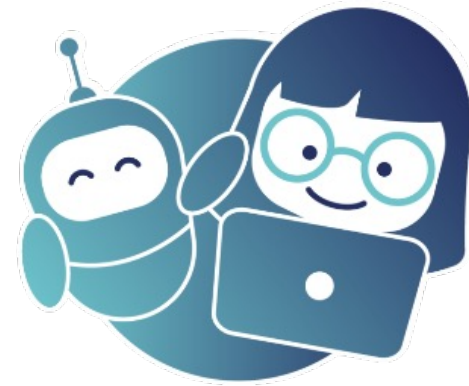


# How to compare and develop pedagogical work in early childhood education in Europe? Research and practice to create toolboxes on AI

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## I'M NOT A ROBOT

Working with Artificial Intelligence  
in Early Childhood Education



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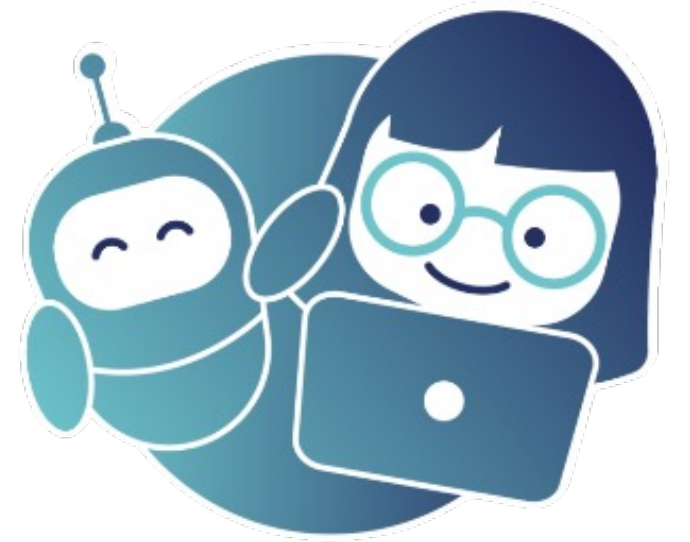
# Digital media in kindergartens

- Children become exposed to digital media at a very early age and very quickly become intuitive users (von Carlsburg & Möller, 2022).



# Research Sample

- N=593 participants from Germany, Lithuania, Denmark and Italy
- Kindergarten pedagogues, early childhood education teachers.



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		N	Mean
9.1 Search engines (Google, etc.)	Lithuania	170	3.86
	Germany	117	3.82
	Denmark	69	3.77
	Italy	237	3.62
	Total	593	3.75
9.2 Image analysis software (QR codes, etc.)	Lithuania	170	2.72
	Germany	117	2.74
	Denmark	69	2.52
	Italy	234	2.38
	Total	590	2.57
9.3 Speech recognition systems (e.g. Alexa, Siri)	Lithuania	170	1.66
	Germany	117	2.23
	Denmark	69	2.55
	Italy	234	1.82
	Total	590	1.94
9.4 Speech and face recognition systems (Machine translation, etc.)	Lithuania	170	1.58
	Germany	117	1.91
	Denmark	69	2.38
	Italy	233	1.70
	Total	589	1.78

