First Author		cteristics as and quality assess Design Restrictions	•	Review Char Year Range Earliest - Latest	•		istics for studies providing Outcomes Assessed	Exposures Assessed	Elig. Crit. ³	Lit. Searcl	Qualit Dual n Screer	ty Asses Dual 1 Qual.6	Studie		Hetero
Abrami		Include: Experimental designs	None specified	2009– 2019	School-age Children (Early Primary, Elementary)	•	Literacy: Reading comprehension Literacy: Reading	Intervention: Literacy (Abracadabra; in schools)	L	U	L	Н	L	L	L
Adelantado- Renau	2019	Include: Cross- sectional studies	None specified	1982– 2019	Children; Adolescents (5.7-18.0)	•	Literacy: General Numeracy: General	Screen use: General TV programs and movies: General Video games: General	L	L	L	L	L	L	L
Andrade	2019	Include: Interventions	Include: Overweight/obese	2010– 2017	Children; Adolescents	•	Healthy behavior: Self- efficacy Psychological health: Depression Psychological health: Enjoyment Self-perceptions: General	Video games: Physically active	U	L	L	U	L	н	L
Arztmann	2022	None specified	None specified	2008– 2020	School-age Children (Primary, Elementary, Middle School)	•	Self-perceptions: Self- esteem	Video games: Educational (with competition)	U	Н	Н	Н	Н	L	L
Aspiranti	2020	Include: Interventions	Include: Autism spectrum disorder Exclude: Atypical population	2013– 2015 2004–	School-age Children (Primary, Elementary)	•	Sleen: Bedtime	Intervention: Education (via touch screen) Computer use: General Internet use: General Screen use: General	U	L	L	Н	L	н	L
	2022	Include: Randomised controlled trials and quasi-RCTs.	(except for delayed sleep phase disorder or insomnia) Exclude: Any disease Mental disorders	2014 1999– 2019	(12.2-17.7) Adolescents		asieep	(mobile phone) TV programs and movies: General Video games: General Intervention: Nutrition (in schools)	L	L	L	L	L	Н	L
Benavides- Varela Blok	2020	Include: Randomised controlled trials None	Include: Math difficulties Include: Regular students, poor readers or dyslexics Exclude: Severe	2006- 2018 1990- 2000	Children All (5.4-11.5)		Mathematics Literacy: Reading	Intervention: Mathematics Intervention: Literacy	U	H	L H	н	L	Н	L
Bossen		Include: Randomised controlled trials	or multiple disabilities Include: Chronic disease	2011– 2018	Children (10.0-15.7)	•	Body composition Cardiometabolic health: Fitness Physical activity: General Physical health:	Video games: Health promoting content	U	L	L	L	L	н	L
Boyland Byun		Include: Experimental Include: All quantitative	None specified None specified	2004– 2015 2006– 2014	Children; Adolescents (6.0-10.4) School-age Children	•	Muscular fitness Diet: Food intake	Advertising: Unhealthy food Video games: Numeracy	H	L	L	U	L	L	L
Cao		Include: designs with control groups	Exclude: Brain damage	2002– 2019	Children (3.4-14.3)	•	Cognition: Executive functioning Cognition: Executive Functioning (cognitive flexibility) Cognition: Executive Functioning (inhibition)	Computer use: Executive functioning training	U	н	U	Н	L	L	L
						•	Cognition: Executive Functioning (working memory) Body composition Diet: Fat consumption Diet: Fruit and vegetable intake								
Champion		Include: Randomised controlled trials	None specified	2003– 2017	School-age Children (11.4-15.9)	•	Diet: Fruit intake Diet: Sugary drinks and snacks	Intervention: Lifestyle risk behaviour (at school)	L	L	L	L	L	L	L
Chan	2014	Include: Experimental; Quasi-	None specified	2002– 2012	School-age Children	•	consumption Risky behavior: Smoking Screen time: General	Intervention: Dynamic geometry software	U	Н	Н	Н	L	L	L
Chauhan	2017	experimental Include: pre- post designs with or without control group Include: Experimental designs	None specified None specified	2001– 2016 2008– 2019	School-age Children (Primary, Elementary)		Learning. General	Screen use: General (in schools) Video games: Educational (with competition)	U	L	U	н	н	L	L
Cheung	2012	Include: Randomised controlled trials Include: Experimental; Quasi- experimental	None specified None specified	1982– 2010 1980– 2010	School-age Children School-age Children		Literacy. Reading	Intervention: Reading (in schools) Intervention: Mathematics (in schools)	U	Н	Н	Н	Н	L	L
