Author (year)	Country	Subject		Educational level			Gaming context		Game type			Method		
		L1	L2	Primary	Lower secondary	Upper secondary	In-school	Outside school	Educational game	Commercial game	Game design tool	Qualitative	Quantitative	Mixed methods
Abrams (2009)	USA	1	0	0	0	1	0	1	0	1	0	1	0	0
Adams (2009)	USA	1	0	0	0	1	1	0	0	1	0	1	0	0
Aglahara & Tamjid (2011)	Iran	0	1	1	0	0	1	0	1	0	0	0	1	0
Al-Elaimat (2013)	Jordan	0	1	1	0	0	1	0	1	0	0	0	1	0
Allen et al. (2014)	USA	1	1	0	0	1	1	0	1	0	0	0	1	0
Altura & Curwood (2015)	Australia	1	0	0	1	0	1	0	0	0	1	1	0	0
Apperley & Beavis (2011)	Australia	1	0	0	1	0	1	0	1	1	1	1	0	0
Apperley & Beavis (2013)	Australia	1	0	0	1	0	1	0	0	0	1	1	0	0
Bacalja (2018)	Australia	1	0	0	1	0	1	0	0	1	0	1	0	0
Beavis (2007)	Australia	1	0	0	1	0	1	0	0	1	0	1	0	0
Beavis & O'Mara (2010)	Australia	1	0	0	1	0	1	0	0	1	1	1	0	0
Beavis & Charles (2005)	Australia	1	0	0	1	0	1	1	0	1	0	1	0	0
Berger & McDougall (2013)	England	1	0	0	0	1	1	0	0	1	0	1	0	0
Borgonovi (2016)	International (PISA)	1	0	0	1	0	0	1	0	1	0	0	1	0
Burn (2003)	England	1	0	0	1	0	1	0	0	1	0	1	0	0
Burn (2007)	England	1	0	0	1	0	1	0	0	0	1	1	0	0
Burwell (2017)	Canada	1	0	0	1	0	1	0	0	1	0	1	0	0
Butler et al. (2014)	Japan	0	1	1	0	0	1	0	1	0	0	0	1	0
Carroll (2016)	Australia	1	0	0	1	0	0	1	0	1	0	1	0	0
Cobb & Horst (2011)	Canada	0	1	0	1	0	1	0	1	0	0	0	1	0
Dourda et al. (2014)	Greece	0	1	1	0	0	1	0	0	0	0	0	0	1
Drummond & Sauer (2020)	International (PISA)	1	0	0	0	0	0	1	0	1	0	0	1	0
Elliot (2014)	Australia	1	0	0	1	0	1	0	0	1	0	1	0	0
Ebrahimzadeh & Alavi (2017)	Iran	0	1	0	1	1	1	0	0	1	0	0	1	0
Gerber et al. (2014)	USA	1	0	0	0	1	1	0	0	1	0	1	0	0
Gilje & Silseth (2019)	Norway	1	0	0	1	0	1	1	0	1	0	1	0	0
Gorp et al. (2017)	Holland	1	0	1	0	0	1	0	1	0	0	0	1	0
Hanghøj (2011)	Denmark, England and Norway	1	0	0	1	0	1	0	1	0	0	1	0	0
Hanghøj, Lieberoth & Misfeldt (2018)	Denmark	1	0	0	1	0	1	0	0	1	0	0	0	1
Hanghøj, Lützen & Geer (2020)	Denmark	1	0	0	1	0	0	1	0	1	0	1	0	0
Hannibal Jensen (2017)	Denmark	0	1	1	0	0	0	1	0	1	0	0	1	0
Hannibal Jensen (2019)	Denmark	0	1	1	0	0	0	1	0	1	0	1	0	0
Hartano et al. (2018)	USA	1	0	0	1	1	0	1	0	1	0	0	1	0
Holmes (2011)	England	1	0	1	0	0	0	1	1	0	0	1	0	0
Homer et al. (2014)	USA	1	0	1	0	0	0	1	1	0	0	0	1	0
Hung et al. (2015)	Taiwan	0	1	1	0	0	1	0	1	0	0	0	0	1
Hwang & Wang (2016)	Taiwan	0	1	1	0	0	1	0	1	0	0	0	1	0
Jalali & Dousti (2012)	Iran	0	1	0	1	0	1	0	0	0	0	0	1	0
Khan & Reed (2011)	England	1	0	0	1	0	1	0	1	0	0	0	1	0
Kocaman & Cumaoğlu (2014)	Turkey	0	1	1	0	0	1	0	1	0	0	0	1	0
Kuppens (2010)	Belgium	0	1	1	0	0	0	1	0	1	0	0	1	0
Liao et al. (2018)	Taiwan	1	0	1	0	0	0	1	0	1	0	0	1	0
McClay et al. (2007)	Canda	1	0	0	1	0	1	0	0	1	0	1	0	0
Maine (2017)	England	1	0	1	0	0	0	1	0	1	0	1	0	0
Marcon & Faulkner (2016)	Australia	1	0	0	1	0	1	0	0	1	0	1	0	0
Marlatt (2018)	USA	1	0	0	0	1	1	0	0	1	0	1	0	0
Martin & Steinkuehler (2015)	USA	1	0	0	1	0	0	1	0	1	0	1	0	0
Méndez et al. (2014)	Spain	1	0	0	1	0	1	0	0	1	0	1	0	0
Merkel & Sanford (2011)	Canada	1	0	0	1	0	0	1	0	1	0	1	0	0
Mifsud et al. (2013)	Malta	0	1	0	1	0	1	0	1	0	0	0	1	0
Muhanna (2012)	Jordan	0	1	0	1	0	1	0	0	1	0	0	1	0
Owsten et al. (2009)	Canada	1	0	1	1	0	1	0	0	0	1	0	1	0
Pelletier (2005)	England	1	0	0	1	0	1	0	0	1	0	1	0	0
Rasmusson & Åberg-Bengtsson (2015)	Sweden (PISA)	1	0	0	0	1	0	1	0	1	0	0	1	0
Robertson (2012)	Scotland	1	0	1	0	0	1	0	0	0	1	0	0	1
Robertson & Good (2003)	Scotland	1	0	1	0	0	1	0	0	0	1	1	0	0
Sandberg et al. (2014)	Holland	0	1	0	0	0	0	1	1	0	0	0	1	0
Sanford & Madill (2007)	Canada	1	0	0	1	0	0	1	0	0	1	1	0	0
Seok & Dacosta (2017)	Korea	1	0	0	0	1	0	1	0	1	0	0	1	0
Sletten et al. (2015)	Norway	1	1	0	1	1	0	1	0	1	0	0	1	0
Smith (2012)	USA	1	0	0	1	0	1	0	0	1	0	0	1	0
Steinkuehler & King (2009)	USA	1	0	0	1	1	0	1	0	1	0	1	0	0
Stuft (2018)	USA	1	0	0	1	0	1	0	0	1	0	1	0	0
Suh et al. (2010)	Korea	0	1	1	0	0	1	0	1	0	0	0	1	0
Sundquist (2019)	Sweden	0	1	0	1	0	0	1	0	1	0	0	0	1
Sundqvist & Sylvén (2014)	Sweden	0	1	1	0	0	0	1	0	1	0	0	1	0
Sundqvist & Wikström (2015)	Sweden	0	1	0	1	0	0	1	0	1	0	0	1	0
Sylvén & Sundqvist (2012)	Sweden	0	1	1	0	0	0	1	0	1	0	0	1	0
Tsai et al. (2017)	Taiwan	0	1	0	0	1	1	0	1	0	0	0	1	0
Utku et al. (2018)	Turkey	0	1	1	0	0	1	0	1	0	0	0	1	0
Vasileoradou & Makrina (2017)	Greece	0	1	0	1	0	1	0	0	1	0	0	0	1
Walsh (2010)	England	1	0	0	1	0	1	0	0	0	1	1	0	0
Warren et al. (2008)	USA	1	0	1	0	0	1	0	1	0	0	0	1	0
De Wilde & Eyckmans (2019)	Belgium	0	1	1	0	0	0	1	0	1	0	0	1	0
Zheng et al. (2009)	USA and China	0	1	0	0	1	1	0	1	0	0	1	0	0
		49	28	26	40	14	50	27	26	43	10	35	34	6

	Total	Primary	Low Sec	Upper sec	In-school	Outside sch	Edugame	COTS	Game design	Qual	Quan	MM	
L1 Studies	49	11	31	12	35	18	12	31	12	32	16	2	
L2 Studies	28	17	8	5	18	10	18	10	0	1	19	4	

L1	Country	Educational level	Gaming context	Game type(s)	Game title(s)	Game genre(s)	Game aspects	Literacy aspects	Theoretical framework	Method(s)	Key findings
Reading											
Adams (2009)	USA	Upper secondary	In-school	Commercial game	Neverwinter Nights	Role-playing game	Reading in-game texts in order create characters and make progress in the game	Low performing readers become engaged in reading the game; sometimes with help from more proficient readers	Media theory (MacLuhan) and sociocultural theory (Gee), "virtual literacy" (critical literacy, unspecified)	Qualitative: Case study	Using games to develop reading abilities is particularly helpful for low performing readers by creating engagement and providing students with new identities through their virtual characters
Borgonovi (2016)	International	Lower secondary	Outside school	Commercial games	N/A	N/A	Gameplay patterns among boys and girls in relation to both single-player and multi-player games	Comparing PISA 2012 reading scores with students' gaming habits	Cognitive framework that emphasizes reading strategies and motivational (McKenna, Conradi, Lawrence, Jang & Meyer) and behavioral (Baker & Wigfield) approaches to understanding reading difficulties	Quantitative: Survey and standardised test	Among both boys and girls moderate use of single-player games is associated with a performance advantage. However, frequent engagement with collaborative online games is generally associated with a steep reduction in achievement, particularly in the paper-based test and particularly among low-achieving students.
