Bilingualism and aptitude: The role of language preference and cognitive development

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Drivers of learner/student success: insights into teaching, learning and research

WESTMINSTER

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Introduction: aptitude and L1

- What is aptitude?
- Traditional view (4 abilities) vs modern views (implicit vs explicit learning, WM..,).
- Traditional aptitude testing → **L1 dependent**

Cognitive development/ age → Young learners?

L1 mastery

Bilingual status and L1s preference

Traditional aptitude testing

01

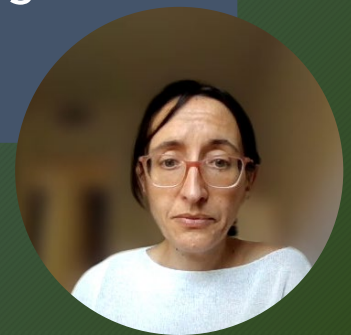
MLAT (Carroll & Sapon, 1959) >
MLAT-E (Carroll & Sapon, 1965) >
MLAT-ES (Stansfield et al., 2004)>
MLAT-EC (Suárez, 2010)

02

Catalan and Spanish are similar... But not exactly the same! (Suárez, 2022)

03

Because aptitude is not "stable" in early stages, different performance at grades 3-4, coincinding with Piaget's cognitive developmental stages. (Suárez & Muñoz, 2011)



Aptitude and bilingualism

Generally positive effects of bilingualism

Then...

- What about aptitude in bilinguals?

Aims of this study

1. comparability of two aptitude tests for young simultaneous bilingual learners depending on their L1 preference

2. greater aptitude for bilinguals as compared to monolinguals

Research questions

1. Is the subjects' performance on the **MLAT-ES** affected by their **L1 preference** within the same grade and across grades?

2. Is the subjects' performance on the **MLAT-EC** affected by their **L1 preference** within the same grade and across grades?

3. Is there any advantage for **Catalan/Spanish bilinguals** as compared to those mainly **monolinguals** who participated in the **MLAT-ES norming study**?

Participants

- 629 participants from grades 3 to 7.
- Bilingual Catalan/Spanish from birth

	All subjects			Group 1 (ES – EC)			Group 2 (EC-ES)		
Grade	N	Age	SD	N	Age	SD	N	Age	SD
3	123	8.8	.52	66	8.8	.33	57	8.8	.66
4	137	9.8	.43	75	9.9	.48	62	9.7	.36
5	118	10.8	.33	57	10.9	.33	61	10.8	.34
6	120	11.8	.3	60	11.7	.34	60	11.9	.33
7	131	12.9	.45	67	12.9	.45	64	12.8	.44