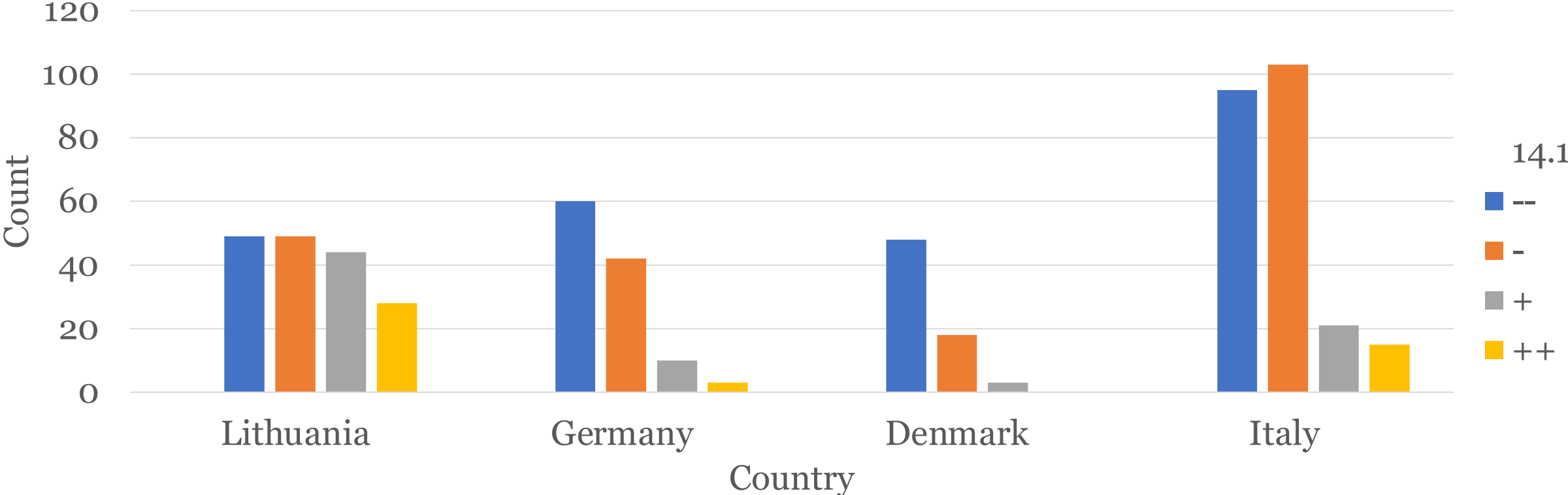
How are you familiar with these types of Artificial Intelligence?

9.5	Machine learning	Lithuania	170	.79
		Germany	117	1.97
		Denmark	69	1.22
		Italy	231	1.52
		Total	587	1.36
9.6	Digital personal assistants	Lithuania	170	1.04
		Germany	117	1.62
		Denmark	69	1.57
		Italy	230	1.48
		Total	586	1.39
9.7	Robots	Lithuania	170	1.99
		Germany	116	1.40
		Denmark	69	2.74
		Italy	230	1.17
		Total	585	1.64
9.8	Drones	Lithuania	170	1.46
		Germany	118	1.20
		Denmark	69	1.51
		Italy	232	1.15
		Total	589	1.29
9.9	Internet of Things	Lithuania	170	1.25
		Germany	115	1.52
		Denmark	67	.87
		Italy	230	1.63
		Total	582	1.41

How are you familiar with these types of Artificial Intelligence?

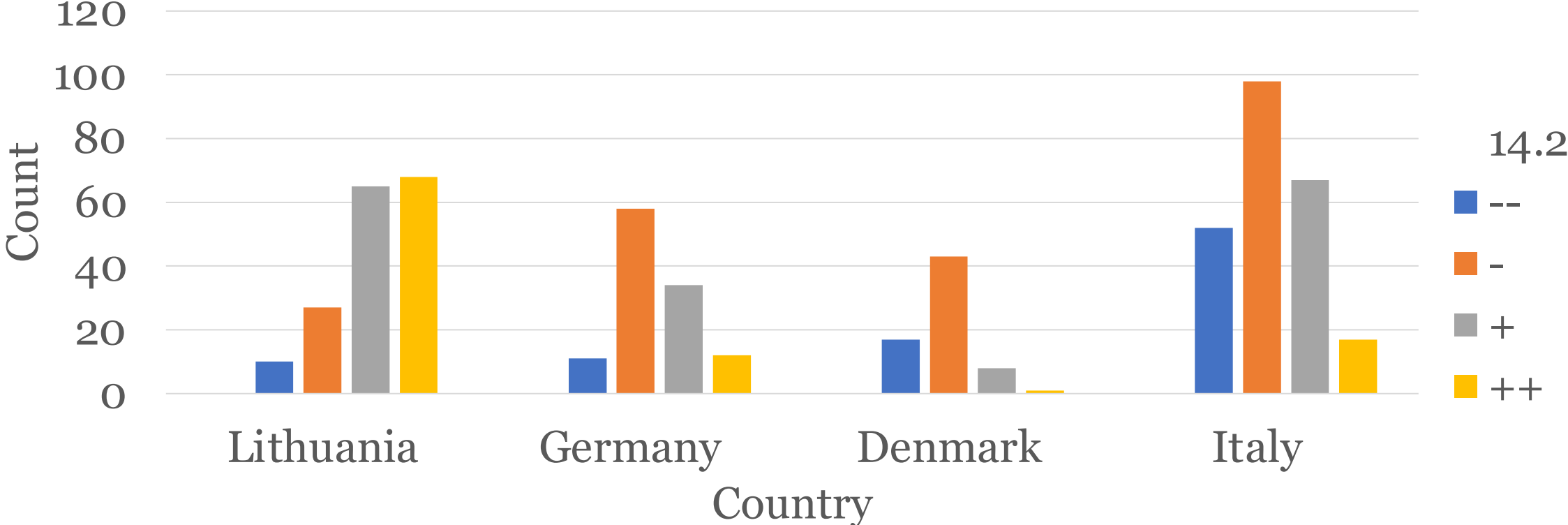
# Children in kindergartens are still too young to use digital media and media themselves