Burn (2003)	England	Lower secondary	In-school	Commercial game	Harry Potter and the Chamber of Secrets	Action adventure game	One student playing the game on whiteboard in discussion with the rest of the class	Analysing multimodal, ludic, representational and dramatic aspects of students' gameplay experience	Multimodal framework (Kress, Halliday), game research (Laurel, Murray) and theory on language (Bakhtin)	Qualitative: Case study	Provide reflections on how a computer game can be perceived as a text in the English classroom, which is both similar to and different from the existing repertoire of texts
Drummond & Sauer (2020)	International	Lower secondary	Outside school	Commercial games	N/A	N/A	Focus on gaming context, especially whether students play games before going to school	Compares PISA 2015 reading scores with students' gaming habits	Tests different theoretical accounts on the relationship between increased time spend playing games and academic performance in PISA - i.e. a displacement mechanism (Hartano et al.), an attentional mechanism (Swing et al.) and/or reduced sleep efficiency mechanism (King et al.).	Quantitative: Survey and standardised test	The study shows that video game play does not appear to affect academic results per se. However, students playing games before going to school is linked to reduction in academic performance. This suggests a third variable, which calls further exploration, e.g. of students' self-regulation, lack of student motivation or laissez-faire parenting.
Gorp et al. (2017)	Holland	Lower secondary	In-school	Educational game	Reading Race	Tutorial game	Place words in correct categories in order to get stars and proceed with the race	Decoding efficiency in relation to vocabulary. The intervention is particularly aimed at poor readers.	Cognitive approach to word decoding efficiency (Therrien), focusing on transfer and feedback (Berends & Reitsma) as well as added value of semantics (Ehri, Share)	Quantitative: Experimental study with control group	Significant increases as a result of the brief gaming intervention were found for decoding efficiency on all six word lists. The game, which included repetition, immediate corrective feedback, and a semantics task, elicited transfer and retention effects.
Hartano et al. (2018)	USA	Secondary and upper secondary	Outside school	Commercial games	N/A	N/A	Comparing gameplay during weekends with gameplay during weekends	Compares three US studies using standardised reading scores with the participants' gamer habits	Compares standardised psychometric assessments of reading across three data sets in order to clarify significance of gaming contexts. However, the study presents no theory, which can explain the findings.	Quantitative: Survey and standardised test	The more adolescents played video games on weekdays, the poorer they performed on standardized assessments of reading. In contrast, weekend video gaming was not significantly associated with academic performance. Weekday and weekend video gaming may be differentially associated with academic outcomes, depending on the context in which it occurs.
Holmes (2011)	England	Primary	Outside school	Educational game	22 mini-games, e.g. Raptor Attack	Tutorial games	Reading, spelling and comprehension tasks, which are rewarded by in-game animations	Explores how six different struggling readers use a suit of learning games at home with their parents.	Theories of game-based learning (Gee, Squire, Jenkins, McFarlane) and various motivational aspects of edutainment/drill-and-skill games (Buckingham & Scanlon, Kuhn & Stahl, Torgesen, Boyle, Lepper)	Qualitative: Interviews with parents and children	Positive experiences from both parents and the struggling readers in relation to the learning benefits of the game in terms of supporting learning, the affirmative and formative feedback, and the focus they provided for discussion about literacy.
Homer et al. (2014)	USA	Primary	In-school	Educational game	Children Make Terrible Pets	Gamified digital book	In-game activities which bring the reader/player into the world of the story and enhance vocabulary and literacy skill training	Shared reading with an adult in comparison individual digital reading with game elements	Cognitive theories on reading strategies (Stahl, Sénéchal et al., Anderson-Yockel & Haynes) used to measure impact on vocabulary, story comprehension and word reading as well as engagement and interest (Plass et al.)	Quantitative: Experimental study with control group	Both Kinect-Activities and Book Reading groups had significant learning gains for High Frequency Words, Active Decoding, and Total Reading Score, but only Kinect-Activities group had significant gain for Sight words (p < .05).
Khan & Reed (2011)	England	Primary	In-school	Educational game	The Letter Lillies and The Word Patch	Tutorial games	Game elements are used to create phonological awareness	Developing students' reading comprehension using two reading games	Combines theories on game-based learning and motivation (Gee, Whitton, Mitchell & Savill-Smith) with neuropsychological theories on reading development (Goswami, Bradley & Bryant)	Quantitative: Experimental study with control group	Signiant improvement in reading scores after exposure to the game, but not a significant statistical improvement compared to the control group.
Maine et al (2017)	England	Primary	Outside school	Commercial game	Monument Valley	Adventure game	Solve puzzles and explore ambiguous game narrative	Exploring how students' experiences with different aspects of the game narrative may be used to develop reading abilities.	Theories on orientations in games and narratives (Gee, Rosenblatt, Alexander), multimodality (Gee), game research (Sanns & Zimmerman) and game-related literacies (Apperley & Walsh)	Qualitative: Observations, interviews and analysis of student texts	The research suggests a framework of possible orientations that children take as they engage with the storyworld of the game, showing how this is at times strategic and critical, and at other times immersive and creative.
