

Review Characteristics										Review characteristics for studies providing unique effects									
Review characteristics and quality assessment for meta-analyses providing unique effects																			
Review Characteristics										Quality Assessment <sup>7</sup>									
First Author	Year	Design Restrictions	Sample Restrictions	Year Range Earliest - Latest	Sample Age Restrictions (Age range) <sup>1</sup>	Outcomes Assessed	Exposures Assessed	Elig. Crit. <sup>2</sup>	Lit. Search	Dual Screen	Dual Qual <sup>3</sup>	Study Listed	Pub. Bias <sup>4</sup>	Hetero					
Abrami	2020	Include: Experimental designs	None specified	2009–2019	School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none"><li>Literacy: Listening comprehension</li><li>Literacy: Phonics</li><li>Literacy: Phonemic awareness</li><li>Literacy: Reading comprehension</li><li>Literacy: Reading fluency</li><li>Literacy: Vocabulary knowledge</li></ul>	<ul style="list-style-type: none"><li>Intervention: Literacy (abroad/abroad; in schools)</li></ul>		L	U	L	H	L	L					
Adelantado Renu	2019	Include: Cross-sectional studies	None specified	1982–2019	Children; Adolescents (3.7-18.8)	<ul style="list-style-type: none"><li>Learning: General</li><li>Literacy: General</li><li>Numeracy: General</li></ul>	<ul style="list-style-type: none"><li>Screen use: General (excluding TV)</li><li>TV programs and movies: General</li><li>Video games: General</li></ul>		L	L	L	L	L	L					
Aghasi	2020	Include: Observational	None specified	2007–2016	All (14.2-15.8)	<ul style="list-style-type: none"><li>Body composition</li></ul>	<ul style="list-style-type: none"><li>Internet use: General</li></ul>		U	L	L	U	L	L					
Andrade	2019	Include: Interventions	Include: Overweight/obese	2010–2017	Children; Adolescents	<ul style="list-style-type: none"><li>Healthy behavior: Self-efficacy</li><li>Psychological health: Depression</li><li>Self-perceptions: General</li><li>Self-perceptions: Self-esteem</li></ul>	<ul style="list-style-type: none"><li>Video games: Physically active</li></ul>		U	L	L	U	L	H					
Arztmann	2022	None specified	None specified	2008–2020	School-age Children (Primary, Elementary, Middle School)	<ul style="list-style-type: none"><li>Learning: Behavior</li><li>Learning: Motivation</li></ul>	<ul style="list-style-type: none"><li>Video games: Educational (with competition)</li></ul>		U	H	H	H	H	L					
Aspiranti	2020	Include: Interventions	Include: Autism spectrum disorder	2013–2015	School-age Children (Primary, Elementary)	<ul style="list-style-type: none"><li>Learning: General</li></ul>	<ul style="list-style-type: none"><li>Intervention: Education (via touch screen)</li></ul>		U	L	L	H	L	H					
Baradaran Mahdavi	2021	Include: Observational; Experimental	Exclude: Medical conditions that may increase sedentary activities	1999–2019	All (9.0-16.0)	<ul style="list-style-type: none"><li>Physical health: Lower back pain</li></ul>	<ul style="list-style-type: none"><li>Screen use: General (excluding TV)</li><li>TV programs and movies: General</li></ul>		U	H	L	L	L	L					
Bartel	2015	None	Exclude: Atypical population (except for delayed sleep phase disorder or insomnia)	2004–2014	Adolescents (12.2-17.7)	<ul style="list-style-type: none"><li>Sleep: Bedtime</li><li>Sleep: Duration</li><li>Sleep: Time to fall asleep</li></ul>	<ul style="list-style-type: none"><li>Computer use: General</li><li>Internet use: General</li><li>Screen use: General (mobile phone)</li><li>TV programs and movies: General</li><li>Video games: General</li></ul>		L	L	U	U	L	U					
