ISOTIS

INCLUSIVE EDUCATION AND SOCIAL SUPPORT
TO TACKLE INEQUALITIES IN SOCIETY

Linguistic superdiversity: challenges and opportunities for education

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Bilingual advantages

- Having command of two or more languages in a globalizing world is an asset as such.

- Further advantages of bilingualism in several areas:
  - Metalinguistic awareness.
  - Communicative competence.
  - Cognitive control (inhibition, flexibility).
  - Creativity.
  - Protective factor in Alzheimer's disease.

- Critique: high-SES samples, languages with high social prestige.

Bilingual advantage in low SES children: beyond attention, shifting and inhibition

Dutch vocabulary
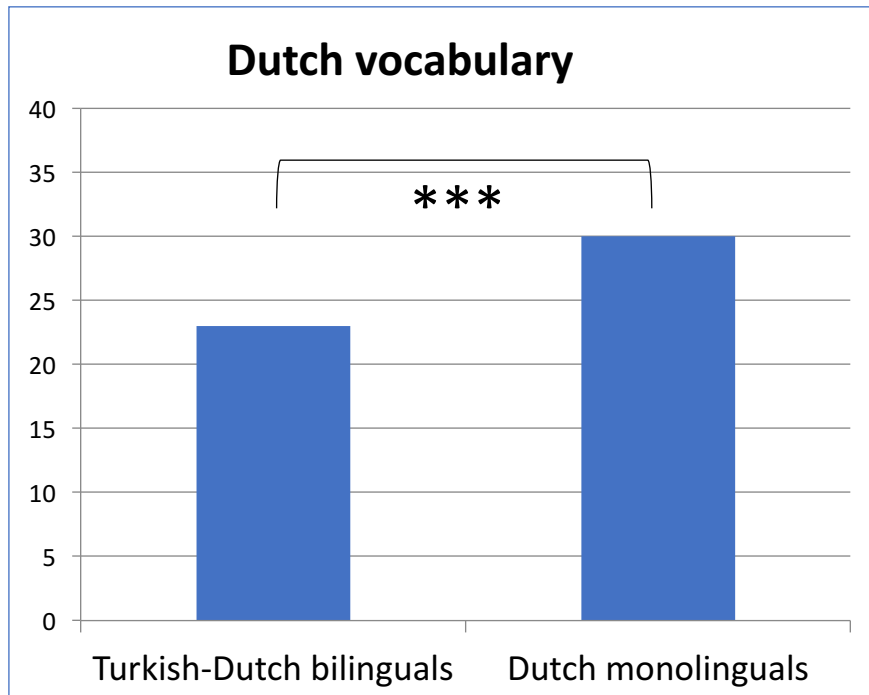
- 52 monolingual Dutch, 68 bilingual Turkish-Dutch 5- to 6-year-olds, low income families.

- Lower level of Dutch language skills for the bilingual children (see Figure).

- Are there bilingual advantages for working memory, controlling for SES and vocabulary?

Blom, Verhagen, Küntay & Leseman, 2014 (JECP)

Bilinguals: better working memory
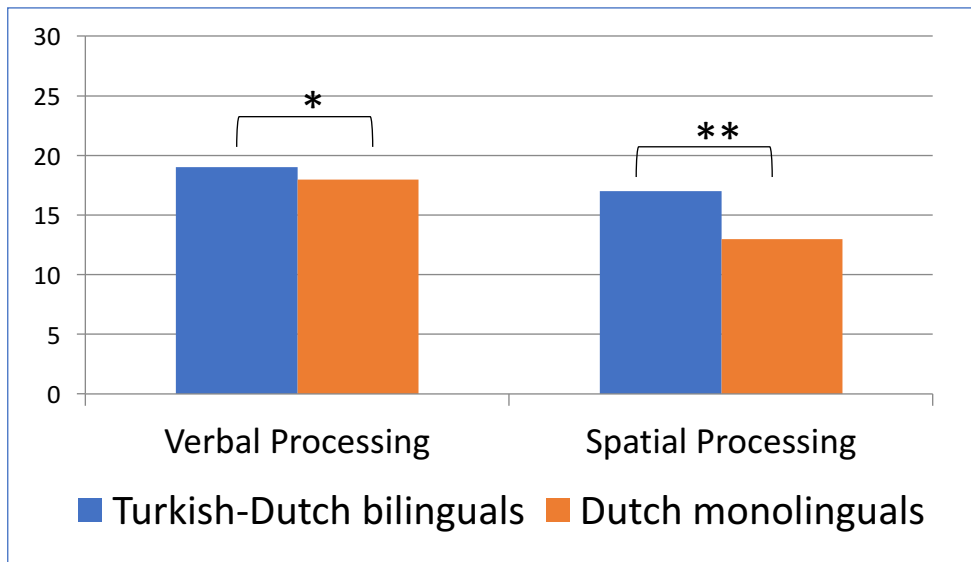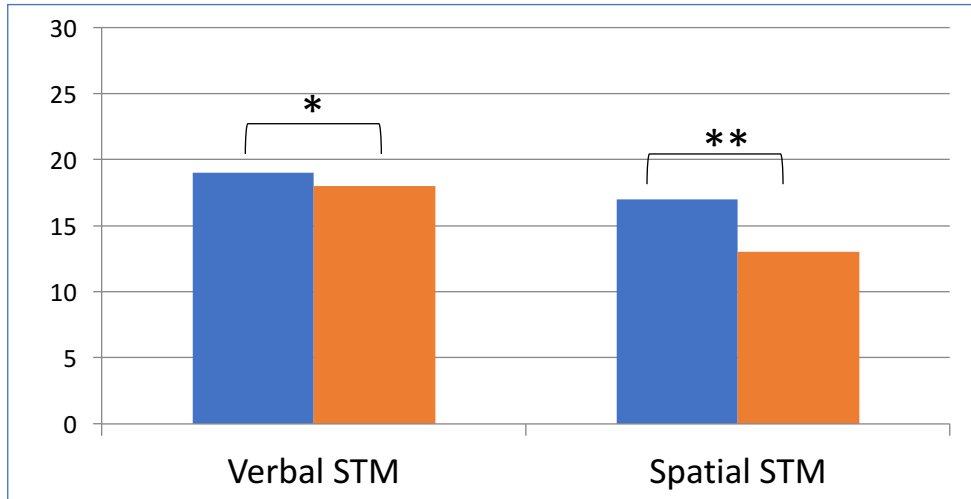
- Controlled for SES and Dutch receptive vocabulary.
- Advantages in short term and working memory, especially in visuo-spatial memory.