Martin & Steinkuehler (2009)	USA	Lower secondary	Outside school	Commercial game	World of Warcraft	Role-playing game	Seeking and dissemination information in relation to World of Warcraft	Explores how game-related practices in relation to WoW involve a broad variety of information literacy skills	Sociocultural theories on games and literacy (Gee, Steinkuehler, Jenkins, information literacy (Catts & Lau) and collective intelligence (Levy)	Qualitative: Ethnographic observations, interviews and in-game logs	The study describes "fluid" and collective patterns of information literacy among the players. Based on these findings, it is argued that the school should broaden the notion of literacy.
Rasmusson & Åberg-Bengtsson (2015)	Sweden	Lower secondary	Outside school	Commercial games	N/A	N/A	Distinction between frequent and infrequent game players among both boys and girls	Comparing Swedish PISA 2009 reading scores with students' gaming habits	Cognitive approach to digital reading (Leu et al., Coiro) including gendered reading patterns (McKenna et al.) and cognitive/visual-spatial abilities in relation to games and hypertexts (Feng et al., Greenfield et al., Castelli et al.)	Quantitative: Survey and standardised test	The boys' (relatively seen) better performance in digital reading was explained by the playing factor related to the amount of time spent on one-player games and collaborative games.
Seok & DaCosta (2017)	Korea	Upper secondary	Outside school	Commercial games	N/A	N/A	Distinction between frequent and infrequent game players	Comparing grade points, silent contextual reading fluency and perceived reading ability for players and nonplayers.	Cognitive theories of digital literacy (Burgess et al., Glister) as well as relationship between gameplay and literacy (Cummings & Vandewater, Borgonovi, Choo, Yeh, Squire & Steinkuehler)	Quantitative: Survey and standardised test	Nonplayers had better grades and were better readers than the players. Moreover, the players held higher views of themselves regarding their digital reading ability, which contrasted with their performance.
Smith (2012)	USA	Lower secondary	In-school	Educational game	iMapBook games	Gamified digital book	Spatial games, which visualise different aspects of the story	Developing struggling readers' visualisation of story setting using games on pentop computers	Psycholinguistic theory of reading (comprehension of language) as an embodied situation model (Glenberg, Zwaan) for understanding how an interactive visual representation can be used to support spatial reading of narrative texts	Quantitative: Experimental study with control group	Participants who read books with embedded games scored significantly higher on all the post-test questions, including spatial questions not addressed in games. This suggests that game play helped readers to create a mental model of the story setting, used in subsequent reading to visualise spatial propositions.
Steinkuehler & King (2009)	USA	Lower secondary	Outside school	Commercial game	World of Warcraft	Role-playing game	Linking naturalistic literacy practices around the game with school-relevant literacy practices	Describe the structure and format of an after school incubator program that leverages online games for literacy learning, particularly for adolescent males	Literacy research on boys' reading abilities (Lee et al.) in combination with sociocultural grounded theories on games and literacy (Gee, Steinkuehler, Leander & Lovorn), multiliteracies (New London Group) and tests of reading levels (McLaughlin)	Qualitative: Design experiment	The laboratory was met with initial success, particularly in terms of the use of literacy as a tool for solving problems, researching and assembling online multimodal game-related resources, and synthesizing in-game and out-of-game information.
Stuft (2018)	USA	Lower secondary	Outside school	Commercial game	Minecraft	Sandbox game	Linking game experiences with reading game stories	Analysis of recorded book club conversations focusing on both a Minecraft game text and a game-related text.	Sociocultural approach to literacy practices (e.g. Gee, Steinkuehler and figured worlds of literacy (Gee, Holland et al.)	Qualitative: Interviews with students	The data provide support that tweens hold different figured worlds of in-school literacy versus gaming; this finding has implications for educators regarding tweens' literacy practices within and beyond the classroom.
Writing											
Allen et al. (2014)	USA	Upper secondary	In-school	Educational games	Suite of 16 games, e.g. Freewrite Flash	Tutorial games	Identification tasks or generative tasks in relation to writing strategies	Comparing how L1 and L2 students may develop writing skills playing games in relation to an Intelligent Tutoring System	Combines theories on writing strategy instruction (Hillcock, Graham & Perin), motivation through games (Gee, Barab et al.) and purpose of writing task (Hayes, Prior)	Quantitative: Experimental study with no control group	Interactions with the games led to increases in writing performance and more positive attitudes towards the Intelligent Tutoring System.
Beavis (2007)	Australia	Lower secondary	In-school	Commercial games	The Sims, Age of Mythologies, Diablo, Command and Conquer, Legend of Zelda	Simulation game, strategy game, action role-playing game	Students play games and transform their experiences into different types of written texts	Exploring how students write game-related expansion paks, tutorials and narratives, and how these texts should be assessed within English as L1	Combines multiliteracies approach to games (New London Group, Gee, Kress, Burn, Buckingham) with writing research (Bearne)	Qualitative: Analysing students' game-related texts	Discussion of challenges and possibilities for the L1 subject when assessing student texts inspired by the interactive and multimodal expressions of game worlds.
Berger & McDougall (2013)	England	Upper secondary	In-school	Commercial game	L. A. Noire	Action adventure game	The game narrative, aesthetics and characters are linked to other relevant texts (film noir and the detective novel)	Students writing blogs both as gamers and as readers of literature in order to explore the relationship between "reading" a game as literature and writing about it	Theories on games and literacy (Apperley & Walsh, Beavis, Juul, Gee), the reading of games as "authorless" texts (Colvert, Kress, Potter, Foucault) as well as dialogical theory (Bakhtin)	Qualitative: Analysis of student texts, interviews, observations and design activities	Teachers and students respond differently to analysing a narrative game, which represents an open and "authorless" text. In this way, the game both aligns with the English curriculum, but also calls for new ways of participation.
Gilje & Silseth (2019)	Norway	Lower secondary	Outside school	Commercial game	FIFA	Sports game	Interest in soccer game as well as real-life soccer mirros in-game and school-related editorial practices	Ethnographic study of one boy's in- and out-of-school game-related literacy practices, especially game-related writing	Combined sociocultural and social semiotic approach based on Green's 3D literacy model as well as Apperley and Beavis work on games and literacy	Qualitative: Observations and interviews	The findings illustrate how one learner is able to research a specific topic, build a convincing argument for it and transfer knowledge from one source to another in a critical way.
Hanghøj (2011)	Denmark, England & Norway	Lower secondary	In-school	Educational game	Global Conflicts	Adventure game	Writing journalistic texts based on game experiences	Students writing journalistic texts based on experiences with an educational game	Social semiotic approach drawing on genre theory (e.g. Kress) in order to present a domain theory of educational gaming	Design intervention with qualitative case study	Some students become engaged in the game and the writing activities, whereas other students become disengaged. This shows how educational gaming involve a complex interplay of different knowledge aspects
Hanghøj et al. (2018)	Denmark	Lower secondary	In-school	Commercial game	Torchlight II	Action role-playing game	Playing cooperatively against the computer at the highest level of difficulty in order to foster collaboration	Inclusion of at-risk students by transforming collaborative game experiences into written game guides	Combines self-determination theory (Deci & Ryan), frame theory (Goffman) and sociocultural theory on game-related literacy (Beavis, Steinkuehler)	Mixed methods: Observations, interviews and experimental study	The study showed an increase in well-being and a decrease in students' amovitation for participation in Danish as L1. Moreover, it was engaging and meaningful for the students to write guides based on their game experiences.