Cho		Include: experiemental designs with control group Include:	None specified	2008– 2013 2004–	All	•	language Psychological health: ADHD	Screen use: General (mobile phone for language learning)	U	н	U	н	L	L	L
Claussen	2019	Longitudinal; Retrospective Include: randomised experimental designs include:	None specified Exclude: Disabilities	2018 2011– 2016	All		ADHD Symptoms (Inattention)	Screen use: General Screen use: Reading (vs paper)	U	L	U	L	L	L	L
Comeras- Chueca		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)	•	Body composition: BMI Cardiometabolic health: Fitness	Video games: Physically active	L	U	L	U	L	Н	L
Comeras- Chueca	2021	Include: randomized and non-randomized controlled with control group with no intervention or traditional	Include: Overweight and obesity only Exclude: Participants with disabilities, diseases or	2010– 2020	AII (8.0-14.0)		BMI z-score Body composition: Body fat percentage Body composition:	Video games: Physically active	L	L	L	U	L	Н	L
Coyne	2018	traditional exercise intervention None Include: Quantitative	disorders other than obesity None specified	1975– 2017	Children; Adolescents	•	General Psychological health:	Screen use: Prosocial content Social Media: General	L	L	L	н	L	L	L
ŭ	2021	Quantitative designs Include: All quantitative designs; Experimental	None specified None specified	2018 1989– 2009	(11.2-16.8) Children; Adolescents Children;	•	Depression Healthy behavior: General Body composition Diet: Healthy dietary	(duration) Intervention: Health behaviours Intervention: To	U	L	Н	н	L	L	L
Darling Eirich		Include: Intervention Include: experimental or observational	None specified Exclude: Non-typically developing children	2006– 2016 1978– 2021	Children; Adolescents (8.7-16.0) Children (0.5-11.0)	•	behaviour Physical activity: General Psychological health: Externalizing	Intervention: To promote health (via mobile phone) Screen use: General	U	L	U L	U L	L	H	H
Feng Ferguson	2021	Include: Quantitative designs	Include: Healthy children None specified	2017– 2019 2005– 2017	Early childhood; Pre-school Children; Adolescents	•	Body composition: BMI z-score Risky behavior: Sexual activity Risky behavior: Sexual	Screen use: General (meeting guidelines) Screen use: Sexual content	L	L	L	L	L	H	L
Ferguson	2017 2020 2018	Include: Experimental, correlational, or longitudinal Include:	None specified None specified None specified	2017 2009– 2013 2007–	Adolescents All (7.8-17.5) Children;	•	Agression: General Diet: Food intake	video games: Violent content Advertising:	L	U	L	L	L	L	L
Folkvord Furenes		Include: Interventions Include: experimental or quasi- experimental	Exclude: Cochlear implants or autism Autism	2007– 2018 2002– 2019	Early childhood; Pre-school; School-age Children (Early	•	(calories) Literacy: Reading	Advertising: Advergames e-Books: General	Н	Н	L	U	L	H	L
Gardella	/ () /	Include: Cross- sectional Include:	None specified	2006– 2014	Primary, Elementary) Adolescents (12.5-16.2)		Learning: Educational achievement problems Learning: School attendance problems	Internet use: Cyberbullying victimization	U	L	L	U	L	L	L
Garzón Graham	20192015	Include: Experimental with control group Include: Experimental; Quasi- experimental	None specified None specified	NA 2004– 2011	All School-age Children (Primary, Elementary, Middle		Learning: General	Intervention: Augmented reality (in schools) Intervention: Writing feedback	U	H	И	Н	H	L	L
Hammersley	2016	experimental Include: Randomised controlled trials Include:	Exclude: Those with special needs, require a special diet, or have a condition that would limit physical activity	2003– 2013	Middle School) Children; Adolescents	•	Body composition	Intervention: To promote healthy weight (obesity prevention)	L	L	Н	L	L	Н	L
Hao Hassan- Saleh	2019	Experimental with control group Include: Experimental; Quasi- experimental	Exclude: Disabilities None specified	2012– 2018 2008– 2016	School-age Children Children; Adolescents	•	language vocabulary Literacy: Pronunciation	Intervention: English as foreign language Intervention: Pronunciation	U	L	U	L U	Н	н	L
