

Review Characteristics										Quality Assessment						
First Author	Year	Design Restrictions	Sample Restrictions	Year Range First - Last	Sample Age Restrictions Age Range ¹	Outcomes Assessed	Exposures Assessed	Dis- GVT ²	Li- Sever ³	Dis- Sever ⁴	Dis- Bias ⁵	Stu- Bias ⁶	Pub- Bias ⁷	Notes ⁸		
Alpert	2020	Include: Experimental designs	None specified	2009-2019	School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none">Library: Learning comprehensionLibrary: PhonicsLibrary: Phonics awarenessLibrary: Reading comprehensionLibrary: Reading fluencyLibrary: Vocabulary knowledge	<ul style="list-style-type: none">Intervention: Library (K-12 students in schools)	U	U	L	H	L	L	L		
Ardakani-Rendu	2019	Include: Cross-sectional studies	None specified	1982-2019	Children: Adolescents 6-17-18.5	<ul style="list-style-type: none">Learning: GeneralLibrary: GeneralNumeracy: General	<ul style="list-style-type: none">Screen-use: GeneralTV programs and movies: GeneralVideo games: General	L	L	L	L	L	L	L		
Arvids	2019	Include: Interventions	Include: Overweight and obese	2010-2017	Children: Adolescents	<ul style="list-style-type: none">Healthy behavior: Self-efficacyPsychological health: DepressionPsychological health: EnjoymentSelf-perception: GeneralSelf-perception: Self-esteem	<ul style="list-style-type: none">Video games: Physically active	U	L	L	U	L	H	L		
Azmann	2022	None specified	None specified	2008-2020	School-age Children (Primary, Elementary, Middle School)	<ul style="list-style-type: none">Learning: BehaviorLearning: Behavior	<ul style="list-style-type: none">Video games: Educational (with competition)	U	H	H	H	H	L	L		
Azizpour	2020	Include: Interventions	Include: Autism	2013-2015	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Intervention: Education (via touch screen)	U	L	L	H	L	H	L		
Bahl	2015	None	Exclude: Atypical population (except for delayed sleep phase disorder or insomnia)	2004-2014	Adolescents (12-17.5)	<ul style="list-style-type: none">Sleep: BedtimeSleep: ContentSleep: Time to fall asleep	<ul style="list-style-type: none">Computer use: GeneralInternet use: GeneralInternet use: General (mobile phone)TV programs and movies: GeneralVideo games: General	L	L	U	U	L	U	U		
Beck-Slijs	2022	Include: Randomized controlled trials and quasi-RCTs	Exclude: Any disease/Mental disorders	1989-2019	Adolescents	<ul style="list-style-type: none">Diet: Fat consumption	<ul style="list-style-type: none">Intervention: Nutrition (in schools)	L	L	L	L	L	H	L		
Bonawitke-Vanels	2022	Include: Randomized controlled trials	Include: Math difficulties	2008-2018	Children	<ul style="list-style-type: none">Numeracy: Mathematics	<ul style="list-style-type: none">Intervention: Mathematics	U	H	L	H	L	L	L		
Blau	2020	None	Include: Regular students, poor readers or dyslexia Exclude: Severe or multiple disabilities	1990-2020	All 6-11-18.5	<ul style="list-style-type: none">Library: Reading fluency	<ul style="list-style-type: none">Intervention: Literacy	U	L	H	H	L	H	L		
Bossan	2020	Include: Randomized controlled trials	Include: Chronic disease	2011-2018	Children: (10-15.5)	<ul style="list-style-type: none">Body compositionCardiorespiratory health: FitnessPhysical activity: GeneralPhysical health: Muscular fitness	<ul style="list-style-type: none">Video games: Health promoting content	U	L	L	L	L	H	L		
Boydell	2018	Include: Experimental	None specified	2004-2015	Children: Adolescents 6-15-16	<ul style="list-style-type: none">Diet: Food intake	<ul style="list-style-type: none">Advertising: Unhealthy food	H	L	L	U	L	L	L		
Byun	2019	Include: All quantitative designs	None specified	2005-2014	School-age Children	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Video games: Numeracy	U	U	U	H	H	H	H		
Cao	2020	Include: designs with control groups	Exclude: Brain damage	2002-2019	Children (6-14.5)	<ul style="list-style-type: none">Cognition: Executive functioningCognition: Executive functioning (working memory)Cognition: Executive functioning (inhibition)Cognition: Executive functioning (working memory)	<ul style="list-style-type: none">Computer use: Executive functioning training	U	H	U	H	L	L	L		