Bar Chart



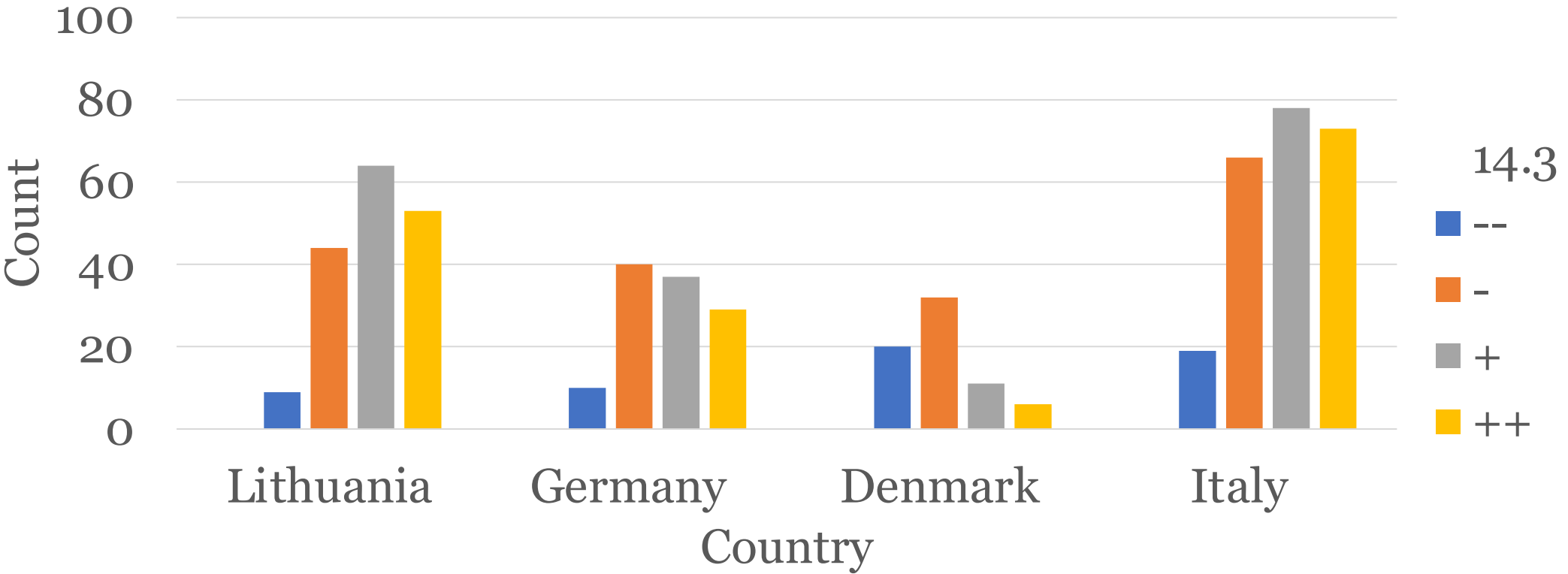
# Educators lack knowledge and skills in digital media

Bar Chart



I am convinced that it is more important for children to know the world physically, with all their senses, than with digital media