He Hernandez- Jimenez	2021	Include: Randomised controlled trials Include: Experimental; Quasi- experimental	None specified None specified	2009– 2018 2009– 2017	Children; Adolescents (9.9-16.6) Children; Adolescents	•	Physical activity: General	Intervention: To promote physical activity (via mobile phone) Video games: Physically active	L	L	Н	L	L L	L	L
Hurwitz	2018	·	None specified	1997– 2018	Early childhood; Pre-school; School-age Children (Early Primary, Elementary)	•	Literacy: General	Intervention: Literacy videos	L	L	Н	Н	L	L	L
lvie Janssen		Include: Correlational studies Include: Experimental; Cross-sectional; Longitudial	None specified Include: Healthy children	2012– 2019 2007– 2019	Adolescents (14.0-18.0) Children		Depression	Social Media: General Screen use: General	U	L	L	L	L	U	L
Kates Kim	2018	None Include: experimental or quasi- experimental	None specified None specified	2008– 2016 2010– 2018	School-age Children School-age Children (Early Primary, Elementary)	•	Learning: General Learning: Literacy and	Screen use: General (mobile phone) Screen use: Educational apps	U	H	U	H	H	L	L
Kroesberge Kucukalkan	2003	Include: Within subject design; between subject design Include: Experimental	Include: Students with math difficulties Include: Students with dyscalculia	1985– 1999 2007– 2016	School-age Children (Primary, Elementary) (7.0-11.3) School-age Children (Primary,		Numeracy: General	Intervention: Mathematics (via computer in classrooms) Intervention: Mathematics	U	L	U	Н	L	H	L
Kucukalkan Li		Experimental Include: Experimental; Quasi- experimental	dyscalculia None specified Include: Non-	2016 1991– 2005	(Primary, Elementary) School-age Children	•	Numeracy: General Numeracy: General Developmental: Gross motor (locomotor)	Mathematics Intervention: Mathematics	U	L	L	U	L	Н	L
Li Li		Include: Randomised controlled trials Include: experimental or quasi-	Include: Non- typically developing children	2012- 2020 2014- 2021	Children; Adolescents	•	Developmental: Gross motor (non-locomotor) Developmental: Gross motor (object control skills)	video games for motor skills Computer use: Programming	L	н	L	Н	L	H	L
Liao Liao	2008	quasi- experimental Include: All quantitative designs Include: Randomised	None specified None specified		School-age Children (Primary, Elementary) Children; Adolescents	•	Computational thinking Learning: General	Programming exercises Intervention: Education (via computer) Intervention: Screentime reduction	L	H	Н	L	H	H L	H L
Liao Liu		Randomised controlled trials Include: All quantitative designs	None specified None specified		Adolescents (4.0-14.7) All (13.3-16.6)	•	Psychological health: Anxiety Psychological health:		U	L	H U	Н	L	L	L
Liu Lu		Include: studies with control group Include: Cross-sectional only	None specified Include: Healthy only	NA 2014– 2018	All Adolescents	•	Cognition: Creativity	Screen use: General Screen use: General (mobile phone addiction)	U	U	H	H	H	L	L
Madigan	2020	Include: Observational	Exclude: Asd or intellectual	1973-	Children		Literacy: General	Intervention: Education (general) Screen use: General (coviewing) TV programs and movies: Coviewing	U			U			
ı∕ladigan	2020	Observational Exclude: Qualitative		1973– 2019	Children (0.5-10.6)	•	Literacy: General	movies: Coviewing TV programs and movies: Educational TV programs and movies: General TV programs and movies: General (in background)	U	L	L	U	L	L	L
Major		Include: Randomised controlled trials	None specified	2007– 2020	Children; Adolescents	•	Learning: General Cognition: Cognitive Functioning Cognition: Executive	Intervention: Literacy (Abracadabra; in schools)	U	L	L	Н	L	L	L
Mallawaarad	2022	Include: Cross- sectional or longitudinal	Include: Non- clinical	2014– 2020	Early childhood; Pre-school (1.4-5.4)	•	Functioning Developmental: General Developmental: Language or speech Psychological health: Psychosocial factors Psychological health: Self-regulation	Screen use: General (mobile phone or tablet)	L	L	L	L	L	L	L
Mares	2005	None	None specified	1969– 1989	Children	•	Aggression: Towards peers Cognition: Reducing stereotypes Prosocial Behavior: Altruism	TV programs and movies: General	U	L	Н	н	L	Н	н