Hanghøj et al. (2020)	Denmark	Lower secondary	Outside school	Commercial game	Several; students choose their own game topic	Several different	Students focus on their game preferences and gaming experiences outside school	Writing journalism based on students' own interests in games and game culture	Sociocultural approach to literacy practices (Gee, Beavis), domain theory (Hanghøj) and identity construction (Ivanic)	Qualitative: Case study	The students actively positioned themselves when writing game journalism through either personal or professional discourses. Moreover, the students became highly engaged in writing about game-related topics.
Liao et al. (2018)	Taiwan	Primary	In-school	Educational game	Game-based Writing Environment	Simulation game	Both involve writing activities as well as construction and management of different parts of the game island	Investigate the effects of a game-based writing environment on improving third grade students' participation, performance, and interest in writing.	Cognitive framework emphasising writing as a complex skill (Harris & Graham), including motivation as a central component.	Quantitative: Experimental study with control group	The empirical results show that the game-based writing environment can effectively promote students' writing participation, writing performance, interest in writing, as well as their perceptions of the use of educational self-management games.
McClay et al. (2007)	Canada	Primary	In-school	Game Design Tool	Neverwinter Nights (with ScriptEase)	Role-playing game	Exploring possibilities and challenges in relation to designing game narratives and writing fictional stories	Tenth grade students producing both game narratives and writing fictional stories in relation to Neverwinther Nights	Theories that explore links between narrative games and written stories intersect (Jenkins, Lowood, Lankshear & Knobel) and games as drama (Juul, Frasca, Burn, Atkins) texts	Qualitative: Analysing student texts	Issues of tense, mood, and gaze are all evident in the students' compositions. Moreover, the students' combined narratives raises questions for literacy educators on how experience and assess their texts.
Mendez et al. (2014)	Spain	Lower secondary	In-school	Commercial game	The Sims 3	Simulation game	Analysing, discussing and sharing knowledge on different game aspects, e.g. how to build a house	Support students' development of new literacies by exploring The Sims 3 through dialogue in class and writing posts in an online forum	Theories on communities around games (Jenkins, Papacharissi, Gee) and game genres (Buckingham & Scanlon, Wolf & Perron)	Qualitative: Ethnographic methods	Social relationships were developed within the online community, where individual contributions proved especially important for group discussion. Participation made it possible for students to become aware of the speech and rules of the game and to improve the acquisition process of new literacies.
Owsten et al. (2009)	Canada	Lower secondary	In-school	Educational game	Several, e.g. TicTacToe, Trivia, Sankes and Latters	Tutorial games	Creating multiple-choice questions within a game platform	Experimental study on how students' educational game design activities may increase writing in terms of logical sentence construction	Theories on games, learning and literacy (Gee, Squire, Beavis) combined with cognitive theories on questioning as instructional activity (Rosenshine et al., Wong, Lubliner)	Quantitative: Experimental study with control group	An analysis of pre- and post-unit scores on two standardized literacy test batteries revealed that the experimental students performed significantly better on one of the measures, a measure of logical sentence construction
Robertson & Good (2003)	Scotland	Lower secondary	In-school	Game design tool	Ghostwriter	Role-playing game	Adopting roles and encountering other characters in order to explore moral issues	Using Ghostwriter to promote students' abilities to describe characters and their relations in narratives	Theory on storytelling (Bruner,) and on children's story writing (Engel, Ellis & Friel, Graves, Neelands, Booth)	Mixed methods: Experimental study and text analysis.	The Ghostwriter treatment appears to affect characterisation in stories in terms of relationships, particularly through dialogue. It appears that interactions between game characters through typed dialogue in the virtual role-playing session were reflected in the stories written afterwards. However, there was no significant effect for moods or personality.
Sletten et al (2015)	Norway	Lower and upper secondary	Outside school	Commercial games	N/A	N/A	Distinction between frequent and infrequent game players among both boys and girls. Comparision with participation in sports activities.	Comparing school performance as measured through school grades in L1 (writing), L2 and mathematics with gamer habits and sport activities.	Theory on youth culture in relation to leisure activities and academic performance (Mahoney et al., Bohnert et al.) that try explain different factors - e.g. selection of different activities, competing orientations, the meaning of different activities as well as different types of impact on school performance.	Quantitative: Survey and standardised test	Negative correlations between extensive game play and school performances for L1 and mathematics, but not in relation to L2. This suggests a positive effect on learning English as a foreign language through gameplay
Warren et al (2008)	USA	Primary	In-school	Educational game	Quest Atlantis (Anytown)	Open world adventure game	Exploring the game world as journalists and solve quests designed to motivate writing tasks	Examines whether game elements can be used along with Problem Based Learning in a digital learning environment to improve students' writing skills.	Combines theory on games and learning (Gee, Squire, Jenkins, Steinkuehler) with motivation theory (Dickey, Armory et al., Denis & Jouvelot) and theory on constructivist and problem-based approaches to writing (Egbert & Hanon-Smith; Dede et al., Tuzun)	Design experiment: Quasi-experimental study	Results from this study included statistically significant decreases in teacher time spent answering procedural and directional questions, increased voluntary student writing, and improved standardized achievement scores on writing tasks.
Multimodal production											
Abrams (2009)	USA	Upper secondary	Outside school	Commercial games	Gears of War 2 and Total War	Action game and strategy game	Students linking language and content of games with school-related topics	Exploring how struggling students develop multimodal schemes when playing games and how this relates to academic texts and work	Multiliteracies approach (New London Group, Kress, Gee) to games in combination with theory on school-based literacies (Hynds, Alverman) and schema theory (Bartlett, McVee, Dahlin)	Qualitative: Interviews and observations	Students develop schemata for information in virtual game environments, which may help them to contextualise academic knowledge in the classroom. However, this requires marginal recognition from both teachers and students.
Beavis & O'Mara (2010)	Australia	Lower secondary	In-school	Commercial games & Game design tool	Several examples, e.g. The Simpsons, Grand Theft Auto III and Game Maker	Action games and game construction tool	Analysing textual aspects of commercial games as well as making games	Two case studies on how analysing and designing games requires an orientation toward students' multiliteracies	Combines game theory (Juul, Aarseth, Frasca, Salen & Zimmerman) with theory on multiliteracies (Kress, Gee, Alverman, Corio et al.) and paratexts (Consalvo, Apperley & Walsh)	Qualitative: Case studies	The case studies show how play, interactivity, action, movement and time raise challenging questions about the limits and possibilities of constructing games and gameplay as texts and literacy practices that push the boundaries of literacy.
Burn (2007)	ENG	Lower secondary	In-school	Game design tool	Mission Maker	Different genres (created by students)	Explore dynamic relationship between game rules and game narratives	Analysing students' "writing" of game designs in order to develop a notion of game literacy. Examples derived from the three-year project 'Making Games' (2002-2006).	Theories on media literacy (Burn, Buckingham), multimodality (Kress & van Leeuwen), the 3D literacy model (Durrant & Green) and links between games and narratives (Carr et al., Frasca, Propp, Ryan)	Qualitative: Case study	Based on an analysis of two students' game designs and a written proposal for a game, a definition of game literacy is proposed. Five important elements are suggested, which involve multimodal, cultural and operational aspects.
Caroll (2016)	Australia	Lower secondary	Outside school	Commercial games	Several examples, e.g. Fable and Call of Duty	Several (e.g. action role-playing games and action games)	Interviewing students about how they learn through the games they may relate to learning literacies at school	Exploring what games students play outside school and how this may relate to learning literacies at school	Integrates theories on games, learning and motivation (Gee, McGonigal, Csikzentmihalyi) with theory on games and literacy (Steinkuehler, Beavis) in order to identify the literacy learning potential of different games	Qualitative: Interviews at school and at home	The study presents a series of principles and recommendations on how to work with games in the literacy classroom
Elliot (2014)	Australia	Lower secondary	In-school	Commercial game	Minecraft	Sandbox game	Game actions used for building a city are linked with relevant literacy activities	Supporting disengaged students by framing learning activities in a Minecraft curriculum through multimodal production	Uses theories on literacy and games (Gee, Knobel & Lankshear, Marsh) in order to describe skills and competencies in game-based learning	Qualitative: Case study	The student in focus demonstrated a range of skills and competencies which may have been obscured by the traditional curriculum, but became valuable classroom assets in a game-based environment.