Visuo spatial STM
Dot Matrix
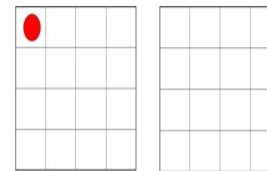
Visuo-spatial WM
Odd One Out
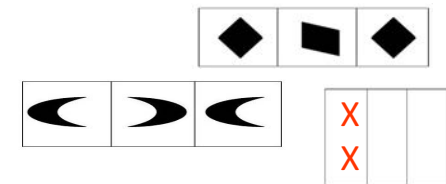
"Draw a (...flower...) that does not exist"

English-Hebrew bilingual 4- to 6-yr-olds

Hebrew monolingual 4- to 6-yr-olds

- Bilingual advantage: *cross-category insertion (creativity)*.
- Monolingual disadvantage: *within category deletion*.

Adi-Japha et al., 2010 (CD)

No simple bilingual advantage (3-year-olds)

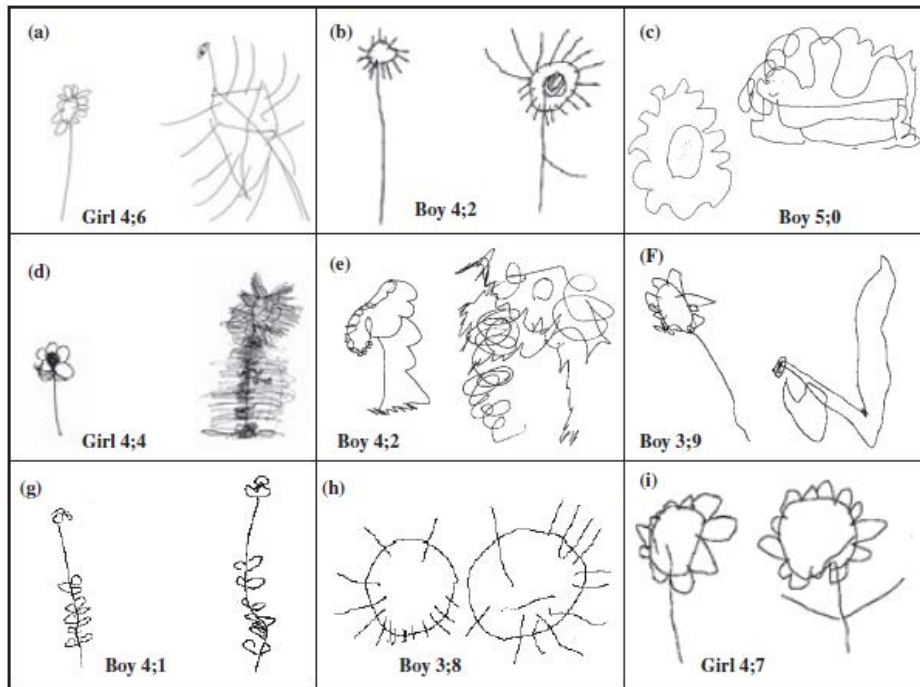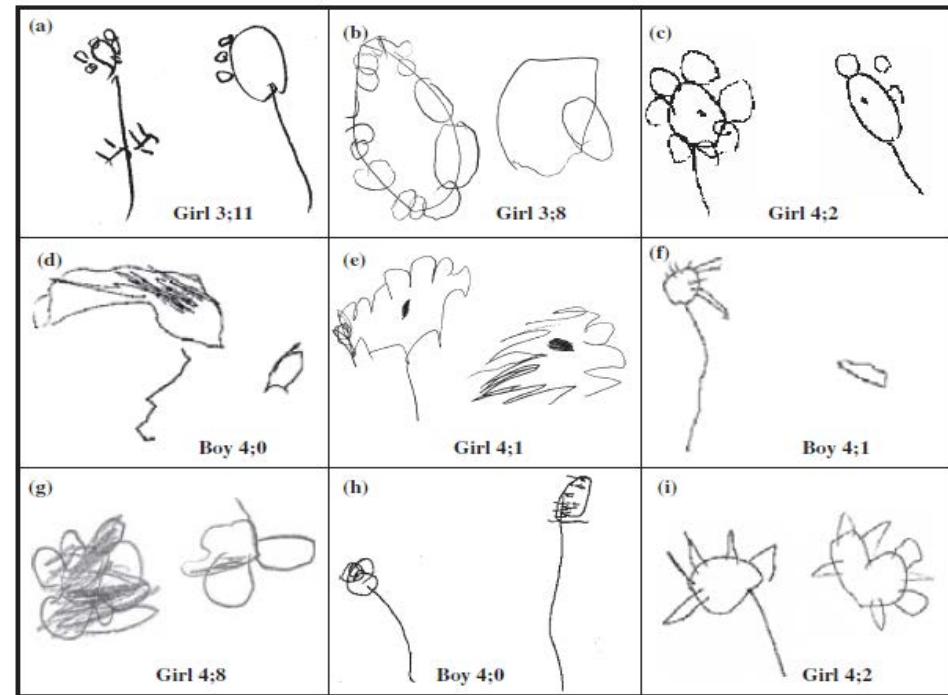|	Bilinguals		Monolinguals	
	M	SD	M	SD
Selective attention				
Number of located targets	5.95	1.00	6.02	.97
Number of repetition errors	.17	.33	.09	.23
Visuospatial Memory	81.2	15.4	82.7	15.7
Delay of gratification				
% of children not looking in bag	74.0 %		74.8 %	
% of children not touching bag	89.0 %		89.4 %	
% of children not touching gift	86.5 %		91.8 %	
Verbal Inhibition & Shifing	2.16	1.55	2.11	1.61
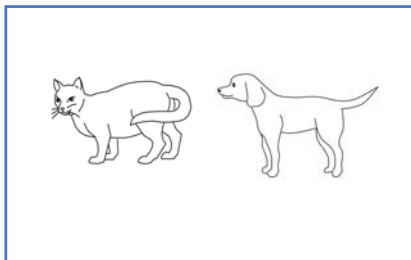
Inhibition/shifting
'Make the sound of
the other animal'