Mares	2013	Exclude: Experimental	None specified	1973– 2010	Children	•	Social interactions: General Cognition: Moral reasoning and perception of outgroups Learning: General	Intervention: Sesame Street	U	н	н	н		Н	
		Experimental None specified	None specified None specified	2010	All (6.0-12.2)	•	Learning: General Learning: Literacy and numeracy Learning: Physical and social environment Body composition	Street Video games: General	U	L	Н	L	L	L	L
Marshall Martins		Include: All quantitative designs Include: Cross-	None specified None specified	1985– 2002 2003– 2018	Children; Adolescents	•	Physical activity: General Aggression: Towards peers	TV programs and movies: General Video games: General Screen use: General	U	L	H	н	H	H	L
	2022	Include: Cross- over or parallel randomized controlled trials Include: Randomised controlled trials	None specified Exclude: Contraindictions to physical activity Intellectual and cognative	2006– 2017 2015– 2019	Children; Adolescents All (10.3-17.8)		(calories)	TV programs and movies: Mealtime Intervention: To promote physical activity (via gamification)	L	L	L	L	L	H	L
	2012	Include: Randomised controlled trials and quasi-RCTs. Include: Randomised controlled trials	cognative impairments Include: Poor readers Include: Poor readers	1994– 2009 1994– 2015	All (6.7-16.2) Children; Adolescents		Literacy, Phonics	gamification) Intervention: Literacy (phonics; via computer) Intervention: Literacy	L	L L	L L	L L	L L	L	L
	2018					•	Sleep: Duration Sleep: Problems Sleep: Time to fall asleep	Screen use: General (excessive) Screen use: Virtual	U	Н	U	Н	L	Н	L
Merchant	2014	Include: Experimental with control group	None specified	NA	School-age Children	•	Learning: General	Screen use: Virtual reality simulations (Educational) Screen use: Virtual reality worlds (Educational) Video games: Virtual reality (Educational)	U	L	н	н	н	Н	L
	2022	Include: random assignment or quasi-experimental Include: Group-control	Include: Struggling readers Include: Both typically developing and	2004– 2020 2006–	School-age Children (Primary, Elementary)	•	Cognition: Cognitive Functioning Cognition: Executive Functioning	Intervention: Reading (technology supported) Intervention: Cognitive	U	L	н	Н	L	Н	Н
Oldrati Paik	2020	control experimental design	atypically developing with neurodevelopmen disorder None specified	2018	School-age Children Children; Adolescents	•	Cognition: Verbal skills Cognition: Visuospatial skills Numeracy: General Psychological health: Adjustment	Intervention: Cognitive training TV programs and movies: Violent content	U	Н	U	н	Н	L	Н
Pearce	2016	Include: All quantitative designs	None specified	1986– 2012	Adolescents Children; Adolescents	•	Psychological health: Internalizing Cardiometabolic health: Maximum oxygen consumption	movies: Violent content TV programs and movies: Scary content	U	L	н	н	Н	L	L
Peng		None Include: Experimental or quasi- experimental	Include: Healthy populations only None specified	2001– 2010 1985– 2012	Children; Adolescents	•	Physical activity: Energy expenditure Physical activity: Heart rate Cognition: Information	Video games: Physically active Video games: General	U	L	U	Н	L	H	L
	2018		None specified Exclude:	2008– 2017	AII (8.9-16.0)		Aggression: Towards peers Psychological health:	Video games: Violent content Intervention: To improve emotional regulation	U	L	U	н	L	L	L
Reynard Rodriguez- Rocha		None specified Include: Experimental; Quasi- experimental	Exclude: Neurological disorder None specified	2016– 2020 1999– 2018	Children; Adolescents All (4.5-15.4)	•	Emotion experience Psychological health: Emotion regulation	=	H	L	L	L	L	L	L
	2016	experimental Include: Randomised controlled trials	None specified	1978– 2014	Children; Adolescents (3.8-11.0)	•	Diet: Food intake (calories)	Advertising: Unhealthy food	Н	L	L	L	L	L	L
	2020	Include: Experimental or quasi- experimental designs Include: Experimental; Quasi- experimental	Exclude: Clinical or special needs populations None specified	1973– 2017 2001– 2009	AII (6.5-16.8)		Programming skills	Intervention: Education (programming) Intervention: With digital characters	U	H	U	н	L	L	L
