

How do parents choose apps for their children?

The best selling children's applications in three European countries.

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Tablets and children

- Children use mobile media devices more and more
- 70% of Dutch children up to age 7 use tablets often (Iene Miene Media, 2014)

Present study

- What are children doing on the tablet?

Situation in the US

- Children's literacy apps is a large market (Guernsey, Levine, Chiong, & Severns, 2012)
- About a third of "educational" apps are focused on young children's language and literacy development (Vaala, Ly, & Levine, 2015)
- How about Europe? What is the situation in non-English speaking countries?

Situation in Europe

- Households with Internet Access
 - The Netherlands 97% (EU, 2015)
 - Hungary 83% (EU, 2015)
 - Turkey 69,5% (TUIK, 2015)

Collecting the best selling children's apps

- In March 2015 we downloaded the lists of the best selling **50 paid and 50 free apps** from the following categories:

iTunes App Store (iPad)	Google Play Store (Android)
Kids	-
Books	Books and References
Education	Education
Educational Games	Educational Games
Family Games	Family Games
Word Games	Word Games

- 3 countries: the Netherlands, Hungary and Turkey

Apps that we screened

	Netherlands	Hungary	Turkey
Apps on lists (after removing duplicates)	998	1019	1011
Targeting children	565	499	495

Coding:

- Oral language and whether in the local language
- Educational content (language and literacy vs. math and sciences)
- Famous character/app series
- Outcome measures: ranking and price

Oral language: frequencies

		Holland	Hungary	Turkey
Apps targeting children		565	499	495
Apps including any oral language		46%	36%	47%
	Oral language in local language	50%	10%	24%
	Oral language in a foreign language	50%	90%	76%

Oral language: ranking

		Netherlands	Hungary	Turkey
Average ranking for all children's apps		26.87 (14.23)	26.35 (14.51)	26.17 (14.15)
Apps including no oral language		26.84 (14.59)	26.61 (14.47)	26.69 (14.52)
Apps including any oral language		26.89 (13.82)	25.89 (14.59)	25.58 (13.74)
	Oral language in local language	★ 24.45 (14.30)	★ 17.82 (14.71)	★ 19.57 (13.12)
	Oral language in a foreign language	★ 29.34 (12.91)	★ 26.74 (14.36)	★ 27.50 (13.40)

Oral language: free or paid apps

		Netherlands	Hungary	Turkey
Apps including no oral language		153 free 152 paid	158 free 161 paid	133 free 130 paid
Apps including any oral language		95 free 162 paid	57 free 119 paid	94 free 135 paid
Oral language in local language		40 free 88 paid	3 free 14 paid	43 free 13 paid
Oral language in a foreign language	marg	55 free 74 paid	54 free 105 paid	51 free 122 paid

Oral language: price (paid apps)

		Netherlands	Hungary	Turkey
Average price of children's apps (€)		2.53 (1.17)	2.46 (1.19)	2.02 (0.93)
Apps including no oral language		2.40 (1.06)	2.25 (1.10)	1.94 (0.87)
Apps including any oral language		2.65 (1.25)	★ 2.73 (1.25)	2.10 (0.99)
	Oral language in local language	2.71 (1.24)	2.39 (1.00)	1.44 (0.94)
	Oral language in a foreign language	2.58 (1.26)	2.78 (1.28)	★ 2.17 (0.97)

Oral language

Alarming situation

- More than half of children's apps included no oral language in all three countries
 - Probably because it is the cheapest to bring the app to other countries
- Very low percentage of apps in the local language
 - Netherlands: 50%, Turkey: 24%, Hungary: 10%
 - Probably depends on how large the markets are in the different countries

Oral language

- Compared to other media
- E.g., when children sit in front of the television (even if not watching an age-appropriate educational program), they are still exposed to language
- If an app does not include language, it is the easiest to sell it in more countries

Oral language

On the sunny side

- Parents seem to prefer and pay more for apps with oral language, especially in the local language

Thus, the low percentage of apps with oral local language is likely a result of availability

Educational content

- We defined educational apps as relevant for academic skills
- Either language & literacy or math & sciences
- Puzzles, for example, was not categorized as educational (although might foster children's visual-spatial skills)