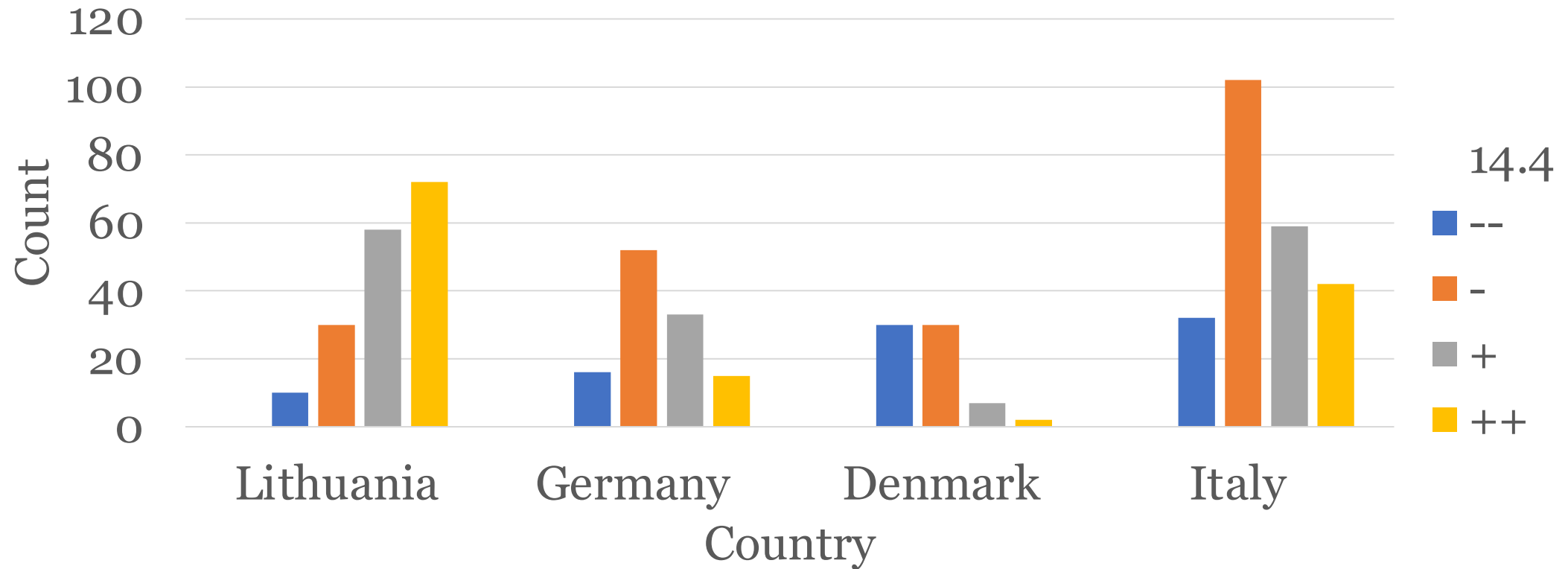
Bar Chart





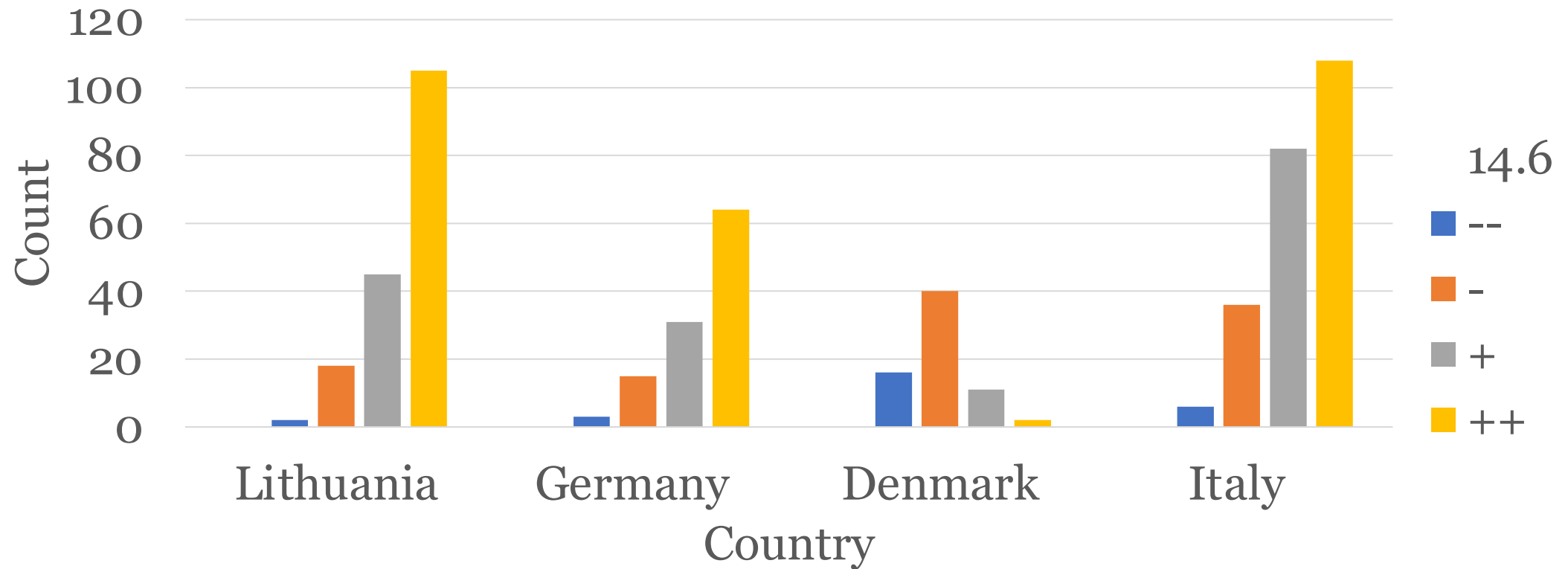
# I think that children may become