Delay of Gratification
'You must try not to
touch the present'

One or two languages at home?

	Bilinguals				Monolinguals	
	Only L1 at home		L1 & L2 at home		Only main Language	
	M	SD	M	SD	M	SD
Selective attention						
Number of located targets	5.95	1.00	5.92	.71	6.02	.97
Number of repetition errors	.19	.20	**.11** [+]	.16	.09	.23
Visuospatial Memory	79.8	15.5	82.3	15.2	82.7	15.7
Delay of gratification						
% of children not looking in bag	71.5 %		**77.1 %** [+]		74.8 %	
% of children not touching bag	83.3 %		**94.3 %** *		89.4 %	
% of children not touching gift	79.4 %		**94.3 %** *		91.8 %	
Verbal Inhibition & Shifting	1.98	1.52	**2.57** **	1.56	2.11	1.61

Verhagen, Mulder & Leseman, 2017 (BLC)

Importance of valuing diversity in (pre)school according to parents
(ISOTIS: N=2500)
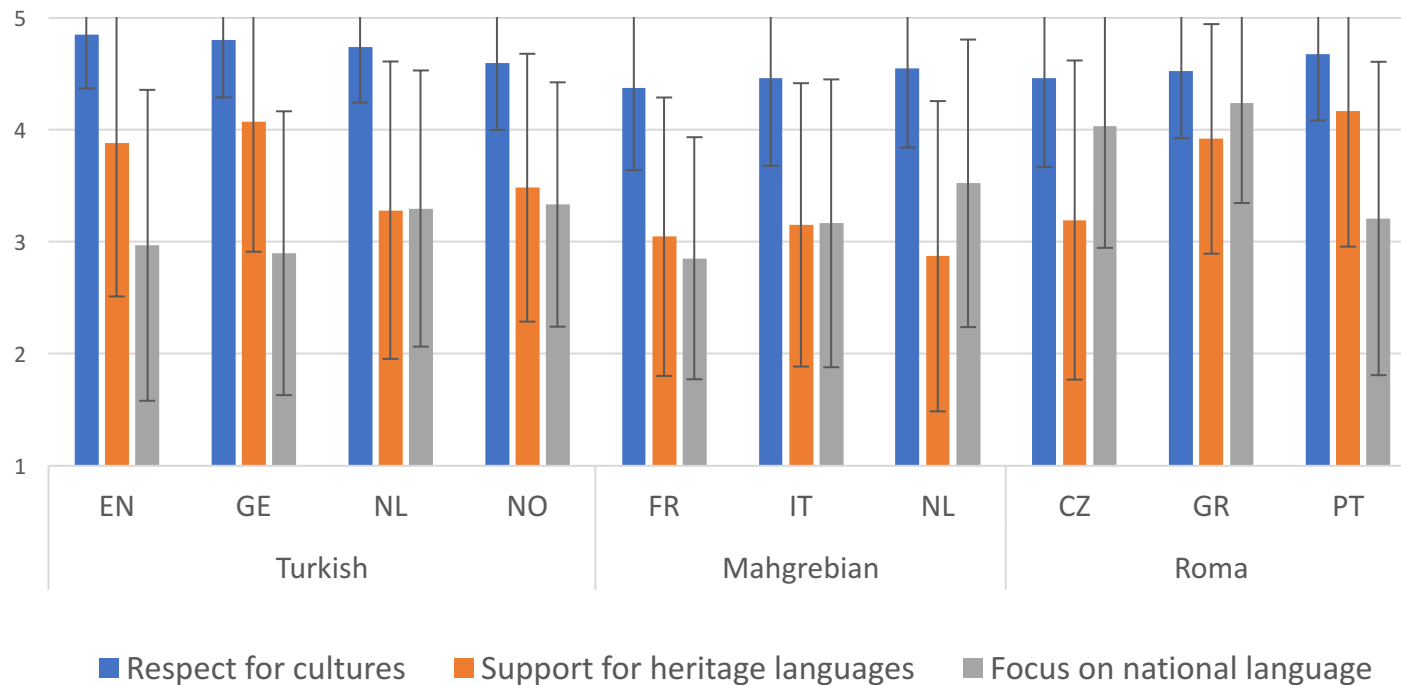
- High importance attached to respecting cultural diversity in (pre)school.
- Importance of multilingual support less clear, also more variation.
- Equal emphasis on learning the national language.