Gerber et al (2014)	USA	Lower secondary	In-school	Commercial games & Game design tool	Several examples (e.g. FIFA, Black Ops, Mario Kart, Infamous) and students' game designs	Several (e.g. sports game, action game, adventure game)	Students create their own games drawing on inspiration from existing games as well as novels and classmates	Explores a game-based curriculum, which promotes students' engagement and self-driven learning in relation to reading, writing and game design	Combines theories on game-based literacy learning (Squire, Gee, Steinkuehler, Hayes) and connected learning (Ito, Siemens) through the notion of "constellation of connections"	Qualitative: Case study	Findings indicated that the games-based curriculum created through a connected learning frame enabled students to engage in a constellation of connections among digital media, traditional texts, peers, and guiding teachers.
Marcon & Faulkner (2016)	Australia	Lower secondary	In-school	Commercial game	Minecraft	Sandbox game	Finding, using and sharing information in order to build things in the game.	The students communicated their in-game constructions on social media through images, videos and texts.	Theories on games and literacy (Apperley & Walsh, Beavis, Gee, Buckingham & Burn, Dezuanni) in order to explore players' different cultural identities	Qualitative: Case study	The study shows how the game adapted to girls, even those who had not played it before. Moreover, study study shows how Minecraft play can be integrated with social media application in relation to multimodal communication.
Marlatt (2018)	USA	Upper secondary	In-school	Commercial game	Minecraft	Sandbox game	Selecting scenes from a novel, which are then recreated in Minecraft	Empowering students as meaning-makers and support their agency development through the use of Minecraft in the literature classroom	Sociocultural theory (Heath, Gee) and social semiotic approaches to meaning-making (Cope & Kalantzis, Kress)	Qualitative: Case study	Implementing the game in literature study offered opportunities for authentic literacy interaction. Despite previous disdain for literature, one student expressed enjoyment with the text and a passion for connecting textual elements to the classic novel.
Merkel & Sanford (2011)	Canada	Lower secondary	Outside school	Commercial games	Halo, Guild Wars, World of Warcraft	Role-playing game	Describing different aspects of students' online game experiences: exploring open game worlds, trying out muliple identities, building communities, being challenged by other players.	The study explores how disengaged students (boys) take part in a game culture outside school, which shares the values of complexity science, allowing for the novelty and unpredictability of emergence to occur.	Integrates complexity theory (Johnson, Kaufman, Davis et al., Holland) with play theory (Goodwin, Lewin, Huizinga) and theory on games, learning and literacy (Gee, Barab, Squire)	Qualitative: Ethnographic study	The values of complex systems exhibited by the young gamers serve to disturb values of traditional linear thinking about schooling, and demonstrate the deep and sophisticated learning occurring outside of school.
Robertson (2012)	Scotland	Primary	In-school	Game Design Tool	Neverwinter Nights 2 (with Adventure Author)	Role-playing game	Design fantasy world with focus on storyline, visual design, player choice, characters and dialogue	Analysis of the games produced by the students with focus on new media storytelling skills used as well as examining how the students responded to peer reviews of their games.	Constructionist learning theories in relation to games (Kafai, Resnick), multimodal theories (Kress, Burn, Buckingham) and theories on storytelling (Carr et al., Cassell)	Mixed methods: Analysing game designs through expert assessments	The results of the study indicate that girls' games score more highly than boys', particularly on skills relating to storytelling.
Toomey (2017)	Australia	Lower secondary	In-school	Commercial games	Elder Scrolls I & II and students' own game design	Action role-playing games	Analysis of ludic and narrative elements of the games played before designing a new game concept	Game analysis combined with rapid writing assignments and multimodal game production, especially a game trailer	Sociocultural theories on games and literacy (Beavis, Abrams, Steinkuehler, Gee) and phenomenological approaches to literacy learning (Mangen, Rowsell, Leander & Boldt)	Qualitative: Case study	The study shows how students use a broad variety of multimodal literacy practices when playing, analysing and deconstructing games before creating a new game concept and design brief with a promotional poster and video trailer.
Walsh (2010)	Australia	Upper secondary	In-school	Commercial games & Game design tool	Several examples (e.g. Dragon Ball Z) and students' own game designs	Several (e.g. action games and students own games)	Analysis and presentation of information about existing games before developing their own ideas for game concepts	Students designing their own games, which involve systems-based literacy practices. Focus on struggling students.	Combines theories on multimodality (Kress, New London Group) and game research (Aarseth, Galloway, Consalvo, Juul, Salen & Zimmerman) in order to conceptualise and explore "systems-based literacy practices"	Qualitative: Case study	The important findings concern the increased degree to which students engaged with the content of the English curriculum, the design of multimodal texts and their conscientious production of traditional school-based literacy practices still necessary for academic success.
Critical literacy											
Altura & Curwood (2015)	Australia	Lower secondary	In-school	Commercial game & Game design tool	Watch Dogs & Game Maker	Action game & Game design tool	One student reviews an action game with focus on security and privacy. Another student manages to critically challenge and improve a game design idea.	Exploring how games can develop critical literacy skills by analysing games as texts, designing games and writing game reviews	Theories on games and learning (Gee), games as texts (Buckingham, Burn, Beavis) and critical literacy (Lankshear & Knobel)	Qualitative: Observations and interviews	Based on their work with analysing games and producing game-related texts, the students developed critical literacies and improved their understanding of games as cultural texts
Apperley & Beavis (2011)	Australia	Lower secondary	All three levels	Commercial games	Several different titles, e.g. The Simpsons, Grand Theft Auto III and Super Coach	Several, e.g. action games, sport games & game design tools	Focus on 1) using game-related paratexts, 2) designing game-related paratexts, and 3) critical analysis and possible (re-)design of specific game designs	The study explores different "action" and textual aspects of games in order to develop students' critical literacy.	Combines game research (Galloway, Frasca, Bogost) with sociocultural literacy research (Gee, Lemke) around the notion of paratexts (Consalvo) in order to understand games both as texts and as actions	Qualitative: Case studies	Based on a number of empirical examples, the study presents a conceptual framework for working with different action aspects of games in terms of using paratexts or designing games.
Apperley & Beavis (2013)	Australia	Lower secondary	All three levels	Commercial games	Civilization, Lord of the Rings, World of Warcraft	Several, e.g. strategy games and role-playing games	Focus on understanding the links between 1) games-as-texts and 2) games-as-action	Based on a large research project, the study presents a model for addressing different aspects of with games in the literacy classroom.	Presents a theoretical model for understanding games as text and as action, which draws on game research (Galloway, Atkins) as well as sociocultural literacy research (New London Group)	Qualitative: Case study	The model for critical game literacy can be used both to focus on textual and action-oriented aspects of games, when introducing them in the classroom.