addicted to digital games

Bar Chart



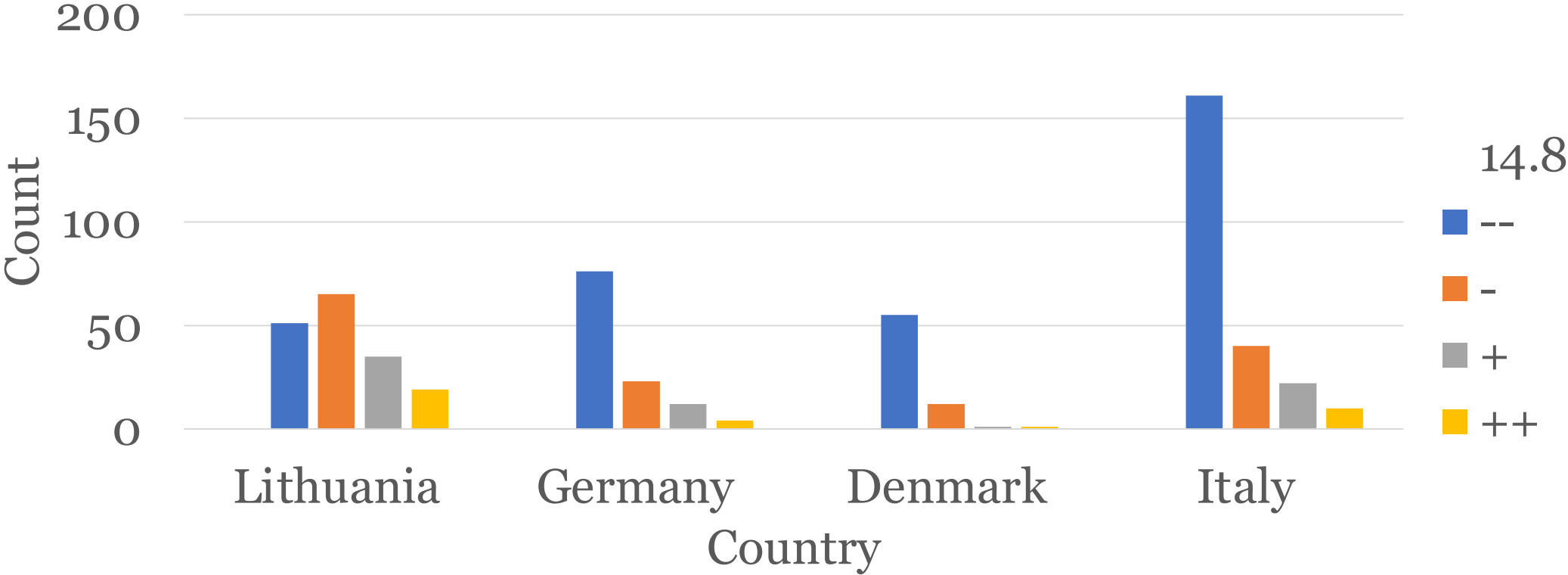
# Educators lack knowledge and skills in robotics