Heritage language use at home
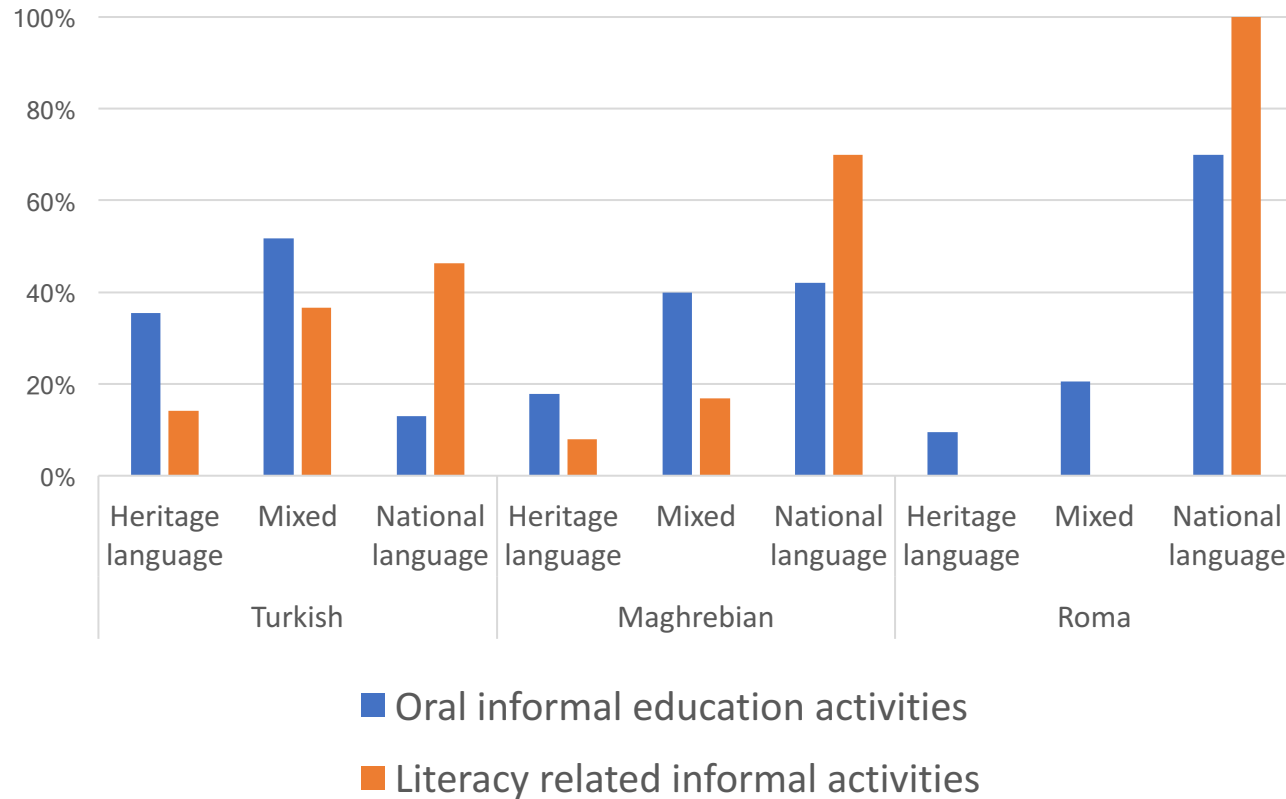
- Oral home learning activities are mostly provided in the heritage languages in the Turkish and Maghrebian groups, in the Roma group the national language is dominant.

- Literacy-related activities mostly in the national language.

- Parents' (self-assessed) ability in either language, the importance of religion, and acculturation attitudes are the strongest predictors.

What is the view of children? – the ISOTIS children's study

(Pastori et al., 2019; N = 331)

- The Children's study was conducted in early childhood education and care centers, after-school programs and primary schools in eight countries with immigrant children, Roma children and low-income native-born children.

- Several sophisticated tools were used to elicit children's thoughts about identity, wellbeing and inclusion, including:
  - Focus group discussions on wellbeing and inclusion.
  - Collaborative project making a book of the center/school for newcomers.
  - A child-guided tour through the (pre)school building.
  - Recommendations to the (pre)school on how to welcome a newcomer who doesn't speak the school language yet.

Main findings

ISOTIS — INCLUSIVE EDUCATION AND SOCIAL SUPPORT TO TACKLE INEQUALITIES IN SOCIETY

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 727069

- Children rarely defined their identity in terms of ethnic-cultural background or home language.

- In all studied contexts children identified themselves rather with their (pre)schools experienced as **physical-social spaces** where they belong and which, therefore, should be attractive, well-decorated, and offer dedicated spaces to play with other children.

- Continuity between home and school through involvement of the parents in (pre)school was mentioned by all children as desirable and contributing to their wellbeing and feeling being included.

- Children did not doubt that they should learn the school language, because it allows them to interact with all children.