Bacalja (2018)	Australia	Lower secondary	In-school	Commercial games	Bully, Fable 2, Forza Motorsport 4, Dungeon Siege 3	Action adventure game, racing game and action roleplaying-games	Analysing different game genres and game modalities before working with how games create ideological representations of the world	Playing, analysing and discussing games in order to develop students' critical literacy. Focus on textual, visual, dialogical, and musical aspects of different games.	New Literacy Studies (Street) in combination with theories on critical literacy (Gee, Luke) and theories on games (Beavis, Burn)	Qualitative: Case study	The study finds that critical literacy pedagogies can be effectively used to build new understandings with games as an everyday text-type.
Beavis & Charles (2005)	Australia	Lower secondary	In-school	Commercial game	The Sims Deluxe	Simulation game	Students enjoy playing the game, but also resist the gender stereotypes - e.g of what it means to be a woman in the domesticated game space	Exploration of gendered gaming practices and imaginative writing for an expansion pack of the game when teenagers play The Sims Deluxe as part of an English curriculum unit.	Combines feminist media theory (Ang, Seiter, Schott & Horell), and game studies (Flanagan, Jenkins, Castell & Jenson) in order to explore relationships between gender and gameplay practices	Qualitative	Observing students' constructions of gender and domestic space through the act of game play itself provides a productive insight into the gendered dimensions of game play for educators wishing to use work computer games such as The Sims into curriculum development.
Burwell (2017)	Canada	Lower secondary	In-school	Commercial games	Gone Home	Adventure game	Analysis of how Let's Play videos involves commenting, producing and reflecting on digital games	Analyses how English educators might use Let's Play videos in the literacy classroom.	Draws on critical literacy (Luke, Lankshear & Knobel), game research (Consalvo, Taylor) as well as research on games and literacies (Apperley & Beavis, Rowsell)	Qualitative: Case study	Let's Play videos can be used in three different ways: as texts for analysing video games, as models for media production, and as starting places for critical conversations about the gaming industry.
Sanford & Madill (2007)	Canada	Lower secondary	Outside school	Game design tool	Stagecoach	Design tool	Students work with operational, cultural and critical aspects of the game design process	Exploring boys' game-related critical literacy skills when designing games as a part of an after-school programme	Theories of "new" literacies (Kress, Gee, New London Group), critical literacy learning (Lankshear & Knobel) and the 3D literacy model (Green)	Qualitative: Observations and interviews	Identifies a proliferation of operational and cultural literacy learning when the students design games. Critical literacy was mostly present when the students used humour to explore ideas to challenge social norms and values.

L2	Country	Educational level	Gaming context	Game type(s)	Game title(s)	Game genre(s)	Game aspects	Language aspects	Theoretical framework	Method(s)	Key findings
Vocabulary learning											
Aghlara & Tamjid (2011)	Iran	Primary	In-school	Educational game	SHAIEx	Tutorial games	Through listening to words (target vocabulary), the child must match images with words and sounds (different types of mini games).	In the experimental group, the SHAIEx digital game was used whereas in the control group, the vocabulary was taught through traditional methods.	Theories on games (Juul, Piaget), references to studies on links between digital gameplay and cognitive achievement (Chuang & Chen), motivation (unspecified)	Quantitative: Experimental study with control group	The results indicated that the mean score of the children in the experimental group was significantly higher than those in the control group, indicating the positive effect of using digital games in teaching English vocabulary to children.
Al-Elaimat (2013)	Jordan	Primary	In-school	Educational games	Flash games	Tutorial games, e.g. crosswords	Using target vocabulary through crosswords, matching games, filling the gap, etc.	Investigate the effect of using computer games on the lower basic stage student's achievement in learning English at Al-SALT Schools.	Cognitive assumptions on games, learning and motivation (Williams, Lewis, Hansson) and language learning (Gass, Richard-Amato) (theoretical framework not specified)	Quantitative: gaming and post tests (Eiken test and mock test)	Significant differences in the mean scores between the control and the experimental groups, students' performance of experimental group was better than that of the control group.
Butler et al. (2014)	Japan	Primary	In-school	Educational games	Various (e.g., Momura-tataki all part of the Judo-Eiken test name)	Tutorial (e.g., matching games, crosswords	Different types of listening games where children need to listen and correctly identify words and objects in order to procede or win the game. Also a couple of quizzes where children must answer correctly (how is not stated).	Mainly vocabulary. Will playing games enhace the gamers' vocabulary both on the Eiken and the mock test.Will various attractive game features help children acquire vocabulary	Cogntive assumptions on the use of games (Hays) with focus on vocabulary acquisition (unspecified theoretical framework)	Quantitative: gaming and post tests (Eiken test and mock test)	in order for young learners to be motivated to play the instructional games, optimal cognitive demand (challenge), elements that evoke their curiosity (mystery), and elements that give learners' control over outcome and lead to autonomy (control) appeared to be important. In addition, having multiple players, even though in this case the other players were computer generated, seemed to be attractive perhaps because it enhanced competition and unexpectedness. Not all popular games played at great frequency contributed to language learning.
Cobb & Horst (2011)	Canada	Primary and lower Secondary	In-school	Educational game	My Word Coach	Tutorial games (e.g. spelling words, identifying incorrect spellings)	identifying missing letters, clicking on falling letters to write up words (unused words pile up towards explosion), connecting words and meaning, matching definitions with words, spelling word in competition with others, identifying wrong words, etc. As players proceede, the pace of the game becomes faster measuring speed of lexical access. Many words are repeated providing players repetitive exposure.	Measuring lexical development on the dimensions of form recognition, meaning recognition, free production, and speed of lexical access, as well as features of game use.	Apply Cognitive theories on vocabulary learning (e.g. Nation, Meara, Cobb) such as abundant repetitive input, potentials for retention and speed of lexical access. Benefits of games for fulfilling beneficial vocabulary learning conditions (Meara, theories unspecified)	Quantitative: Experimental study with control group	Gains in recognition vocabulary normally achieved in one to two years, longer oral productions, reduced code switching, and increased speed of lexical access.
Ebrahimzadeh & Alavi (2017)	Iran	Lower and upper secondary	In-school	Commercial game	Warcraft III	Strategy game	Players: Encountering vocabulary items through reading (names and descriptions) and through visuals (thumbnails, visual effects). Using relevant terminology with team mates in discusions of strategy. Watchers (watching players). Readers: reading about the game after having seen a tutorial.	Examines whether e-learning enjoyment can predict high school students' vocabulary learning through a digital video game. Students are grouped into "players" and "watchers" of the game.	Combining Gee's learning principles, benefits of multimedia (multiple sources of input), cognitive benefits of games (e.g. repetition of input, actively engaging with input (Reinhardt & Sykes) as well as possibilities for rich communication through online games (unspecified theories)	Quantitative: Experimental study with control group	E-learning enjoyment significantly predicted the variance in game-enhanced vocabulary learning. There was no significant difference between students who played and watched the game.
Hannibal Jensen (2017)	Denmark	Primary	Outside school	Commercial games	N/A	N/A	Comparing vocabulary knowledge of frequent versus infrequent leisure-time game-players	Measures Danish young English language learners' contact with and use of Extramural English by using the Peabody Picture Vocabulary Test.	Drawing on a mix of cognitive and social theories. Theories on incidental learning (Laufer and Hulstijn). Usage-based theory -repetition and frequency as well as authenticity of input (Ellis). Gee's learning principles (e.g. performance before competence), Van Lier (affordances and learner agency), Sociocultural theory, scaffolding (Vygotsky). Motivation (Dörnyei)	Quantitative: Assessment of vocabulary	The results show that boys gamed significantly more than girls. Additionally, the results show that gaming with both oral and written English input and gaming with only written English input are significantly related to vocabulary scores, in particular for boys.