Beck Silva	2022	Include: Randomised controlled trials and quasi-RCTs.	Exclude: Any disease Mental disorders	1999–2019	Adolescents	<ul style="list-style-type: none"><li>Diet: Fat consumption</li></ul>	<ul style="list-style-type: none"><li>Intervention: Nutrition (in schools)</li></ul>		L	L	L	L	L	H					
Benavides-Varela	2020	Include: Randomised controlled trials	Include: Math difficulties	2006–2018	Children	<ul style="list-style-type: none"><li>Numeracy: Mathematics</li></ul>	<ul style="list-style-type: none"><li>Intervention: Mathematics</li></ul>		U	H	L	H	L	L					
Blok	2002	None	Include: Regular students, poor readers or dyslexics	1990–2000	All (5.0-11.5)	<ul style="list-style-type: none"><li>Literacy: Reading fluency</li></ul>	<ul style="list-style-type: none"><li>Intervention: Literacy</li></ul>		U	L	H	H	L	H					
Bossen	2020	Include: Randomised controlled trials	Include: Chronic disease	2011–2018	Children (10.0-15.7)	<ul style="list-style-type: none"><li>Body composition</li><li>Cardiometabolic health: Fitness</li><li>Physical activity: Muscular fitness</li></ul>	<ul style="list-style-type: none"><li>Video games: Health promoting content</li></ul>		U	L	L	L	L	H					
Boyland	2016	Include: Experimental	None specified	2004–2015	Children; Adolescents (6.0-10.4)	<ul style="list-style-type: none"><li>Diet: Food intake</li></ul>	<ul style="list-style-type: none"><li>Advertising: Unhealthy food</li></ul>		H	L	L	U	L	L					
Byun	2018	Include: All quantitative designs	None specified	2006–2014	School-age Children	<ul style="list-style-type: none"><li>Numeracy: General</li></ul>	<ul style="list-style-type: none"><li>Video games: Numeracy</li></ul>		U	U	U	H	H	H					
Cao	2020	Include: designs with control groups	Exclude: Brain damage	2002–2019	Children (3.0-14.3)	<ul style="list-style-type: none"><li>Cognition: Executive Functioning (cognitive flexibility)</li><li>Cognition: Executive Functioning (inhibition)</li><li>Cognition: Executive Functioning (working memory)</li></ul>	<ul style="list-style-type: none"><li>Computer use: Executive functioning training</li></ul>		U	H	U	H	L	L					
Carter	2016	Include: All quantitative designs	Include: Healthy populations only	2011–2015	Children; Adolescents (16.0-17.0)	<ul style="list-style-type: none"><li>Sleep: Inadequate duration</li><li>Sleep: Lethargy</li><li>Sleep: Poor quality</li></ul>	<ul style="list-style-type: none"><li>Screen use: General (mobile phone at bed time)</li><li>Screen use: General (mobile phone)</li><li>TV programs and movies: General</li></ul>		L	L	U	L	L	H					
Champion	2019	Include: Randomised controlled trials	None specified	2003–2017	School-age Children (11.4-15.9)	<ul style="list-style-type: none"><li>Physical activity: General</li><li>Physical activity: Moderate-to-vigorous intensity</li><li>Risky behavior: Alcohol consumption</li><li>Risky behavior: Smoking</li><li>Screen time: General</li></ul>	<ul style="list-style-type: none"><li>Intervention: Lifestyle risk behaviour (at school)</li></ul>		L	L	L	L	L	L					
Chan	2014	Include: Experimental; Quasi-experimental	None specified	2002–2012	School-age Children	<ul style="list-style-type: none"><li>Numeracy: General</li></ul>	<ul style="list-style-type: none"><li>Intervention: Dynamic geometry software</li></ul>		U	H	H	H	L	L					
Chauhan	2017	Include: pre-post designs with or without control group	None specified	2001–2016	School-age Children (Primary, Elementary)	<ul style="list-style-type: none"><li>Learning: General</li></ul>	<ul style="list-style-type: none"><li>Screen use: General (in schools)</li></ul>		U	L	U	H	H	L					
