Associations Between Exposures and Education Outcomes

numeracy	Screen-based intervention: Augmented reality (in schools) Screen-based intervention: Education (via touch screen) Screen-based intervention: Literacy (Abracadabra; in schools) TV programs and movies: General Video games: General Video games: Educational (with instructional support) e-Books: Narration Screen use: Educational apps Screen use: Educational apps Video games: Educational Video games: Educational (with competition) Screen use: General	Mixed Young children Mixed Mixed Mixed Children Mixed Young children Children Children Children Children Mixed	Tekedere, 2016 Xie, 2018 Major, 2021 Adelantado-Renau, 2019 Adelantado-Renau, 2019 Wouters, 2013 Takacs, 2014 Kim, 2021 Kim, 2021 Wouters, 2013 Arztmann, 2022 Adelantado-Renau, 2019	0.33 [0.25, 0.42] 0.21 [0.15, 0.28] 0.09 [0.06, 0.12] -0.10 [-0.15, -0.04] -0.08 [-0.12, -0.04] 0.15 [0.05, 0.25] 0.11 [0.05, 0.17] 0.21 [0.13, 0.30] 0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	68% 86% 90% 98% 40% 66% 56% 76% 72% 84%	15 79 15 18 10 16 50 15 36 10	1,474 5,810 52,377 62,135 4,276 1,287 2,288 2,011 5,447 1,183		
•	Screen-based intervention: Education (via touch screen) Screen-based intervention: Literacy (Abracadabra; in schools) TV programs and movies: General Video games: General Video games: Educational (with instructional support) e-Books: Narration Screen use: Educational apps Screen use: Educational apps Video games: Educational Video games: Educational (with competition)	Mixed Mixed Mixed Children Mixed Young children Children Children Children	Major, 2021 Adelantado-Renau, 2019 Adelantado-Renau, 2019 Wouters, 2013 Takacs, 2014 Kim, 2021 Kim, 2021 Wouters, 2013 Arztmann, 2022	0.09 [0.06, 0.12] -0.10 [-0.15, -0.04] -0.08 [-0.12, -0.04] 0.15 [0.05, 0.25] 0.11 [0.05, 0.17] 0.21 [0.13, 0.30] 0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	90% 98% 40% 66% 56% 76% 72% 84%	15 18 10 16 50 15 36 10	52,377 62,135 4,276 1,287 2,288 2,011 5,447 1,183		
•	Literacy (Abracadabra; in schools) TV programs and movies: General Video games: General Video games: Educational (with instructional support) e-Books: Narration Screen use: Educational apps Screen use: Educational apps Video games: Educational Video games: Educational (with competition)	Mixed Mixed Children Mixed Young children Children Children Children	Adelantado-Renau, 2019 Adelantado-Renau, 2019 Wouters, 2013 Takacs, 2014 Kim, 2021 Kim, 2021 Wouters, 2013 Arztmann, 2022	-0.10 [-0.15, -0.04] -0.08 [-0.12, -0.04] 0.15 [0.05, 0.25] 0.11 [0.05, 0.17] 0.21 [0.13, 0.30] 0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	98% 40% 66% 56% 76% 72% 84%	18 10 16 50 15 36	62,135 4,276 1,287 2,288 2,011 5,447 1,183		
•	Video games: General Video games: Educational (with instructional support) e-Books: Narration Screen use: Educational apps Screen use: Educational apps Video games: Educational Video games: Educational (with competition)	Mixed Children Mixed Young children Children Children Children	Adelantado-Renau, 2019 Wouters, 2013 Takacs, 2014 Kim, 2021 Kim, 2021 Wouters, 2013 Arztmann, 2022	-0.08 [-0.12, -0.04] 0.15 [0.05, 0.25] 0.11 [0.05, 0.17] 0.21 [0.13, 0.30] 0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	40% 66% 56% 76% 72% 84%	10 16 50 15 36	4,276 1,287 2,288 2,011 5,447 1,183		
•	Video games: Educational (with instructional support) e-Books: Narration Screen use: Educational apps Screen use: Educational apps Video games: Educational Video games: Educational (with competition)	Children Mixed Young children Children Children Children	Wouters, 2013 Takacs, 2014 Kim, 2021 Kim, 2021 Wouters, 2013 Arztmann, 2022	0.15 [0.05, 0.25] 0.11 [0.05, 0.17] 0.21 [0.13, 0.30] 0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	66% 56% 76% 72% 84%	16 50 15 36 10	1,287 2,288 2,011 5,447 1,183		