Hwang & Wang (2016)	Taiwan	Primary	In-school	Educational game	No title (created in RPG Maker)	Role-playing game	Two different ways of playing game: encountering vocab through close items (higher cognitive load) or through multiple choice items. While they were exploring in the context, vocabulary flash cards were shown and pronunciation of the words was provided. In the cloze guiding mode, no candidate set of answers was provided during the gaming process; therefore, seeking help from the gaming context could be the best approach for the students.	A computer game was implemented with two test-item guiding approaches: cloze guiding strategy and multiple-choice guiding strategies.	Basing study on theories of situated learning offering an authentic learning environment, applying knowledge across different contexts (Lave & Wenger), game-based learning as a driver of student involvement (Prensky). Problem-based gaming model Kiili - providing an authentic gaming scenario which will support maximal cognitive efforts	Quantitative: Experimental study with control group + interviews	The experimental results showed that the students using the game with the cloze guiding strategy had significantly better learning achievement with higher cognitive load than those learning with the multiple-choice guiding strategy
Kocaman & Cumaoğlu (2014)	Turkey	Primary	In-school	Educational game	Vocabulary games (not specified)	Tutorial games (e.g. Hangman, Puzzle, matching game)	Hangman: listening and matching spoken words and images, card matching - match photos and words, puzzle: playing with a puzzle using images as guides, matching: drag words to the correct picture	Measures the impact of the use of educational software and games used in vocabulary teaching on the success and the strategy use of the students.	Learner autonomy as a way to enhance learning (Dickinson), Cognitive notions of games (e.g. repetition). No explicit theories	Quantitative: Experimental study with no control group	Both types of software had positive effects on vocabulary learning. Moreover, it was concluded that the use of compensation strategies by the students increased significantly.
Kuppens (2010)	Belgium	Primary	Outside school	Commercial games	N/A	N/A	Comparing vocabulary knowledge of frequent versus infrequent leisure-time game-players	Compares the self-reported use of three English language media with pupils' scores on two oral translation tests: one from Dutch to English and one vice versa.	Incidental language acquisition (e.g. Hulstijn) - games offer the possibility for players to learn vocabulary while they're playing without a conscious attempt to learn (various beneficial cognitive operations e.g. the vocbulary is useful and frequently repeated)	Quantitative: Survey and assessment	The effect of watching subtitled television and movies is stronger with girls than with boys. Furthermore, playing English computer games positively influences the scores on the English–Dutch test.
Muhanna (2012)	Jordan	Upper Secondary	In-school	Educational game	Vocabulary games (not specified)	Tutorial games	Not specified	Investigate the effect of using games for facilitating learners' English vocabulary building.	Motivation (theories unspecified)	Quantitative: Experimental study with control group	Statistically significant differences in the post- test between the control and the experimental groups in favour of the experimental group, and there was no statistical significance difference in the students' achievement due to gender or to the interaction between gender and group.
Sandberg et. al (2014)	Holland	Primary	In-school	Educational mobile game	Mobile English learning application with game elements	Adventure game	Students are looking for escaped animals and when found a mini-quiz starts with questions about this animal. There are 5 types of mini quizzes: multiple choice, picture picker, jigsaw puzzle, yes/no and spelling (the format of the former games not given).	Two groups participated in a study on the added value of a gaming context and intelligent adaptation for a mobile learning application	Motivation (e.g. Flow, Csikszentmihalyi). Vocabulary learning Hulstijn, games offer the possibility for players to learn vocabulary while they're playing without a conscious attempt to learn (various beneficial cognitive operations e.g. the vocbulary is useful and frequently repeated). Games fostering learner autonomy (Prince). Reference to uage-based theory (Ellis) and cognitive benefits of multimedia channels (Mayer)	Quantitative: Experimental study with control group	The students in the experimental condition outperformed the children from the control group, although the former group did not spend more time. The students in the experimental group valued learning more.
Sundquist (2019)	Sweden	Lower and upper secondary	Outside school	Commercial games	N/A	N/A	Comparing vocabulary knowledge of frequent versus infrequent leisure-time game-players	Measures game habits, English grades and vocabulary test scores in a large sample, which is compared with interviews and essays from a smaller sample.	Cognitive and social approach: Gee's learning principles, Incidental vocabulary learning (e.g. Laufer & Hulstijn). Scale of social interaction (Sundquist), social approach (Wagner)	Mixed methods: Surveys, vocabulary test and interviews	Survey and test results showed a significant positive correlation between time played and test scores. Findings from interviews and student texts regarding gaming habits and vocabulary (i.e. use of advanced or infrequent words in essays) indicated that playing commercial games matters for L2 learner vocabulary.
Sundqvist & Sylvén (2014)	Sweden	Primary	Outside school	Commercial games	N/A	N/A	Comparing gaming habits and code-switching (self-reported) between frequent versus infrequent leisure-time game-players	Learning vocabulary tests and national test scores (reading and listening)	Gee's learning principles (motivation, input, output). Motivation (Dörnyei & Ushioda, 2011).	Quantitative: Questionnaire and language diary	Young language learners are extensively involved in extramural English activities. Statistically significant gender differences, with boys using twice as much time as the girls on games and films. Motivation and self-assessed English ability was high for all participants. Regarding the self-reported strategies, code-switching to one's L1 was more commonly reported by non- and moderate gamers than frequent gamers.
Sundqvist & Wikström (2015)	Sweden	Lower and upper Secondary	Outside school	commercial games	N/A	N/A	Comparing vocabulary knowledge of frequent versus infrequent leisure-time game-players as well as assesing the importance of leisure time gaming and English school grades	Measures game habits, English grades and vocabulary test scores (test scores unspecified in terms of content)	Vocabulary acquisition theories (Laufer and Hulstijn). Learner autonomy (Benson)	Quantitative	frequent learners putperformed less frequent gamers also in terms of sophisticated vocabulary
Sylvén & Sundqvist (2012)	Sweden	Primary and lower Secondary	Outside school	commercial games	N/A	N/A	Comparing gaming habits in the outside school setting with self-assessed proficiency	invesitgating language learning in the outside school setting and correlations with self-assessed proficiency	Input hypothesis (Krashen), Sociocultural theory (Vygotsky), Interaction hypothesis (Long), Collaborative dialogue (Swain)	Quantitative	Positive correlations between playing digital games and L2 proficiency, in particular with regard to vocabulary, and also identified gender-related differences regarding vocabulary (boys outperformed girls) as well as the frequency of gaming and types of games played.
Tsai et al. (2017)	Taiwan	Upper secondary	In-school	Educational game	Happy English Learning System	Tutorial game	Students need to fill in multiple choice	Measures high school students' motivation and English achievement before and after game-based intervention	Motivation (Bandura; Dweck and Leggett; Noels et al.; Pintrich;Schunk)	Quantitative: Experimental study with no control group	The results verified the positive effectiveness of the approach for promoting student English learning motivation and achievement.
Utku et al. (2018)	Turkey	Primary	in-school	Educational game	eslgames.world.com	Tutorial games (e.g., matching game, word search, crossword puzzle, spelling game, two board games)	Exposure to target vocabulary (animal names) through the games	learning vocabulary	Children as learners with particular needs (e.g., curiosity, short attention span) (Setyaningsih, 2007) - games beneficial in meeting such needs...Digital natives (Prensky). Incidental learning (Richards & Schmidt)	Quantitative: Experimental study with control group	experimental group outperformed the control group
Vasileoradou & Makrina (2017)	Greece	Primary	In-school	Educational games	Vocabulary games (not specified)	Tutorial games	playing online educational games of their own choice that contain the target vocabulary	Investigate the effectiveness of computer games in learning English as a foreign language and the extent to which they increase motivation	Vocabulary learning theories (e.g. Boonkongsean, Ellis, Laufer). Gee's learning principles, input hypothesis (Krashen). Motivation (underlying)	Mixed methods: Interviews and proficiency test	The results show that using computer games were both an enjoyable and effective means of teaching vocabulary in English.