Participants and procedure

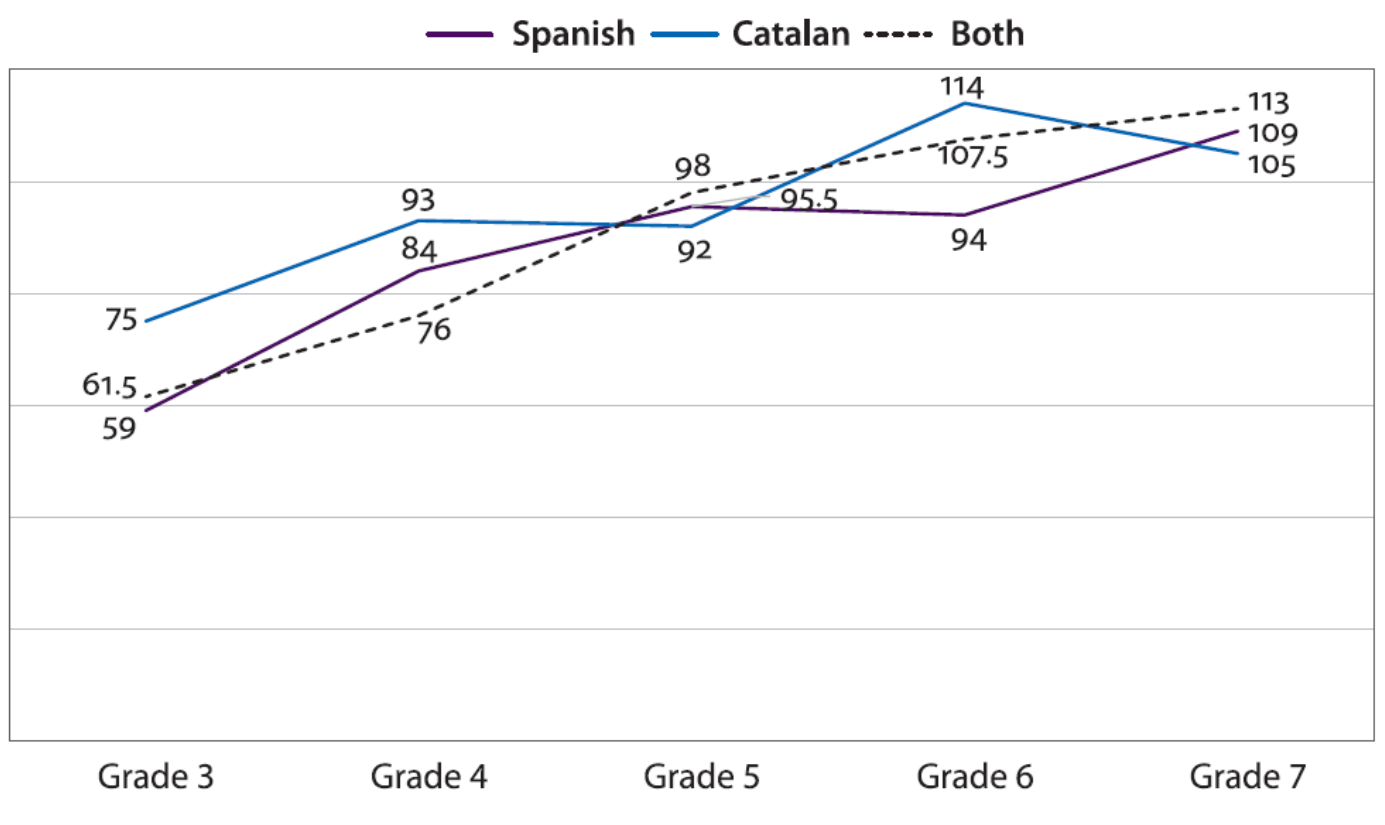
	All subjects			Group 1 (ES – EC)			Group 2 (EC-ES)		
Grade	Catalan	Spanish	Balanced	Catalan	Spanish	Balanced	Catalan	Spanish	Balanced
3	46	47	30	25	25	16	21	22	14
4	51	46	40	21	30	24	30	16	16
5	45	40	33	16	24	17	29	16	16
6	45	37	38	19	21	20	26	16	18
7	48	52	31	7	35	25	41	17	6
All	235	222	172	88	135	102	147	87	70

Monolingual pool (Stansfield et al., 2004): Grade 3, *n*=207; Grade 4, *n*=206; Grade 5, *n*=289; Grade 6, *n*=306; Grade 7, *n*=178.

Instrument

MLAT-EC/ ES	Construct
1. Hidden words	- vocabulary - sound-symbol association
2. Matching words	- grammatical sensitivity
3. Finding rhymes	- hear and make distinctions between speech sounds
4. Number learning	- rote memory - aural comprehension - vocabulary
Total score	**Language aptitude**