Champion	2019	Include: Randomized controlled trials	None specified	2003-2017	School-age Children (7-14-15.8)	<ul style="list-style-type: none">Body compositionDiet: Fat consumptionDiet: Fat and vegetable intakeDiet: Fat intakeDiet: Sugar intake and snacksPhysical activity: GeneralPhysical activity: Moderate-to-vigorous intensityRisky behavior: Alcohol consumptionRisky behavior: SmokingScreen time: General	<ul style="list-style-type: none">Intervention: Lifestyle risk behaviour (at school)	L	L	L	L	L	L	L		
Chen	2014	Include: Experimental, Quasi-experimental	None specified	2002-2012	School-age Children	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Dynamic geometry software	U	H	H	H	L	L	L		
Chen	2017	Include: pre-post designs with or without control group	None specified	2011-2018	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Screen-use: General (in schools)	U	L	U	H	H	L	L		
Chen	2020	Include: Experimental designs	None specified	2008-2019	All	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Video games: Educational (with competition)	U	H	U	H	H	H	L		
Cheng	2012	Include: Randomized controlled trials	None specified	1982-2010	School-age Children	<ul style="list-style-type: none">Library: Reading	<ul style="list-style-type: none">Intervention: Reading (in schools)	U	L	L	H	H	L	L		
Cheng	2013	Include: Experimental, Quasi-experimental	None specified	1980-2010	School-age Children	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Mathematics (in schools)	L	H	H	U	L	L	L		
Chen	2018	Include: experimental designs with control group	None specified	2008-2013	All	<ul style="list-style-type: none">Learning: Second language	<ul style="list-style-type: none">Screen-use: General (mobile phone for language learning)	U	H	U	H	L	L	L		
Claessen	2022	Include: Longitudinal, Retrospective	None specified	2004-2018	All	<ul style="list-style-type: none">Psychological health: ADHDPsychological health: ADHD Symptoms (attention)	<ul style="list-style-type: none">Screen-use: General	U	L	U	H	L	H	L		
Clinton	2019	Include: randomized experimental designs	Exclude: Disabilities	2011-2016	All	<ul style="list-style-type: none">Library: Reading performance	<ul style="list-style-type: none">Screen-use: Reading (in paper)	U	H	U	U	L	L	L		
Correia-Chaves	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 (6-11-16)	<ul style="list-style-type: none">Body composition: BMICardiorespiratory health: Fitness	<ul style="list-style-type: none">Video games: Physically active	L	U	L	U	L	H	L		
Correia-Chaves	2021	Include: randomized and non-randomized controlled with control group with no intervention or traditional exercise intervention	Include: Overweight and obese Exclude: Participants with disabilities, diseases or disorders other than obesity	2010-2020	All (6-11-16)	<ul style="list-style-type: none">Body composition: BMIBody composition: BMI z-scoreBody composition: Body fat percentageBody composition: Fat free massBody composition: Waist circumference	<ul style="list-style-type: none">Video games: Physically active	L	L	L	U	L	H	L		
Coyne	2018	None	None specified	1975-2017	Children: Adolescents	<ul style="list-style-type: none">Prosocial Behavior: General	<ul style="list-style-type: none">Screen-use: Prosocial content	L	L	L	H	L	L	L		
Cunningham	2021	Include: Quantitative designs	None specified	2014-2018	All (7-12-18.5)	<ul style="list-style-type: none">Psychological health: Depression	<ul style="list-style-type: none">Social Media: General (education)	U	L	L	H	L	L	L		
Cutajar	2010	Include: All quantitative designs, Experimental	None specified	1983-2009	Children: Adolescents	<ul style="list-style-type: none">Healthy behavior: General	<ul style="list-style-type: none">Intervention: Health behaviours	U	L	H	H	L	L	L		
Darling	2017	Include: Intervention	None specified	2008-2016	Children: Adolescents 6-13-16	<ul style="list-style-type: none">Body compositionDiet: Healthy dietary behaviourPhysical activity: General	<ul style="list-style-type: none">Intervention: To promote health (via mobile phone)	U	L	U	U	L	H	H		
Elvich	2022	Include: experimental or observational	Exclude: Atypically developing	1978-2021	Children: (3-17.5)	<ul style="list-style-type: none">Psychological health: ExternalizingPsychological health: InternalizingPhysical activity: General	<ul style="list-style-type: none">Screen-use: General	U	L	L	L	L	L	L		
Fang	2021	Include: Quantitative designs	Include: Healthy children	2017-2019	Early childhood, Pre-school	<ul style="list-style-type: none">Body composition: BMI z score	<ul style="list-style-type: none">Screen-use: General (reading guidelines)	L	L	L	L	L	H	L		