Scionti	2019	experimental Include: Interventions	None specified Include: No	2009– 2019	Children (4.3-6.1) Children;	•	functioning Body composition	Intervention: Cognitive training Intervention: To promote health (via mobile phone app) Intervention: To	L	L	L	Н	L	L	L
Shin		Include: Interventions Include: Quantitative	Include: No health conditions except obesity None specified	2013– 2018 2003– 2021	Adolescents (12.0-15.7) Adolescents	•	Diet: Sugary drinks Physical activity: General Screen time: General Psychological health:		U	Н	L	L	L	H	L
Shin	2014	Quantitative designs Include: Randomised controlled trials; Quasi- experimental; Observational	None specified None specified	2003– 2021 2000– 2011	School-age Children (Primary, Elementary)		Depression	Internet use: General Intervention: Science (in schools)	U	Н	Н	Н	L	Н	Н
Strouse		Include: experimental and quasi- experimental designs Include:	Include: No developmental delay	1994– 2019	Early childhood; Pre-school; School-age Children (Early Primary, Elementary) (0.8-6.5)	•	Learning: General	Screen use: Video (vs face-to-face)	U	L	U	Н	Н	L	L
		Experimental; Quasi- experimental Include:	None specified	1980– 2014 2001–	All	•	Cognition: Executive Functioning (accuracy) Cognition: Executive Functioning (cognitive	e-Books: Narration	Н	L	U	н	L	L	L
	2019	Randomised controlled trials and quasi-RCTs.	None specified None specified	2001– 2016	Children	•	flexibility) Cognition: Executive Functioning (inhibition) Cognition: Executive Functioning (working memory)	Intervention: Education (via computer) Intervention: Augmented reality (in	L	L	U	Н	L	L	L
		Include: desgins with a control group Include: Interventions	None specified None specified	2015 2006– 2016	All School-age Children School-age		Learning: General Numeracy: Mathematics Risky behavior: Media	Augmented reality (in schools) Video games: Educational	U	н	U	Н	L	L	L
			None specified None specified	2015– 2016 2005– 2015	School-age Children (Middle/High School) School-age Children (2.0-16.3)		literacy Risky behavior: Risk taking (attitude)	Intervention: Media literacy (web-based) Computer use: General TV programs and movies: General	L U	L	U	U	L	Н	L
Vannucci		Exclude: Qualitative; Case studies	None specified	2011– 2018	Adolescents (12.6-18.0)	•	Risky behavior: Risk taking (general) Risky behavior: Risky sexual behaviour Risky behavior: Substance abuse	Social Media: General	U	L	U	Н	L	L	L
Wouters	2012	Include: experimental designs Include: Experimental with control group Include:	Exclude: Disabilities None specified	2005– 2012 1993– 2007	All		Learning. Motivation	Video games: Educational Video games: Educational (with instructional support)	U	Н	U	н	L	L	L
Xie Xie		Include: Experimental; Quasi- experimental; Pre-test post- test Include: experimental, quasi-	None specified Exclude: Health conditions	2010– 2018 2010– 2018	Children (1.8-5.9) Early childhood; Pre-school		Learning: General	Intervention: Education (via touch screen) Screen use:	U	L	L	н	L	L	L
Xie Yin		quasi- experimental, or pre-post test None specified	Exclude: Health conditions None specified	2010– 2018 2006– 2016	childhood; Pre-school (1.8-5.8)	•	Psychological health:	Touchscreens Social Media: General	U	Н	U	Н	L	L	L
Zhou		Exclude: Non- empirical studies; Qualitative; Systematic reviews or meta- analyses Include: Randomised	None specified	2009– 2018	All School-age	•	Healthy behavior: General Healthy behavior: Self- efficacy Psychological health: Enjoyment	Video games: Health promoting content	U	L	U	Н	L	L	L
² Where proving 3 Eligibility cri	2009 om the l ided iteria pre	Randomised controlled trials; Quasi-experimental; Observational National Health, Lungedefined and specifie	ed	1997– 2006 s Quality Asse	School-age Children (Primary, Elementary)	•	Literacy: Decoding Literacy: Reading comprehension atic Reviews and Meta-Analys	e-Books: General	L ed the firs	L st item of	U the tool.	Н	L	Н	L
 Literature se Dual indepe Dual indepe 	earch st endent s endent c	rategy comprehensiv creening & review juality assessment ted with important ch	e and systematic	ults of each											