Results MLAT-ES Group 1



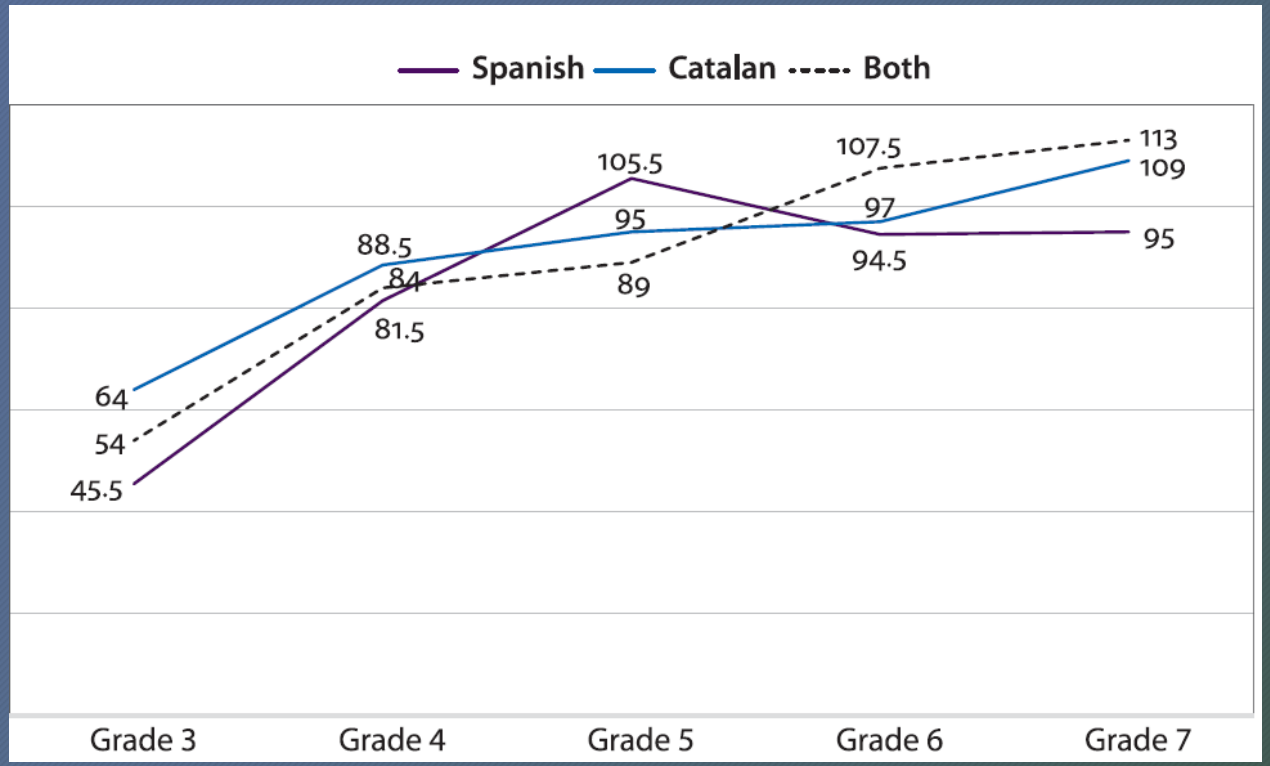
Results MLAT-ES Group 1

Grade	Kruskal-Wallis df (2)	MLAT-ES part 1	MLAT-ES part 2	MLAT-ES part 3	MLAT-ES part 4	MLAT-ES total
3	*H*	4.043	2.169	4.552	9.528	7.507
	Asymp. Sig.	.132	.338	.103	**.009**	**.023**
4	*H*	8.522	1.217	1.949	5.912	4.849
	Asymp. Sig.	**.014**	.544	.377	.052	.089
5	*H*	.504	.289	2.571	1.449	.752
	Asymp. Sig.	.777	.865	.277	.485	.687
6	*H*	3.825	2.242	8.966	2.276	6.570
	Asymp. Sig.	.148	.326	**.011**	.320	**.037**
7	*H*	.063	.510	.020	2.021	.723
	Asymp. Sig.	.969	.775	.990	.364	.697

MLAT-ES language preference

Grade	Part	Language pair	Z	Significance level
3	4	Spanish < both	2.280	.023
	Total	Spanish < Catalan	2.855	.004
	Total	Spanish < both	2.844	.004
4	1	Both > Catalan	2.988	.003
6	3	Spanish < Catalan	2.763	.005
	3	Spanish < Both	2.292	.022
	Total	Spanish < Catalan	2.431	.015