Ferguson	2017	None	None specified	2005-2017	Children: Adolescents	<ul style="list-style-type: none">Risky behavior: Sexual activityRisky behavior: Sexual activity (abstinence of sex)	<ul style="list-style-type: none">Screen-use: Sexual content	U	L	L	H	L	L	L		
Ferguson	2020	Include: Experimental, correlational, or longitudinal	None specified	2009-2013	All (8-17.5)	<ul style="list-style-type: none">Aggression: General	<ul style="list-style-type: none">Video games: Violent content	L	U	L	L	L	L	L		
Fokvold	2018	Include: Interventions	None specified	2007-2018	Children: Adolescents	<ul style="list-style-type: none">Diet: Food intake (calories)	<ul style="list-style-type: none">Advertising: Advertisements	U	L	L	U	L	H	L		
Furman	2021	Include: experimental or quasi-experimental	Exclude: Cochlear implants or autism Autism	2002-2019	Early childhood, Pre-school, School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none">Library: Reading comprehensionLibrary: Vocabulary learning	<ul style="list-style-type: none">e-Books: General	H	H	L	U	L	L	L		
Ganley	2017	Include: Cross-sectional	None specified	2008-2014	Adolescents (12-16.5)	<ul style="list-style-type: none">Learning: Educational achievement problemsLearning: School attendance problems	<ul style="list-style-type: none">Internet use: Cyberbullying victimization	U	L	L	U	L	L	L		
Gardén	2019	Include: Experimental with control group	None specified	NA	All	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Intervention: Augmented reality (in schools)	U	H	U	H	H	L	L		
Gordon	2018	Include: Experimental, Quasi-experimental	None specified	2004-2011	School-age Children (Primary, Elementary, Middle School)	<ul style="list-style-type: none">Library: Writing	<ul style="list-style-type: none">Intervention: Writing feedback	U	L	H	H	L	L	L		
Hammervik	2016	Include: Randomized 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">Body composition	<ul style="list-style-type: none">Intervention: To promote healthy weight (lifestyle prevention)	L	L	H	L	L	H	L		
Hassan-Ghani	2021	Include: Experimental with control group	Exclude: Disabilities	2010-2018	School-age Children	<ul style="list-style-type: none">Learning: Second language vocabulary	<ul style="list-style-type: none">Intervention: English as foreign language	U	L	L	L	L	H	L		
Hassan-Ghani	2019	Include: Experimental, Quasi-experimental	None specified	2008-2016	Children: Adolescents 10-14-16	<ul style="list-style-type: none">Library: Pronunciation	<ul style="list-style-type: none">Intervention: Pronunciation	U	L	U	U	H	H	L		
He	2021	Include: Randomized controlled trials	None specified	2009-2018	Children: Adolescents (6-14-16)	<ul style="list-style-type: none">Physical activity: General	<ul style="list-style-type: none">Intervention: To promote physical activity (via mobile phone)	L	L	L	L	L	L	L		
Hernandez-Jimenez	2019	Include: Experimental, Quasi-experimental	None specified	2008-2017	Children: Adolescents	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Video games: Physically active	U	L	H	L	L	L	L		
Hanzel	2018	None	None specified	1987-2018	Early childhood, Pre-school, School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none">Library: General	<ul style="list-style-type: none">Intervention: Library videos	L	L	H	H	L	L	L		
He	2020	Include: Correlational studies	None specified	2010-2019	Adolescents (14-16.5)	<ul style="list-style-type: none">Psychological health: Depression	<ul style="list-style-type: none">Social Media: General	U	L	L	L	L	L	L		
Jarman	2020	Include: Experimental, Cross-sectional, Longitudinal	Include: Healthy children	2007-2019	Children	<ul style="list-style-type: none">Sleep: Duration	<ul style="list-style-type: none">Screen-use: General	U	L	L	L	L	U	L		
Kassir	2018	None	None specified	2008-2016	School-age Children	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Screen-use: General (mobile phone)	U	H	L	L	H	L	L		
Kim	2021	Include: experimental or quasi-experimental	None specified	2010-2018	School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none">Learning: Library and numeracyLibrary: GeneralNumeracy: General	<ul style="list-style-type: none">Screen-use: Educational apps	U	L	U	L	L	L	L		
Kraedelagen	2023	Include: Within subject design, between subject design	Include: Math difficulties	1985-1990	School-age Children (Primary, Elementary) (7-17.5)	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Mathematics (via computer in classrooms)	U	L	U	H	L	H	L		
