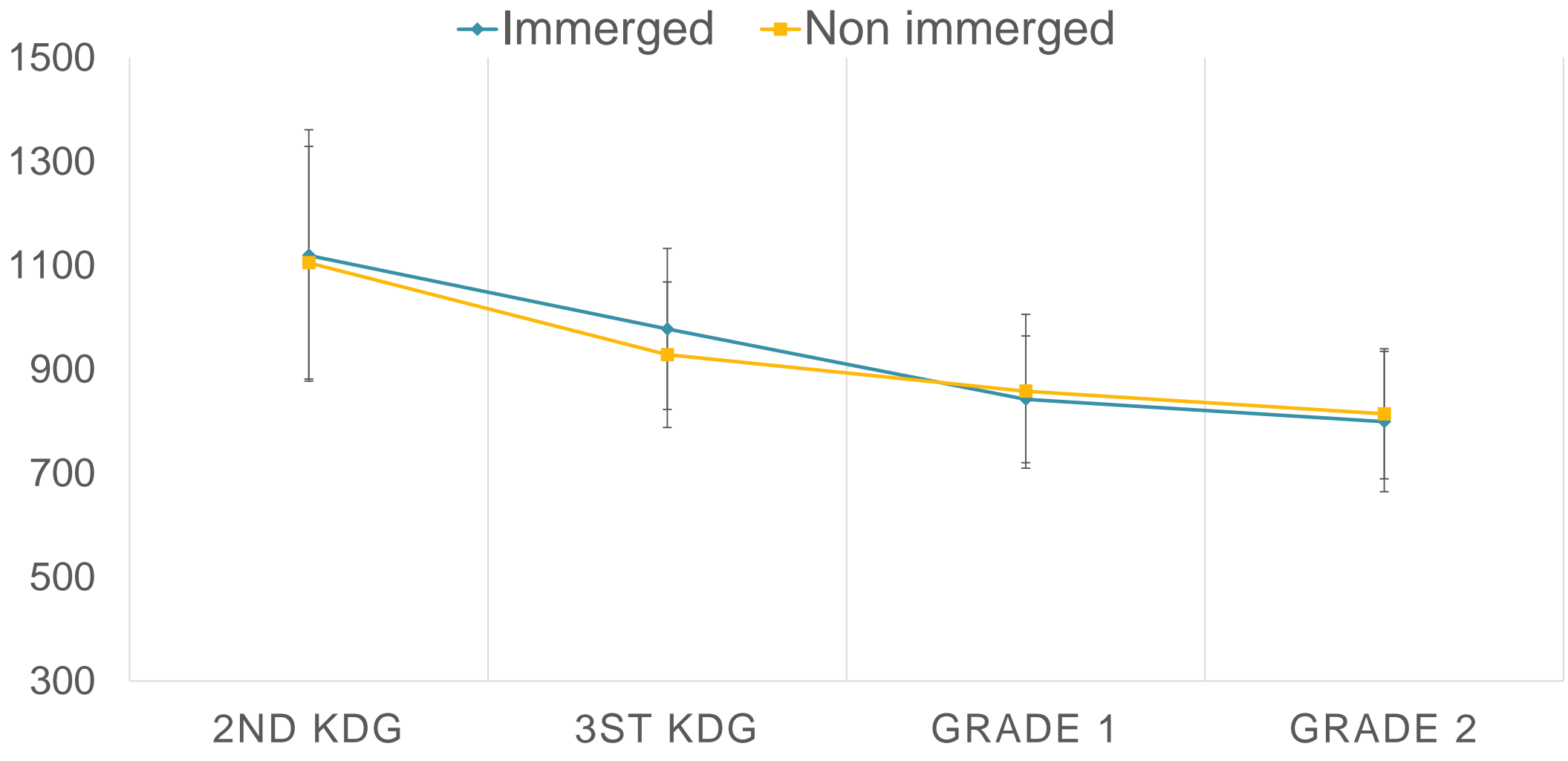
alertness, selective attention, divided attention, cognitive flexibility