Results MLAT-EC Group 2



Results MLAT-EC Group 2

Grade	Kruskal-Wallis df(2)	MLAT-EC part 1	MLAT-EC part 2	MLAT-EC part 3	MLAT-EC part 4	MLAT-EC total
3	*H*	1.887	1.753	1.435	1.977	.946
	Asymp. Sig.	.389	.416	.488	.372	.623
4	*H*	3.109	1.970	.929	2.128	1.950
	Asymp. Sig.	.211	.373	.628	.345	.377
5	*H*	.2799	6.644	3.222	.113	3.183
	Asymp. Sig.	.247	**.036**	.200	.945	.204
6	*H*	3.825	2.242	8.966	2.276	6.570
	Asymp. Sig.	.148	.326	**.011**	.320	.057
7	*H*	.063	.510	.020	2.021	.723
	Asymp. Sig.	.444	**.015**	.544	**.004**	.068

MLAT-EC / Language preference

Grade	Part	Language pair	Z	Significance level
5	2	Spanish > Both	−2.589	.010
6	3	Spanish > Both	−2.292	.022
		Catalan > Both	−2.033	.042
7	2	Catalan > Spanish	−2.881	.004
	4	Catalan > Spanish	−3.294	.001

MLAT-ES Group 1 vs MLAT-ES Norming study

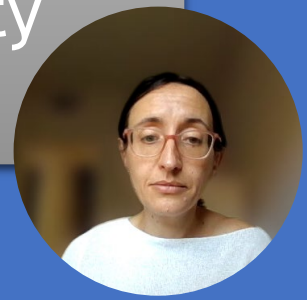
Grade	Tests comparison	Cohen's *d*	Effect size	Percentage change	Direction
3	MLAT-ES *Manual* vs MLAT-ES Group 1	0.57	medium	27	medium increase
	MLAT-ES *Manual* vs MLAT-EC Group 2	0.16	small	8	small increase
4	MLAT-ES *Manual* vs MLAT-ES Group 1	0.6	medium	24	medium increase
	MLAT-ES *Manual* vs MLAT-EC Group 2	0.67	medium	27	medium increase
5	MLAT-ES *Manual* vs MLAT-ES Group 1	0.62	medium	21	medium increase
	MLAT-ES *Manual* vs MLAT-EC Group 2	0.71	medium	23	medium increase
6	MLAT-ES *Manual* vs MLAT-ES Group 1	0.6	medium	16	medium increase
	MLAT-ES *Manual* vs MLAT-EC Group 2	0.35	small	9	small increase
7	MLAT-ES *Manual* vs MLAT-ES Group 1	0.71	medium	14	small increase
	MLAT-ES *Manual* vs MLAT-EC Group 2	0.39	small	7	small increase

Discussion RQ1 & RQ2: language

Very few significant differences, not a clear pattern across grades→ not justificable by language preference only.

Upper grades → still differences on the MLAT-EC, but L1 fully acquired → due to vehicular language at school?

Lower grades: MLAT-ES in South American variety → added difficulty



Discussion RQ1 & RQ2: across grades

Similar patterns regardless of language preference

Language aptitude innate but dependent on cognitive development

Not language neutral?
No problem!

Discussion RQ3: monolinguals vs bilinguals

aptitude

?

bilingualism

Conclusions & limitations

- Comparability of two aptitude tests despite test takers' L1s preferences
- Aptitude in young learners can be measured
- Traditional aptitude measures used successfully in "modern" language learning contexts (Suárez & Gesa, 2022)
- Self-reported language preference

Pedagogical implications

1. L1 developmental stages + cognitive developmental stages → crucial for foreign language learning
2. In bilingual (or even plurilingual) contexts, the more, the merrier
    1. Language of instruction
    2. Aptitude or bilingualism?

Thank you!

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