Chen	2020	Include: Experimental designs	None specified	2008–2019	All	<ul style="list-style-type: none"><li>Learning: General</li></ul>	<ul style="list-style-type: none"><li>Video games: Educational (with competition)</li></ul>		U	H	U	H	H	H					
Cheung	2012	Include: Randomised controlled trials	None specified	1982–2010	School-age Children	<ul style="list-style-type: none"><li>Literacy: Reading</li></ul>	<ul style="list-style-type: none"><li>Intervention: Reading (in schools)</li></ul>		U	L	L	H	H	L					
Cheung	2013	Include: Experimental; Quasi-experimental	None specified	1980–2010	School-age Children	<ul style="list-style-type: none"><li>Numeracy: General</li></ul>	<ul style="list-style-type: none"><li>Intervention: Mathematics (in schools)</li></ul>		L	H	H	U	L	L					
Cho	2018	Include: experimental control group with control group	None specified	2008–2013	All	<ul style="list-style-type: none"><li>Learning: Second language</li></ul>	<ul style="list-style-type: none"><li>Screen use: General (mobile phone for language learning)</li></ul>		U	H	U	H	L	L					
Clausen	2022	Include: Longitudinal; Retrospective	None specified	2004–2018	All	<ul style="list-style-type: none"><li>Psychological health: ADHD</li><li>Psychological health: ADHD Symptoms (inattention)</li></ul>	<ul style="list-style-type: none"><li>Screen use: General</li></ul>		U	L	U	H	L	H					
Clinton	2019	Include: Randomised controlled trials	Exclude: Disabilities	2011–2016	All	<ul style="list-style-type: none"><li>Literacy: Reading performance</li></ul>	<ul style="list-style-type: none"><li>Screen use: Reading (vs paper)</li></ul>		U	L	U	L	L	L					
Comeras-Chueca	2021	Include: randomized and non-randomized controlled trials with no intervention or traditional exercise intervention	Exclude: Disabilities, disorders, overweight or obese	2008–2019	All (4.0-11.6)	<ul style="list-style-type: none"><li>Body composition: BMI</li><li>Cardiometabolic health: Fitness</li></ul>	<ul style="list-style-type: none"><li>Video games: Physically active</li></ul>		L	U	L	U	L	H					
Comeras-Chueca	2021	Include: randomized and non-randomized controlled with no intervention or traditional exercise intervention	Include: Overweight and obesity only	2010–2020	All (8.0-14.0)	<ul style="list-style-type: none"><li>Body composition: BMI z-score</li><li>Body composition: Body fat percentage</li><li>Body composition: Fat-free mass</li><li>Body composition: Waist circumference</li></ul>	<ul style="list-style-type: none"><li>Video games: Physically active</li></ul>		L	L	L	U	L	H					
Coyne	2018	None	None specified	1975–2017	Children; Adolescents	<ul style="list-style-type: none"><li>Prosocial Behavior: General</li></ul>	<ul style="list-style-type: none"><li>Screen use: Prosocial content</li></ul>		L	L	L	H	L	L					
Cushing	2010	Include: All quantitative designs; Experimental	None specified	1989–2009	Children; Adolescents	<ul style="list-style-type: none"><li>Healthy behavior: General</li></ul>	<ul style="list-style-type: none"><li>Intervention: Health behaviours</li></ul>		U	L	H	H	L	L					
Darling	2017	Include: Intervention	None specified	2006–2016	Children; Adolescents (8.7-16.0)	<ul style="list-style-type: none"><li>Body composition</li><li>Diet: Healthy dietary behaviour</li><li>Physical activity: General</li></ul>	<ul style="list-style-type: none"><li>Intervention: To promote health (via mobile phone)</li></ul>		U	L	U	U	L	H					