Bar Chart



# The role of the educator in the process of children's education is reduced by applying digital means

Bar Chart



		N	Mean
11.1 for playing age-appropriate computer games/apps	Lithuania	170	2.38
	Germany	117	1.65
	Denmark	69	3.10
	Italy	236	1.64
	Total	592	2.03
11.2 for the targeted practice of individual competences	Lithuania	170	2.75
	Germany	117	1.74
	Denmark	69	3.16
	Italy	236	1.76
	Total	592	2.20
11.3 for research on the Internet.	Lithuania	170	1.86
	Germany	116	2.06
	Denmark	69	2.32
	Italy	235	1.68
	Total	590	1.88

With digital media (e.g. computer, tablet) the children work...

11.4 topic- and project-related, e.g. plants app, translation app.	Lithuania	170	1.89
	Germany	117	1.91
	Denmark	69	2.88
	Italy	235	1.49
	Total	591	1.85
11.5 as a participation in the pedagogical documentation	Lithuania	170	1.35
	Germany	117	1.96
	Denmark	68	2.69
	Italy	234	1.68
	Total	589	1.76
11.6 in the context of participation, e.g. Apps for forming opinions.	Lithuania	170	1.40
	Germany	116	1.38
	Denmark	69	2.77
	Italy	235	1.07
	Total	590	1.43

With digital media (e.g. computer, tablet) the children work...

12.2 with exploring toys	Lithuania	170	2.08
	Germany	115	1.79
	Denmark	69	3.35
	Italy	232	1.69
	Total	586	2.02
12.3 with augmented reality devices	Lithuania	170	1.42
	Germany	114	1.65
	Denmark	69	3.13
	Italy	229	1.67
	Total	582	1.77
12.4 with scanning QR codes (viewing animated images, etc.)	Lithuania	170	1.69
	Germany	115	1.07
	Denmark	69	1.72
	Italy	227	1.06
	Total	581	1.33

With  
digital  
media the  
children  
work...



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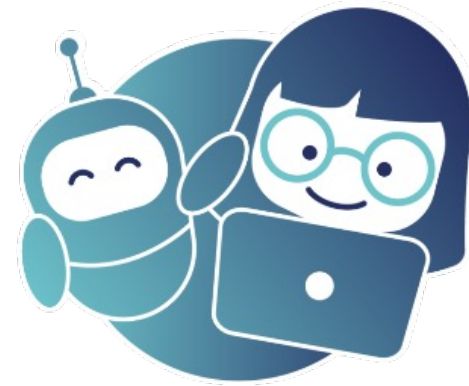
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12.5 when using for photography	Lithuania	170	1.81
	Germany	115	1.64
	Denmark	68	1.94
	Italy	232	1.18
	Total	585	1.54
12.6 when using for drawing (Paint, TuxPaint)	Lithuania	170	1.84
	Germany	115	2.55
	Denmark	68	3.40
	Italy	233	2.73
	Total	586	2.51
12.7 when creating a coexistent character (Quiver, ScratchJr)	Lithuania	170	1.29
	Germany	114	1.34
	Denmark	68	2.41
	Italy	230	1.75
	Total	582	1.61
12.8 When programming learning, such as controlling own robots and other models (robotics).	Lithuania	170	1.36
	Germany	116	1.06
	Denmark	68	2.07
	Italy	229	1.00
	Total	583	1.24

With digital media (e.g. computer, tablet) the children work...

# Instead of conclusions

This research helped us to  
design and develop Toolboxes.



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