3 Results

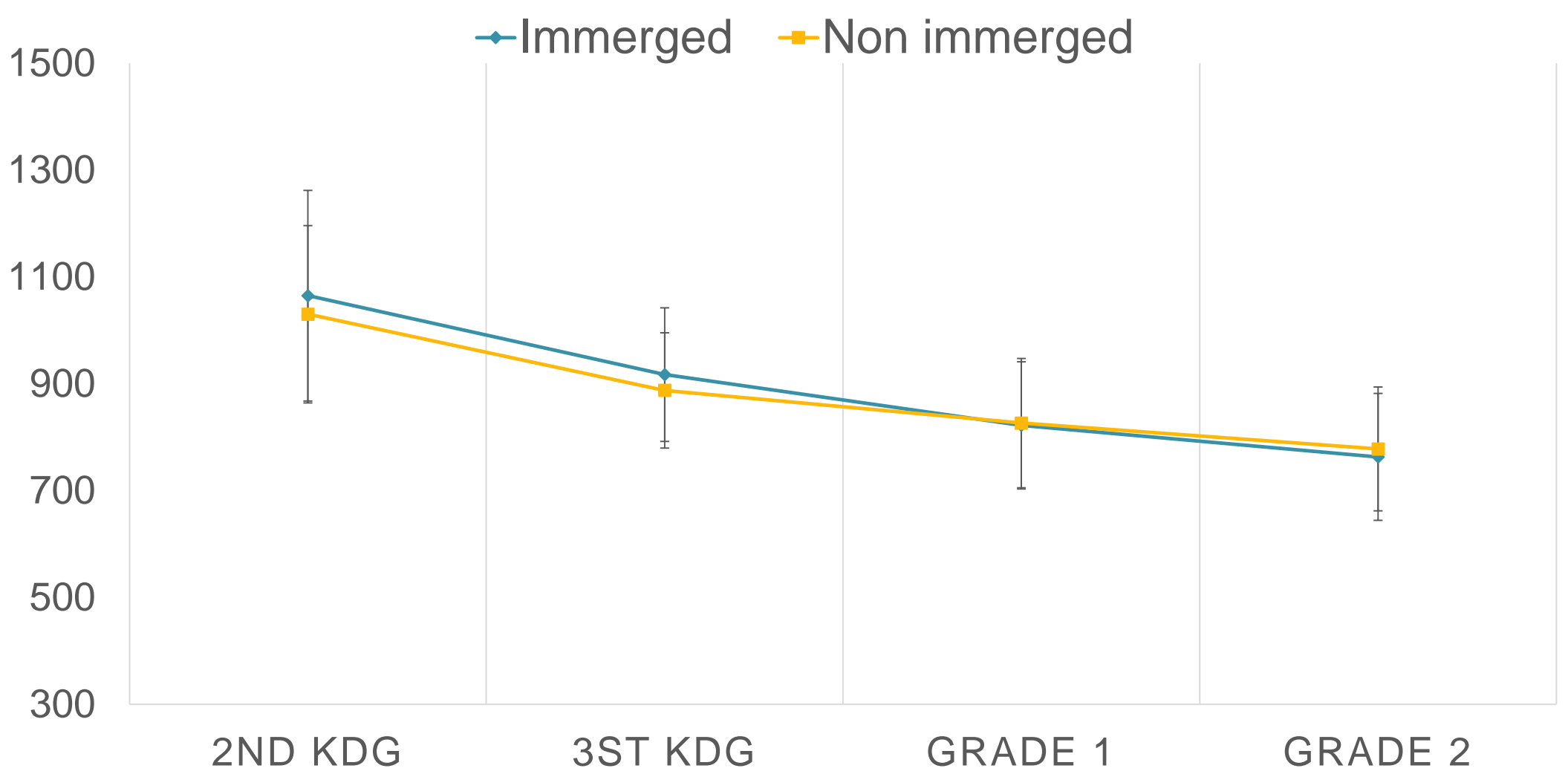
Alertness (reaction time - msec)