Risks of bilingualism: distributed exposure
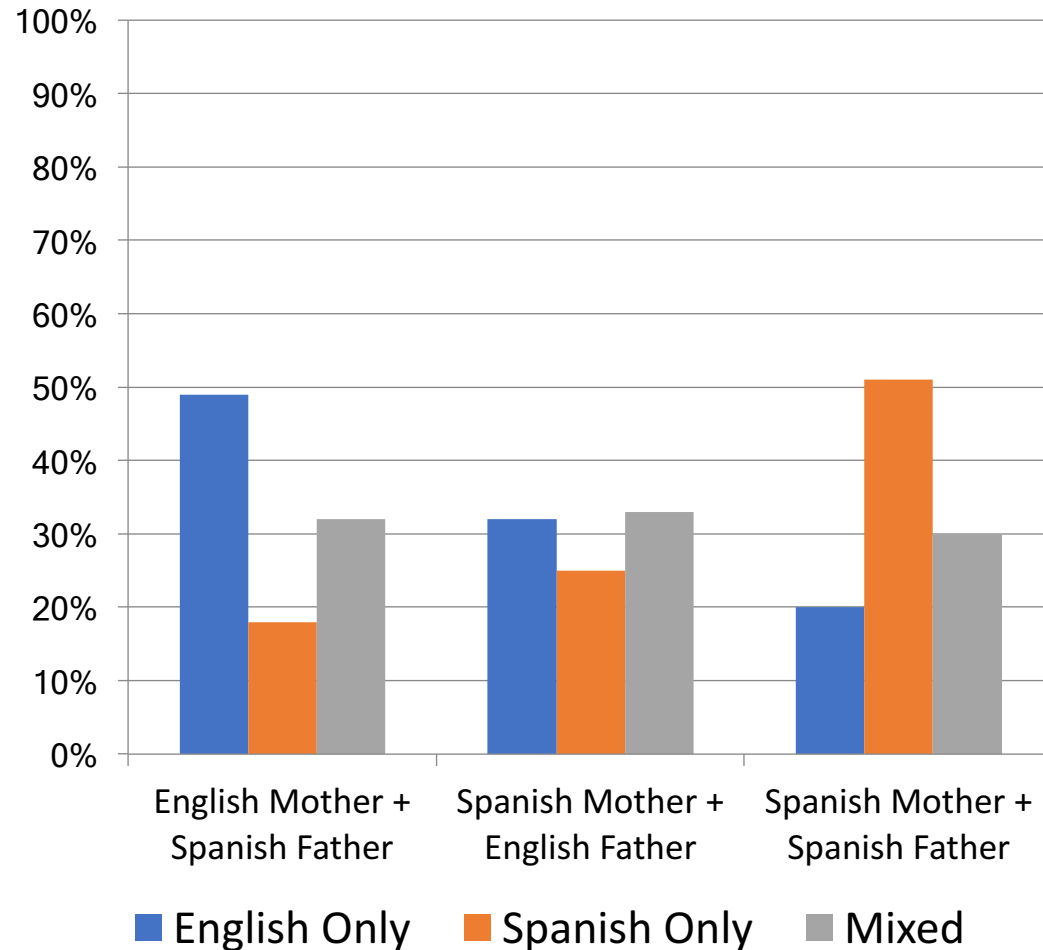
- Place & Hoff (2011): diary study in Spanish-English bilingual families with young children, detailing the amount of exposure to English and Spanish.

- Distributive pattern suggests 'competion' for interaction time.

- Prediction of vocabulary & grammar by 'quantity', 'variation' and 'quality of input'.

| Developmental relations between input and vocabulary - age 3 to 6	Moroccan-Dutch	Turkish-Dutch
Direct transfer		
Intercept VOCAB L1 – Intercept VOCAB L2	.52**	.48**
Competition for exposure time		
Intercept INPUT L1 – Intercept INPUT L2	-.44**	-.41**
Slope INPUT L1 – Slope INPUT L2	-.66**	-.66**
Within-language input effects		
Intercept INPUT L1 – Intercept VOCAB L1	.45**	.37*
Slope INPUT L1 – Slope VOCAB L1	.53*	.36*
Intercept INPUT L2 – Intercept VOCAB L2	.49**	.50**
Slope INPUT L2 – Slope VOCAB L2	.44**	.44**
Cross-language input effects		
Intercept INPUT L1 – intercept VOCAB L2	.30[+]	.34*
Slope INPUT L1 – Slope VOCAB L2	.57**	.57**

Note. Standardized coefficients

Exposure to language and vocabulary development in bilingual families

- Language input at home: amount of reading and talking in L1 and/or L2 from age 3 to age 6.

- Development of vocabulary.

- Growth-modelling → relations between exposure and vocabulary within and across languages.

- Facilitation and competition.

Leseman et al. (2019)

Dual language programs at (pre)school are effective, but…

- Reviews by Adesope, Lavin, Thompson & Ungerleider (2010) and Reljić, Ferring & Martin (2015): balanced bilingual development to native-like proficiency, without distribution or competition effects is possible (because there is extra time for exposure of high quality).
- Caveat: these positive results hold for classrooms where only two languages are at stake (e.g., English and Spanish), otherwise dual language programs are not really feasible.
- Need for creative solutions: new language pedagogy, new educational technology, involving parents as resources.

Traditional multilingual pedagogy
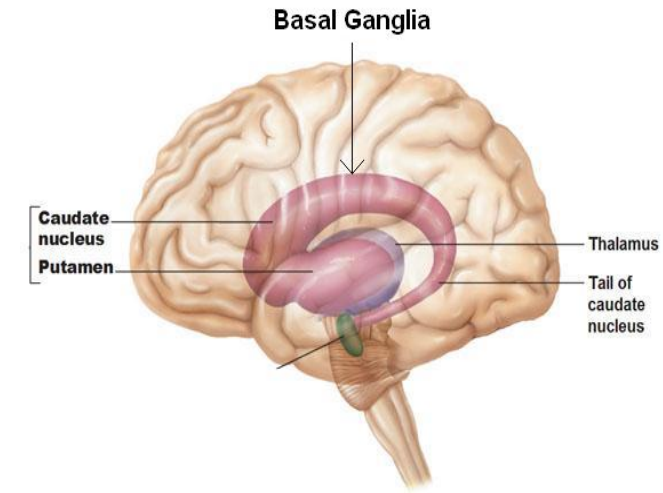
- Traditional prescriptions and policies:
  - "Keep the two languages as separate as possible, don't mix!" (one-parent-one-language strategy).
  - "Withhold L2 until L1 has sufficiently matured".
  - "Forbid children to use their L1 in (pre)school!".
- No support in research: the two languages are represented in the same brain areas and highly interconnected, yet distinct from early on (e.g., Buchweitz & Pratt, 2015).
- Negative socioemotional effects when children are not allowed to use their home languages or when the home language is devalued.