Kuckuckin	2019	Include: Experimental	Include: Dyscalculia	2007-2016	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Mathematics	U	L	U	U	H	L	L		
Li	2010	Include: Experimental, Quasi-experimental	None specified	1991-2005	School-age Children	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Mathematics	U	L	L	U	L	H	L		
Li	2022	Include: experimental or quasi-experimental	None specified	2014-2021	All	<ul style="list-style-type: none">Learning: Computational thinking	<ul style="list-style-type: none">Computer use: Programming exercises	U	H	L	H	L	L	L		
Liao	2008	Include: All quantitative designs	None specified	1990-2003	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Intervention: Education (via computer)	L	H	H	L	H	H	H		
Liao	2014	Include: Randomized controlled trials	None specified	1999-2012	Children: Adolescents (6-14-17)	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Intervention: Screen-time reduction	U	L	H	L	L	L	L		
Liu	2019	Include: All quantitative designs	None specified	2007-2014	All (13-16.5)	<ul style="list-style-type: none">Psychological health: AnxietyPsychological health: DepressionPsychological health: Satisfaction	<ul style="list-style-type: none">Social Media: Instant messagingVideo games: General	U	L	U	H	L	L	L		
Liu	2022	Include: studies with control group	None specified	NA	All	<ul style="list-style-type: none">Cognition: Creativity	<ul style="list-style-type: none">Screen-use: General	U	H	U	H	H	L	L		
Lu	2021	Include: Cross-sectional only	Include: Healthy only	2014-2018	Adolescents	<ul style="list-style-type: none">Psychological health: Negative coping stylePsychological health: Positive coping style	<ul style="list-style-type: none">Screen-use: General (mobile phone addiction)	U	L	U	L	L	L	L		
Madigan	2020	Include: Observational Exclude: Qualitative	Exclude: Aut or intellectual disability	1973-2019	Children (6-14-16)	<ul style="list-style-type: none">Library: General	<ul style="list-style-type: none">Intervention: Education (general)Screen-use: GeneralScreen-use: General (learning)TV programs and movies: EducationalTV programs and movies: GeneralTV programs and movies: General (in background)	U	L	L	U	L	L	L		
Major	2021	Include: Randomized controlled trials	None specified	2007-2020	Children: Adolescents	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Intervention: Library (K-12 students in schools)	U	L	L	H	L	L	L		
Makarewicz	2022	Include: Cross-sectional or longitudinal	Include: Non-obese	2014-2020	Early childhood, Pre-school	<ul style="list-style-type: none">Cognition: Cognitive FunctioningCognition: Executive FunctioningDevelopmental: GeneralDevelopmental: Language in speechPsychological health: Psychological factorsPsychological health: Self-regulationSleep: General	<ul style="list-style-type: none">Screen-use: General (mobile phone or tablet)	L	L	L	L	L	L	L		
Mans	2020	None	None specified	1989-1989	Children	<ul style="list-style-type: none">Aggression: Towards peersCognition: Reading developmentProsocial Behavior: ProsocialSocial Interaction: General	<ul style="list-style-type: none">TV programs and movies: General	U	L	H	H	L	H	H		
Mans	2013	None	None specified	1973-2010	Children	<ul style="list-style-type: none">Cognition: Visual reasoning and perception of sub-groupsLearning: GeneralLearning: Library and numeracyLearning: Physical and social environment	<ul style="list-style-type: none">Intervention: Sesame Street	U	H	H	H	L	H	L		
Mavrik	2022	None specified	None specified	2001-15	All 6-12-12.5	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Video games: General	U	L	H	L	L	L	L		
Marshall	2024	None	None	1980-2002	Children: Adolescents	<ul style="list-style-type: none">Body compositionPhysical activity: General	<ul style="list-style-type: none">TV programs and movies: GeneralVideo games: General	U	L	H	H	H	H	L		
Martins	2019	Include: All quantitative designs	None specified	2003-2018	All	<ul style="list-style-type: none">Aggression: Towards peers	<ul style="list-style-type: none">Screen-use: General	U	L	U	H	L	L	L		
Martins	2022	Include: Cross-over or parallel/randomized controlled trials	None specified	2006-2017	Children: Adolescents	<ul style="list-style-type: none">Diet: Food intake (calories)	<ul style="list-style-type: none">TV programs and movies: Mealtime	L	L	L	L	L	H	L		