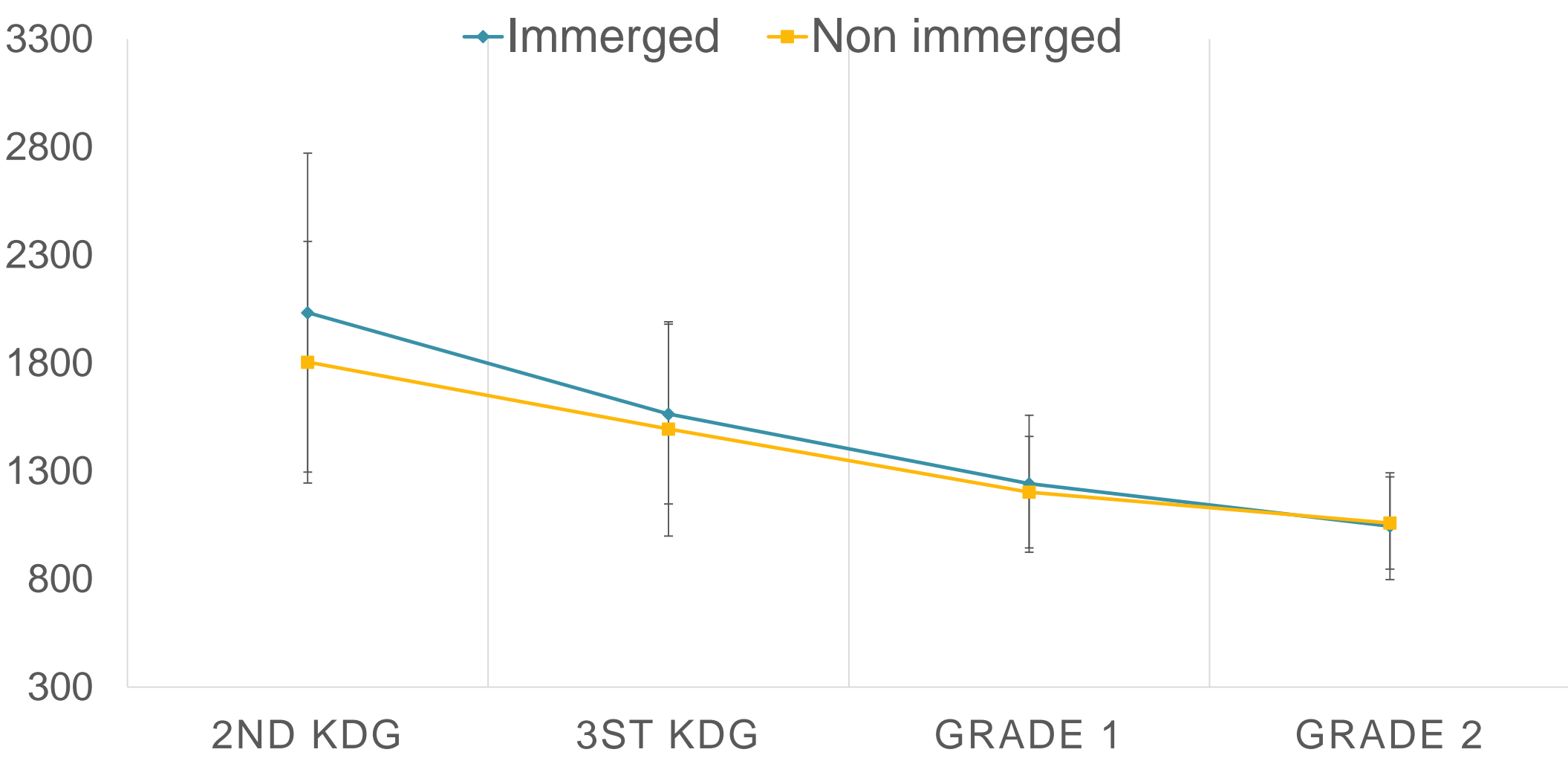
Selective auditory attention (reaction time - msec)



Divided attention (reaction time - msec)



Cognitive flexibility (reaction time - msec)



Repeated measures ANOVA

		F	p value	Effect size
<u>Alertness</u>	Group	3,00	ns	0,03
	Time	80,66	< ,001	0,45
	Interaction	2,35	ns	0,02
<u>Selective attention</u>	Group	0,14	ns	0,00
	Time	82,6	<,001	0,46
	Interaction	1,05	ns	0,01
<u>Divided attention</u>	Group	0,36	ns	0,00
	Time	108,40	<,001	0,53
	Interaction	1,12	ns	0,01
<u>Cognitive flexibility</u>	Group	1,82	ns	0,01
	Time	110,38	<,001	0,53
	Interaction	2,10	0,10	0,02

4 Conclusion

Over the different assessments, we observed **no advantage** for any aspect of attentional control in the immersive versus control group.

Discussion :

- L2 (Dutch) mastery and exposure (75% versus mixed) is not yet sufficient in order to develop enhanced control attention skills
- Positive attitude and/or motivation (socio-affective factors and socio-political context) may be lower in children learning Dutch vs. English (De Smet et al., 2018)
- The nature of attentional control is difficult to apprehend
- There is, however, no consensus regarding the existence of such a cognitive control advantage (Lehtonen et al., 2018)

References

- Nicolay, A.-C., & Poncelet, M. (2013). Cognitive advantage in children enrolled in a second-language immersion elementary school program for 3 years. *Bilingualism : Language and Cognition*, 16(3), 597-607
- Nicolay, A.-C., & Poncelet, M. (2015). Cognitive benefits in children enrolled in an early bilingual immersion school: A follow up study. *Bilingualism : Language and Cognition*. Doi:10.1017/S1366728914000868