New pedagogy – *translanguaging*

- Using all languages in the classroom deliberately, as resources, to support effective communication, collaboration and learning.
  - Mixing of languages at home and at school is probably good (related to cognitive benefits), not detrimental.
  - Building upon the resources of children as co-creators of knowledge and providing an inclusive classroom context is empowering.
  - Giving a respectful place to the heritage languages supports building of trustful relationships with parents.
  - **Translanguaging is natural, it is what people, especially children, do when they want to interact and collaborate**.
- Still limited evidence and several potential pitfalls.

Translanguaging – from different viewpoints
(Ticheloven, Blom, McMonagle, & Leseman, 2019)

- What is the goal?
  - Full support to bilingual development? TL probably will not work.
  - Creating a socioemotionally safe learning environment? TL will probably work.
  - Promoting global citizenship? TL can possibly work.
- Negative side effects?
  - Isolating children who don't have peers speaking the same heritage language.
  - Teachers feel isolated and cannot keep track of children's learning activities.
  - It can be confusing and requiring too much effort.
- There is always the need for a *lingua franca* and students subscribe to the importance of learning the school language.
  - This could also be English as a third language for all students.
- Use of other semiotic resources.

ISOTIS – children's suggestions to create a linguistically inclusive (pre)school
(Pastori et al., 2019)

- To overcome obstacles in communication, children mentioned the use of posters, pictures, symbols and signs, and some suggested lists with key words and their translations in different languages to support communication.

- The older children specifically mentioned that forbidding children to use their own language, or not treating children as resourceful regarding multilingualism, would harm their wellbeing.

Gevoel

Blij - سعيد - happy - mutlu
Bang - خائف - scared - korkan
Boos - غاضب - angry - kızgın
Verdrietig - حزين - sad - üzgün

blij | bang | boos | verdrietig

App *MoedINT2* (first & second language app)
(Leufkens & Nortier, 2018)
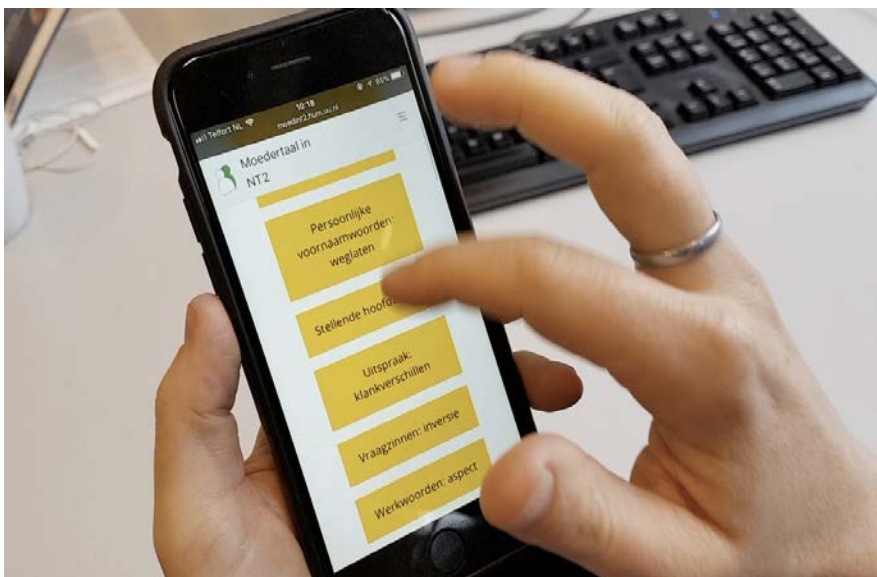
- Provides linguistic and cultural background information for, currently, 10l anguages (e.g., Czech, English, Moroccan-Arabic, Polish, Russian, Spanish, Syrian-Arabic, Tigrinya, Turkish).

- Draws attention to similarities and differences in morphology and syntax, explains possible difficulties (interference) children face when learning Dutch, provides dictionaries.

- Supports teachers in correct pronunciation of words in these languages.

E-Validiv – Virtual Learning Environment
(Van Laere, Agirdag & Van Braak, 2016)

- Multilingual science education environment for primary schools – text book sections and wiki's in multiple languages, next to Dutch.

- Second language learners use the first language version about 30% of the time.

- Lower achieving second language learners use the first language more often.

- High satisfaction.

A social robot as a *peer tutor* – L2TOR-project
(Belpaeme, Vogt, Kopp, Kramer, Küntay, Leseman et al., 2016-2018)

Promises

- Robots can be made perfectly (native-like) bilingual, in virtually all combinations of languages.

- Social robots are interactive, adaptive and personalized, and can provide targeted feedback.

- Robots are 'embodied' → they can point, gesture, enact.

- Robots can practice *translanguaging*: changing between languages, use the stronger developed first language of a child to instruct the second language.

- But…. still serious technical limitations.