Mawani	2022	Include: Randomized controlled trials	Exclude: Comorbidities to physical activity Intellectual and cognitive impairments	2015-2019	All (10-17.5)	<ul style="list-style-type: none">Physical activity: General	<ul style="list-style-type: none">Intervention: To promote physical activity (via gamification)	L	L	L	L	L	L	L		
McArthur	2012	Include: Randomized controlled trials and quasi-RCTs	Include: Poor readers	1984-2008	All 6-7-12.5	<ul style="list-style-type: none">Library: Phonics	<ul style="list-style-type: none">Intervention: Library (phonics, via computer)	L	L	L	L	L	L	L		
McArthur	2018	Include: Randomized controlled trials and quasi-RCTs	Include: Poor readers	1984-2015	Children: Adolescents	<ul style="list-style-type: none">Library: General	<ul style="list-style-type: none">Intervention: Literacy	L	L	L	L	L	L	L		
Mai	2018	Include: cross-sectional, case-control, and cohort studies	None specified	2004-2018	Adolescents (13-16.8)	<ul style="list-style-type: none">Sleep: DurationSleep: ProblemsSleep: Time to fall asleep	<ul style="list-style-type: none">Screen-use: General (arousal)	U	H	U	L	L	H	L		
Merchant	2014	Include: Experimental with control group	None specified	NA	School-age Children	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Screen-use: Virtual reality simulations (Education)Screen-use: Virtual reality worlds (Education)Video games: Virtual reality (Education)	U	L	H	H	H	H	L		
Netzer	2022	Include: random assignment or quasi-experimental	Include: Poor readers	2004-2020	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Library: Reading	<ul style="list-style-type: none">Intervention: Reading technology supported	U	L	H	H	L	H	H		
Obied	2020	Include: Group-control experimental design	Include: Both typically developing and atypically developing with neurodevelopmental disorder	2005-2018	School-age Children	<ul style="list-style-type: none">Cognition: Cognitive FunctioningCognition: Executive FunctioningDevelopmental: GeneralCognition: Verbal skillsCognition: Visuospatial skillsNumeracy: GeneralPsychological health: Adjustment	<ul style="list-style-type: none">Intervention: Cognitive training	U	L	U	H	L	L	L		
Pak	1994	None	None specified	NA	Children: Adolescents	<ul style="list-style-type: none">Antisocial Behavior: General	<ul style="list-style-type: none">TV programs and movies: Violent content	U	H	U	H	H	L	H		
Pascio	2016	Include: All quantitative designs	None specified	1986-2012	Children: Adolescents	<ul style="list-style-type: none">Psychological health: Internalizing	<ul style="list-style-type: none">TV programs and movies: Scary content	U	L	H	H	H	L	L		
Peng	2011	None	Include: Healthy populations only	2001-2010	Children: Adolescents	<ul style="list-style-type: none">Cardiorespiratory health: Maximum oxygen consumptionPhysical activity: Exercise expenditurePhysical activity: Heart rate	<ul style="list-style-type: none">Video games: Physically active	U	L	U	U	L	H	L		
Powers	2013	Include: Experimental or quasi-experimental designs	None specified	1985-2012	All	<ul style="list-style-type: none">Cognition: Information processing	<ul style="list-style-type: none">Video games: General	U	L	U	H	L	L	L		
Preccott	2018	Include: Longitudinal	None specified	2008-2017	All 6-14-18.5	<ul style="list-style-type: none">Aggression: Towards peers	<ul style="list-style-type: none">Video games: Violent content	U	L	U	H	L	L	L		
Reynard	2022	None specified	Exclude: Neurological disorder	2016-2020	Children: Adolescents	<ul style="list-style-type: none">Psychological health: Emotion experiencePsychological health: Emotion regulation	<ul style="list-style-type: none">Intervention: To improve emotional regulationIntervention: To improve emotional regulation (via digital games)	H	L	L	L	L	L	L		
Rodriguez-Rocha	2019	Include: Experimental, Quasi-experimental	None specified	1999-2018	All 6-15-16	<ul style="list-style-type: none">Diet: Fruit and vegetable intake	<ul style="list-style-type: none">Intervention: Fruit and vegetable	U	L	L	L	L	L	L		
Sadeghzad	2018	Include: Randomized controlled trials	None specified	1979-2014	Children: Adolescents (10-11.5)	<ul style="list-style-type: none">Diet: Food intake (calories)Diet: Food intake (grams)Diet: Unhealthy food choice	<ul style="list-style-type: none">Advertising: Unhealthy food	H	L	L</						