Educational content: frequencies

		Netherlands	Hungary	Turkey
Purely entertaining		55%	71%	65%
Educational		45%	29%	35%
Educational for math and sciences		16%	7%	10%
Educational for language and literacy development		29%	23%	25%
	Directly targeting those skills (e.g., letter games)	45%	38%	35%
	Including a story (indirect approach)	55%	62%	65%

Examples

- Purely entertaining:

<https://www.youtube.com/watch?v=0ybBU4j6mbI>

<https://www.youtube.com/watch?v=9pooBoxBY3c>

- Educational

- Language and literacy

<https://www.youtube.com/watch?v=2gRGZ3xQTLA>

<https://www.youtube.com/watch?v=OsP7VUajW2Y>

- Math and sciences

<https://www.youtube.com/watch?v=LI-G67RKi4U>

Educational content: rankings

			Netherlands	Hungary	Turkey
Purely entertaining			25.75 (14.57)	26.53 (14.52)	25.32 (14.48)
Educational			28.22 (13.70)	25.94 (14.51)	27.75 (13.45)
	Educational for math and sciences		30.76 (12.63)	27.97 (13.73)	29.82 (14.92)
	Educational for language and literacy development		26.80 (14.10)	25.33 (14.74)	26.94 (12.80)
		Directly targeting those skills (e.g., letter games)	24.86 (14.41)	25.81 (14.79)	24.93 (13.25)
		Including a story (indirect approach)	28.40 (13.71)	25.03 (14.81)	28.02 (12.50)



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Educational content: free or paid apps

			Netherlands	Hungary	Turkey
Purely entertaining			162 free 148 paid	181 free 168 paid	170 free 150 paid
Educational			86 free 166 paid	34 free 112 paid	57 free 115 paid
	Educational for math and sciences		32 free 59 paid	13 free 21 paid	22 free 27 paid
	Educational for language and literacy development		54 free 107 paid	21 free 91 paid	35 free 88 paid
		Directly targeting those skills (e.g., letter games)	24 free 48 paid	7 free 36 paid	11 free 33 paid
		Including a story (indirect approach)	30 free 59 paid	14 free 55 paid	24 free 55 paid

Educational content: price (paid apps)

			Holland	Hungary	Turkey
Average price (€)			2.53 (1.17)	2.46 (1.19)	2.02 (0.93)
Purely entertaining			2.56 (1.08)	2.35 (1.09) ★	1.91 (0.88)
Educational			2.49 (1.23)	2.61 (1.32)	2.15 (0.98)
	Educational for math and sciences		★ 2.08 (0.99)	★ 1.80 (1.25)	★ 1.67 (0.85)
	Educational for language and literacy development		2.72 (1.30)	2.80 (1.27)	2.30 (0.98)
		Directly targeting those skills (e.g., letter games)	★ 2.33 (1.21)	★ 2.48 (1.30)	★ 2.01 (0.75)
		Including a story (indirect approach)	3.04 (1.29)	3.01 (1.21)	2.48 (1.06)

Educational content

Alarming situation

- 55-71% of the best selling children apps were not considered educational
- Only about a quarter of the apps were coded relevant for children's language and literacy development

Educational content

On the sunny side

- Higher proportion of educational apps on the paid lists
- Parents are willing to pay more for educational apps (Hungary, Turkey)

Thus, the low percentage of educational apps is again likely a result of availability

Educational content

Interesting

- Parents are willing to pay more for language & literacy as compared to math & science apps
- Also for story apps as compared to direct literacy apps

Other factors

- **Famous characters**

Parents pay more for apps with well known characters in all three countries

- **Series of apps**

Apps from series rank higher in all three countries

Limitations

- We do not know how these best selling lists are constructed!

Europe vs US

- More apps in the local language in the US
- US: 29-34% of apps that is advertised educational was found relevant for language and literacy (based on the app description) (Vaala et al., 2015)
- Holland, Hungary and Turkey: 23-29% of the best selling apps were rated educational for language and literacy

Conclusions

- Potential of tablets for fostering children's language and literacy development
- These apps are rather rare
- Apps in smaller languages are very rare!

- But parents seem to value these apps
- There is a demand for them

**We have to keep an ongoing conversation with developers
and advise them**