Examples of the lessons

Target words (% English): **four, five, fewer, fewest, take away**
Instruction: "Er zijn *fewer* vazen dan boeketten – kun je er twee wegnemen?" [% There are *fewer* vases than flower bouquets – can you take away *two*?]
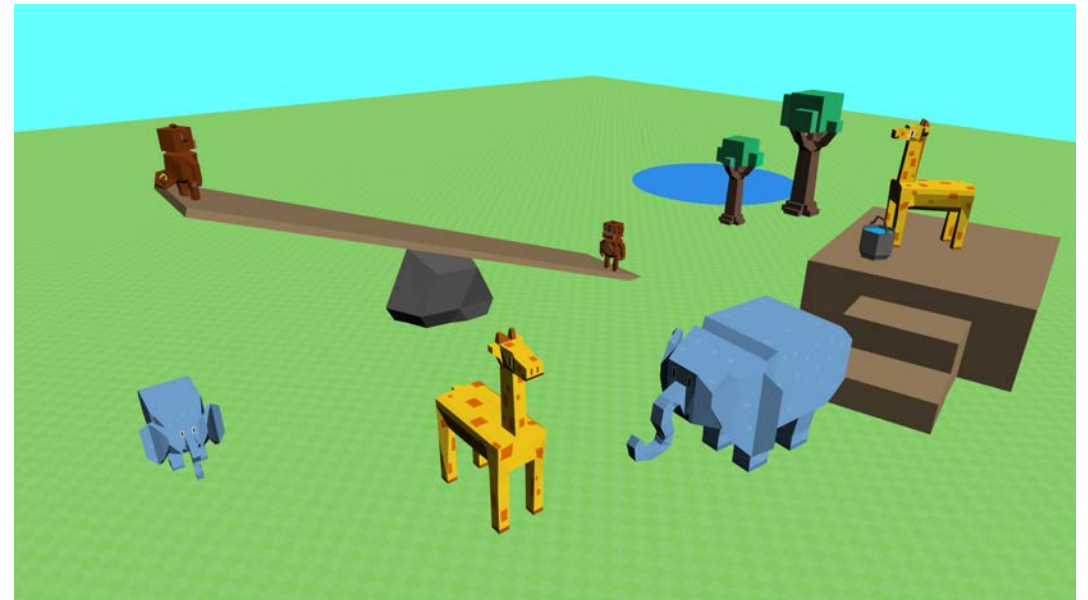
Target words (% English): **long, high, low, light, heavy, big, small**
Instruction: "Kun je de *long* giraffe vinden? De *small* olifant, de *heavy* aap enz.?" [% Can you find the *long* giraf? The *small* elephant? The *heavy* monkey…?]

Limited learning gains
(in an RCT with 5-year-olds conducted at primary schools, N = 200)

- The lessons were not yet the ideal language lessons we had in mind, as we had to work around several technical impossibilities.
  - Effective 'traditional' vocabulary learning programs are usually more interactive and adaptive ('semantic contingency' is a key feature).
  - **Robots as currently available/affordable are not intelligent.**
- The robot's speech is not yet ideal.
  - Pronunciation, stress and intonation are still machine-like, while phonetic unfamiliarity impedes phonological memory and language learning.
  - The robot has no mouth, thus no lip movements during speech → more difficult to pick-up the motor-scheme that embodies speech sounds.

Van den Berghe et al., 2019; Vogt et al., 2019

Turkish-Dutch children learning Dutch

(Leeuwestein et al., in prep.)

- Experiment with 67 second generation Turkish-Dutch bilingual 5-year-olds, with a social robot (randomly assigned) to function either as a Dutch or as a bilingual Turkish-Dutch peer tutor:
  - Two *within-subjects* conditions: (1) the 'Dutch' robot instructing children only in Dutch; (2) the 'Turkish-Dutch' robot using Turkish to instruct Dutch words.
- Results:
  - Contrary to expectations, the Dutch-only condition was more effective than the dual language condition.
  - But in spite of this, Turkish-Dutch children overwhelmingly preferred to play with the Turkish-Dutch robot (socioemotional effect).

Involving parents – feasible?

- Dutch HIPPY ("Opstap") to stimulate language, cognitive and emotional development in 4-year-olds.

- Mother works with the child 15 minutes per day (30 weeks per year) **in the first language**.

- Two-year program, providing eductional materials and activities via worksheets.

- Home visiting, parent groups.

Results for Turkish-Dutch children

Standard Effect Sizes
Experimental vs. Control (=0)
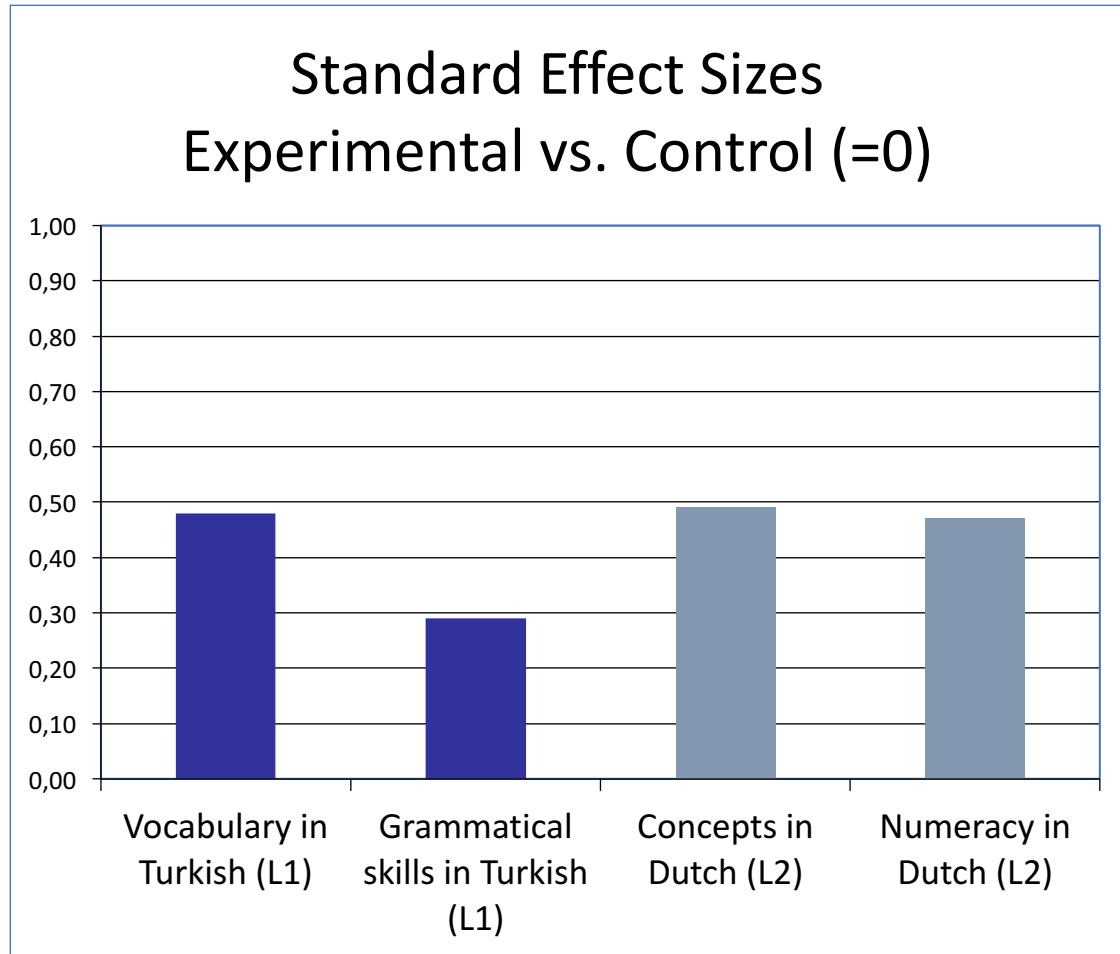
- Quasi-experimental equivalent experimental and control group.