•	Educational (with instructional support) e-Books: Narration Screen use: Educational apps Screen use: Educational apps Video games: Educational Video games: Educational (with competition)	Mixed Young children Children Children Children	Takacs, 2014 Kim, 2021 Kim, 2021 Wouters, 2013 Arztmann, 2022	0.11 [0.05, 0.17] 0.21 [0.13, 0.30] 0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	56% 76% 72% 84%	50 15 36 10	2,288 2,011 5,447 1,183		
•	Screen use: Educational apps Screen use: Educational apps Video games: Educational Video games: Educational (with competition)	Young children Children Children Children	Kim, 2021 Kim, 2021 Wouters, 2013 Arztmann, 2022	0.21 [0.13, 0.30] 0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	76% 72% 84%	15 36 10	2,011 5,447 1,183		
•	Screen use: Educational apps Video games: Educational Video games: Educational (with competition)	Children Children Children	Kim, 2021 Wouters, 2013 Arztmann, 2022	0.15 [0.10, 0.20] 0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	72% 84%	36 10	5,447 1,183	ı	
numeracy	Video games: Educational Video games: Educational (with competition)	Children Children	Wouters, 2013 Arztmann, 2022	0.16 [0.02, 0.31] 0.26 [0.17, 0.35]	84%	10	1,183		
	Video games: Educational (with competition)	Children	Arztmann, 2022	0.26 [0.17, 0.35]			,		
	Educational (with competition)		•		82%	15			
	Screen use: General	Mixed	Adelantado-Renau 2019				9,318		
General			Addiantado Nenda, 2010	-0.11 [-0.24, 0.01]	98%	18	13,100	-	_
	Screen use: Touchscreens	Young children	Xie, 2018	0.21 [0.15, 0.28]	86%	79	5,810		
	Screen use: Educational apps	Children	Kim, 2021	0.16 [0.06, 0.25]	58%	12	1,095		
	Screen use: General	Mixed	Madigan, 2020	-0.14 [-0.20, -0.09]	90%	38	18,318	0	-
	Screen use: General (coviewing)	Mixed	Madigan, 2020	0.15 [0.02, 0.28]	96%	12	6,083		
	TV programs and movies: Educational	Mixed	Madigan, 2020	0.13 [0.03, 0.23]	82%	13	1,955		
	Screen-based intervention: Literacy (Abracadabra; in schools)	Children	Abrami, 2020	0.09 [0.01, 0.17]	82%	11	4,954		
	Screen-based intervention: Reading (technology supported)	Children	Neitzel, 2022	0.04 [0.01, 0.06]	0%	27	5,736		IOI
Reading comprehension	e-Books: General	Young children	Furenes, 2021	-0.02 [-0.08, 0.03]	0%	26	1,192	-	
	Screen use: Educational apps	Children	Kim, 2021	0.15 [0.08, 0.21]	76%	24	4,352		
	Screen-based intervention: Mathematics	Mixed	Li, 2010	0.27 [0.21, 0.33]	98%	85	36,793		
	Video games: Numeracy	Mixed	Byun, 2018	0.32 [0.21, 0.43]	88%	25	2,008		
	Video games: Educational	Mixed	Tokac, 2019	0.06 [0.00, 0.12]	84%	39	6,557		
	Tiene.s.	Screen use: Educational apps Screen-based intervention: Mathematics	Screen use: Educational apps Children Screen-based intervention: Mathematics Mixed Video games: Numeracy Mixed	Screen use: Educational apps Children Kim, 2021 Screen-based intervention: Mathematics Mixed Li, 2010 Video games: Numeracy Mixed Byun, 2018	Screen use: Educational apps Children Kim, 2021 0.15 [0.08, 0.21] Screen-based intervention: Mathematics Mixed Li, 2010 0.27 [0.21, 0.33] Video games: Numeracy Mixed Byun, 2018 0.32 [0.21, 0.43]	Screen use: Educational apps Children Kim, 2021 0.15 [0.08, 0.21] 76% Screen-based intervention: Mathematics Mixed Li, 2010 0.27 [0.21, 0.33] 98% Video games: Numeracy Mixed Byun, 2018 0.32 [0.21, 0.43] 88%	Screen use: Educational apps Children Kim, 2021 0.15 [0.08, 0.21] 76% 24 Screen-based intervention: Mathematics Mixed Li, 2010 0.27 [0.21, 0.33] 98% 85 Video games: Numeracy Mixed Byun, 2018 0.32 [0.21, 0.43] 88% 25	Screen use: Educational apps Children Kim, 2021 0.15 [0.08, 0.21] 76% 24 4,352 Screen-based intervention: Mathematics Mixed Li, 2010 0.27 [0.21, 0.33] 98% 85 36,793 Video games: Numeracy Mixed Byun, 2018 0.32 [0.21, 0.43] 88% 25 2,008	Screen use: Educational apps Children Kim, 2021 0.15 [0.08, 0.21] 76% 24 4,352 Screen-based intervention: Mathematics Mixed Li, 2010 0.27 [0.21, 0.33] 98% 85 36,793 Video games: Numeracy Mixed Byun, 2018 0.32 [0.21, 0.43] 88% 25 2,008