

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>2</sup>	Outcomes Assessed	Exposures Assessed																	
								Elig. Crit. <sup>3</sup>	Lit. Search	Dual Screen	Dual Qual. <sup>4</sup>	Study Listed <sup>5</sup>	Pub. Bias <sup>6</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: Phonic 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 (Abracadabra; in schools)</li></ul>	U	U	L	H	L	L	L										
Adelantado Renau	2019	Include: Cross-sectional studies	None specified	1982–2019	Children; Adolescents (5.7–18.0)	<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</li><li>• TV programs and movies: General</li><li>• Video games: General</li></ul>	L	L	L	L	L	L	L										
Andrade	2019	Include: Interventions	Include: Overweight and obese	2010–2017	Children; Adolescents	<ul style="list-style-type: none"><li>• Healthy behavior: Self-efficacy</li><li>• Psychological health: Depression</li><li>• Psychological health: Enjoyment</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	L										
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	L										
Aspiranti	2020	Include: Interventions	Include: Autism	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	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	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	L										
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	L										
Blok	2002	None	Include: Regular students, poor readers or dyslexics Exclude: Severe or multiple disabilities	1990–2000	All (5.4–11.5)	<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	L										
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>• Cardiomatabolic health: Fitness</li><li>• Physical activity: General</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	L										
Boylard	2016	Include: Experimental	None specified	2004–2015	Children; Adolescents (6.0–16.0)	<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	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	H										
Cao	2020	Include: designs with control groups	Exclude: Brain damage	2002–2019	Children (3.4–14.3)	<ul style="list-style-type: none"><li>• Cognition: Executive functioning</li><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	L										
Champion	2019	Include: Randomised controlled trials	None specified	2003–2017	School-age Children (11.4–15.9)	<ul style="list-style-type: none"><li>• Body composition</li><li>• Diet: Fat consumption</li><li>• Diet: Fruit and vegetable intake</li><li>• Diet: Fruit intake</li><li>• Diet: Sugary drinks and snacks</li><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	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	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	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	L										
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	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	L										
Cho	2018	Include: experimental designs 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	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	L										
Clinton	2019	Include: randomised experimental designs	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	H	U	U	L	L	L										
Comeras-Chueca	2021	Include: randomized and non-randomized controlled trials (control group with no intervention or traditional exercise intervention)	Exclude: Disabilities, diseases or disorders, overweight or obese	2008–2019	All (4.5–11.6)	<ul style="list-style-type: none"><li>• Body composition: BMI</li><li>• Cardiomatabolic health: Fitness</li></ul>	<ul style="list-style-type: none"><li>• Video games: Physically active</li></ul>	L	U	L	U	L	H	L										
Comeras-Chueca	2021	Include: randomized and non-randomized controlled trials (control group with no intervention or traditional exercise intervention)	Exclude: Overweight and obese	2010–2020	All (8.0–14.0)	<ul style="list-style-type: none"><li>• Body composition: BMI</li><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	U	L	L	H	L										
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	L										
Cunningham	2021	Include: Quantitative designs	None specified	2014–2018	All (11.3–16.8)	<ul style="list-style-type: none"><li>• Psychological health: Depression</li></ul>	<ul style="list-style-type: none"><li>• Social Media: General (duration)</li></ul>	U	L	L	H	L	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	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	H										
Eirich	2022	Include: experimental or observational	Exclude: Atypically developing	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	L										
Feng	2021	Include: Quantitative 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	L										
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	L										
Ferguson	2020	Include: Experimental, correlational, or longitudinal	None specified	2009–2013	All (7.8–17.5)	<ul style="list-style-type: none"><li>• Agression: General</li></ul>	<ul style="list-style-type: none"><li>• Video games: Violent content</li></ul>	L	U	L	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: Advergaming</li></ul>	U	L	L	U	L	H	L										
Furenes	2021	Include: experimental or quasi-experimental	Exclude: Cochlear implants or autism	2002–2019	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	L										
Gardella	2017	Include: Cross-sectional	None specified	2006–2014	Adolescents (12.5–16.2)	<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	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>• Augmented reality (in schools)</li></ul>	U	H	U	H	H	L	L										
Graham	2015	Include: Experimental; Quasi-experimental	None specified	2004–2011	School-age Children (Primary, Elementary, Middle School)	<ul style="list-style-type: none"><li>• Literacy: Writing</li></ul>	<ul style="list-style-type: none"><li>• Intervention: Writing feedback</li></ul>	U	L	H	H	L	L	L										
Hammersle	2016	Include: Randomised controlled trials	Exclude: Those with special needs, require a special diet, or have a condition that would limit physical activity	2003–2013	Children; Adolescents	<ul style="list-style-type: none"><li>• Body composition</li></ul>	<ul style="list-style-type: none"><li>• Intervention: To promote healthy weight (obesity prevention)</li></ul>	L	L	H	L	L	H	L										
Hao	2021	Include: Experimental with control group	Exclude: Disabilities	2012–2018	School-age Children	<ul style="list-style-type: none"><li>• Learning: Second language vocabulary</li></ul>	<ul style="list-style-type: none"><li>• Intervention: English as foreign language</li></ul>	U	L	L	L	L	H	L										
Hassan-Saleh	2019	Include: Experimental; Quasi-experimental	None specified	2008–2016	Children; Adolescents	<ul style="list-style-type: none"><li>• Literacy: Pronunciation</li></ul>	<ul style="list-style-type: none"><li>• Intervention: Pronunciation</li></ul>	U	L	U	U	H	H	L										