- Positive effects on Turkish language skills.

- Positive transfer effect on Dutch as second language conceptual knowledge and numeracy.

Leseman & Van Tuijl, 2001

The ISOTIS Virtual Learning Environment
(Pastori, Mangiatordi, Ereky-Stevens, Slot et al., 2019)

- A common digital platform with shared and separate sections for:
  - Home-based working with parents.
  - Educational activities with children in pre- and primary school classrooms.
  - Professional development.
- Multilingual support, creating an intercultural curriculum, promoting multicultural attitudes and competences of teachers.
- Providing content and co-creating new content.
- Not a 100% success story but very informative.

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Main structure of the VLE

SOCIAL NETWORKING

REPOSITORY OF RESOURCES

PERSONAL WORK SPACE

Integration of different tools and functions

Multilingual videos

Short theoretical texts and other selected resources

Guidelines for observation, reflection and action

Documentation of the activities in action

Topic	Titles	Link
Multilingualism and children's development	Two languages are better than one	https://vle.isotis.org/mod/page/view.php?id=3505
	How bilingual children's two languages influence each other	https://vle.isotis.org/mod/page/view.php?id=3514
	Discover the language input of bilingual children!	https://vle.isotis.org/mod/page/view.php?id=3506
	Tips to give to your bilingual child the best language input	https://vle.isotis.org/mod/page/view.php?id=3507
	The four stages of Second Language Learning	https://vle.isotis.org/mod/page/view.php?id=3508
Languages and society	Not only dynosaurs get extinct! How can we prevent variety of languages from disappearing?	https://vle.isotis.org/mod/page/view.php?id=3509
Multilingualism in the school	Multilingualism at school is better than monolingualism #1 Strategies at school: translanguaging	https://vle.isotis.org/mod/page/view.php?id=3515
	Multilingualism at school is better than monolingualism #2 Strategies at school: Language awareness	https://vle.isotis.org/mod/page/view.php?id=3516
Multilingualism in the family	Family life with more than one language	https://vle.isotis.org/mod/page/view.php?id=3510
Human rights and social justice	Is the world fair? Get engaged for justice!	https://vle.isotis.org/mod/page/view.php?id=3512
	Education to change the world	https://vle.isotis.org/mod/page/view.php?id=3513
Intercultural sensitivity	Looking at the world with other glasses: how to understand cultural misunderstanding	https://vle.isotis.org/mod/page/view.php?id=3517
The value of Romani language	Proud to speak Romani	https://vle.isotis.org/mod/page/view.php?id=3511

V I D E O S

Formative evaluation

- Technical and legal difficulties:
    - Parents were sometimes unable to upload or download content.
    - Internet connection were sometimes feeble, bugs in the platform.
    - Legal-ethical issues and complex data management due to the GDPR.
- Parents: not always convinced of the importance to support the heritage language (rather preferring focus on the school language), but when their input was connected to classroom practices of their children more positive.
- Children: very positive and highly engaged, driving the implementation in the classroom.
- Teachers: mixed, depending on ICT-skills – in the professional development program of the VLE teachers were most enthusiastic when activities could be directly implemented in the classroom.

To conclude

- Multilingualism is an asset when we are able to circumvent obvious risks related to the quantity and quality of exposure to the languages.

- Embracing multilingualism at (pre)school is perhaps less important, or effective, for supporting multilingual development, but it is essential for partnerships with parents, trustful relationships, feelings of belonging and identity development.

- In the context of superdiversity new language pedagogies are needed and the use of technology can support teachers in implementing translanguaging, help individual children in bridging what they know in L1 to learn (in) L2, and involve children and parents as resources.

INTERNATIONAL CONFERENCE *EQUALITY & INCLUSION!*

For whom: professionals, policymakers and researchers
Topics: increase equity and inclusiveness through improvement of ECEC and family support systems, support for professionals working in these systems, effective models of interagency collaboration and local governance, use of ICT for multilingual and intercultural education.
Keynote speakers: *Jim Cummins, Emilia del Bono, Edward Melhuish, Maurice Crul, Vibeke Grøver, Piet van Avermaet, Jacqueline Barnes, Yvonne Anders, Sanne Akkerman*.

https://equality-inclusion.com/