de Oliveira	2016	Include: Observational	Include: Healthy populations only	2010–2014	Adolescents	<ul style="list-style-type: none"><li>Cardiometabolic health: Metabolic Syndrome</li></ul>	<ul style="list-style-type: none"><li>Screen use: General</li></ul>		L	L	L	L	L	L					
Eirich	2022	Include: experimental or observational	Exclude: Non-typically developing children	1978–2021	Children (0.5-11.0)	<ul style="list-style-type: none"><li>Psychological health: Externalizing</li><li>Psychological health: Internalizing</li></ul>	<ul style="list-style-type: none"><li>Screen use: General</li></ul>		U	L	L	L	L	L					
Fang	2019	Include: Cohort; Cross-sectional	None specified	2006–2019	Children; Adolescents	<ul style="list-style-type: none"><li>Body composition</li></ul>	<ul style="list-style-type: none"><li>Computer use: General</li><li>Screen use: General</li><li>TV programs and movies: General</li></ul>		U	L	L	L	L	L					
Feng	2021	Include: Quasi-experimental designs	Include: Healthy children	2017–2019	Early childhood; Pre-school	<ul style="list-style-type: none"><li>Body composition: BMI z-score</li></ul>	<ul style="list-style-type: none"><li>Screen use: General (meeting guidelines)</li></ul>		L	L	L	L	L	H					
Ferguson	2017	None	None specified	2005–2017	Children; Adolescents	<ul style="list-style-type: none"><li>Risky behavior: Sexual activity</li><li>Risky behavior: Sexual activity (initiation of sex)</li></ul>	<ul style="list-style-type: none"><li>Screen use: Sexual content</li></ul>		U	L	L	H	L	L					
Ferguson	2020	Include: experimental, correlational, or longitudinal	None specified	2009–2013	All (7.0-17.5)	<ul style="list-style-type: none"><li>Aggression: General</li></ul>	<ul style="list-style-type: none"><li>Video games: Violent content</li></ul>		L	U	L	L	L	L					
Folkvord	2018	Include: Interventions	None specified	2007–2018	Children; Adolescents	<ul style="list-style-type: none"><li>Diet: Food intake (calories)</li></ul>	<ul style="list-style-type: none"><li>Advertising: Advergemes</li></ul>		U	L	L	U	L	H					
Foreman	2021	Include: observational and intervention studies	None specified	2015–2020	All	<ul style="list-style-type: none"><li>Eye health: Myopia</li></ul>	<ul style="list-style-type: none"><li>Screen use: General (mobile phone or tablet)</li></ul>		U	L	L	U	L	H					
Furenes	2021	Include: experimental or quasi-experimental	Exclude: Cochlear implants or autism	2002–2019	Early childhood; Pre-school; School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none"><li>Literacy: Reading comprehension</li><li>Literacy: Vocabulary learning</li></ul>	<ul style="list-style-type: none"><li>e-Books: General</li></ul>		H	H	L	U	L	L					
Gardella	2017	Include: Cross-sectional	None specified	2006–2014	Adolescents (12.0-16.2)	<ul style="list-style-type: none"><li>Learning: Educational achievement problems</li><li>Learning: School attendance problems</li></ul>	<ul style="list-style-type: none"><li>Internet use: Cyberbullying victimization</li></ul>		U	L	L	U	L	L					
Garzón	2019	Include: Experimental with control group	None specified	NA	All	<ul style="list-style-type: none"><li>Learning: General</li></ul>	<ul style="list-style-type: none"><li>Intervention: Augmented reality (in schools)</li></ul>		U	H	U	H	H	L					
Ghobadi	2018	Include: Cohort; Case-control; Cross-sectional	None specified	2009–2014	Children; Adolescents	<ul style="list-style-type: none"><li>Body composition</li></ul>	<ul style="list-style-type: none"></ul>												