Multiple language skills											
De Wilde & Eyckmans (2017)	Belgium	Primary	Outside school	Commercial games	N/A	N/A	Comparing vocabulary knowledge of frequent versus infrequent leisure-time game-players	Investigates the incidental language acquisition of Flemish children who have not received any formal English instruction by using a receptive vocabulary test.	Incidental vocabulary learning (Hucking & Coady, Hulstijn).	Quantitative: Survey and proficiency test	The results of this study showed that a significant proportion of the students could already perform tasks at the A2 level (CEFR) without having had any formal instruction. Two exposure factors were shown to be significantly related to the children's test results: gaming and computer use.
DeWilde et al. (2019)	Belgium	Primary	Outside school	Commercial games	N/A	N/A	Listening, reading, writing, speaking, receptive vocabulary	Investigates the incidental language acquisition of Flemish children who have not received any formal English instruction	Cognitive framework: Contextual language learning (Elgort, Brysbaert, Stevens, and Van Assche)	Quantitative: surveys and tests	
Dourda et al. (2014)	Greece	Primary	In-school	Educational game	Whodunit	Role-playing game	Reading clues (e.g., relevant websites on various geographical and historical locations) and writing information to the Head of Police (e.g., emials, postcards, etc.) to inform him of progress in the investigation	Using an educational geography computer game for teaching English as a foreign language	Game based learning approach (Anderson et al, Mayer), authentic learning (Squire). Input, output and motivation (Reinders). Importance of game design (Gros)	Mixed methods: quant data with no control group, qual data: interviews and analysis of learner logs.	Significant positive differences compared to those of the pre-test in terms of vocabulary acquisition and reading skills in the foreign language and geography knowledge.
Jalali & Dousti (2012)	Iran	lower Secondary	In-school	Educational game	Vocabulary games (The Multirom)	Tutorial games (e.g. grammar and vocabulary games)	Not specified	This study investigated the effect of computer educational games on Iranian elementary learners' grammar and vocabulary gain.	Motivation theories and notions (e.g. flow, Csikszentmihalyi)	Quantitative: Experimental study with control group	In comparing the pre-test and post-test scores, the results demonstrated no significant differences between the experimental and control groups.
Mifsud et al. (2013)	Malta	primary, lower and upper Secondary	In-school	Educational game	The Clue Finders Reading Adventures: The Mystery of the Missing Amulet	Adventure game	Students act as clue finder to find missing amulet halves: finind clues by reading and problem solving	Measure the attitudes toward learning games as well as the educational outcome in relation to English as a Second Language	Game theories (identity, and roles, (Akkerman et al; Shaffer et al.; Winn,2002). Motivational elements of games (Barab et al.; Garris et al.). Games and literacy (Andrews). affordances of games as catalysts for the use of affinity spaces (Schaffer et al). Digital literacy involving cognitive and learning skills (Mackereth and Anderson, 2000).	Quantitative: Experimental study with control group. Survey and teacher questionnaires	The experimental group of students which used the videogame in the classroom obtained significant gains on a number of English as a Second Language items when compared to the other group of students which followed their regular programme
Sletten et al. (2015)	Norway	Lower and upper secondary	Outside school	Commercial games	N/A	N/A	Distinction between frequent and infrequent game players among both boys and girls	Comparing school performance as measured through school grades in L1 (writing), L2 and mathematics with gamer habits	Theory on youth culture in relation to leisure activities and academic performance (Mahoney et al., Bohnert et al.) that try explain different factors - e.g. selection of different activities, competing orientations, the meaning of different activities as well as different types of impact on school performance.	Quantitative: Survey and standardised test	Negative correlations between extensive game play and school performances for L1 and mathematics, but not in relation to L2. This suggests a positive effect on learning English as a foreign language through gameplay
Suh et al. (2010)	Korea	Primary	In-school	Educational game	Nori School	Role-playing game	Chatting in teams to decide on appropriate quiz answers, reading Englihs, answering quizzes, listening and writing	Investigates the effectiveness of massive multiplayer online role-playing game (MMORPG)-based instruction in elementary English education.	Theoretical assumptions on how MMORPG involve learning and motivation (Jensen, Bers, Lee & Hoadley) as well as opportunities for language learning (Rankin et al., Waters, Yip & Kwan)	Quantitative: Survety and experimental study with control group	Students studying English utilizing the online role-playing game showed higher scores in areas of listening, reading, and writing than those who attended face-to-face instruction classes.
Writing											
Allen et al. (2014)	USA	Upper secondary	In-school	Educational games	Suite of 16 games, e.g. Freewrite Flash	Tutorial games	Identification tasks or generative tasks in relation to writing strategies	Comparing how L1 and L2 students may develop writing skills using games in relation to an Intelligent Tutoring System	Combines theories on writing strategy instruction (Hillcock, Graham & Perin), motivation through games (Gee, Barab et al.) and purpose of writing task (Hayes, Prior)	Quantitative: Experimental study with control group	Interactions with the games led to increases in writing performance and more positive attitudes towards the Intelligent Tutoring System.
Hung et al. (2015)	Taiwan	Primary	In-school	Educational games	Wireless Crossword Fan-Tan Game	Tutorial games	A team of three students (each is assigned 1/3 of the letters of the English alphabet). Together they create a word map through spelling as many words as possible correctly in a shared online space.	Explores a collaborative and competitive game-based learning environment to improve English proficiencies and reduce the achievement gap for disadvantaged students.	Grounded in theories of the benefits of competition, collaboration (Johnson & Johnson; Slavin) and cooperation (e.g. (Johnson, Maruyama, Johnson, Nelson, & Skon; Slavin) in game based language learning	Mixed-methods: Experimental study with control group as well as qualitative data	The results of this study indicate that the low-achievement students in the experimental group had a better learning performance and a more positive attitude than those in the control group.
Language practices											
Hannibal Jensen (2019)	DEN	Primary	Outside school	Commercial games	N/A	N/A	Investigating children's engagement with the language when playing games (i.e., do they write, read, socialize, etc.)	Investigates the uptake of affordances for language learning by young Danish children in their engagement with English language media in the digital wild, including digital games.	Grounded in activity theory and the importance of motives for engagement with the L2 (Leontiev; Lompscher). The motives behind actions are seen as indicative of the affordances of engagement.	Qualitative: Ethnographic interviews	Most of the participants were motivated in their engagement with English by social and higher cognitive motives (i.e., deliberately chose English-language content over Danish), engaged in chats, and read and listened to online content. Other were found to be motivated by lower cognitive motives, resulting in less engagement with the affordances. The study also found a substantial difference between perceptions of English in and outside school.
Zheng et al. (2009)	USA, CHN	Upper secondary	In-school	Educational game	Quest Atlantis	Open world adventure game	The affordances of the language encountered in games	Analyses in-game user chat logs and other artefacts in order to explain how avatar-embodied collaboration between native speakers and non-native speakers provided resources for English language acquisition.	Sociocultural approach to foreign language learning, which emphasize participation (Lave & Wenger, Gee), social semiotic practices (Kramsch) and environment interaction (Gibson) through the concept "Negotiation for Action"	Qualitative: Discourse analysis	Analyses revealed several affordances of the game for language acquisition at both utterance and discourse levels. The language acquisition took place through intercultural collaboration on solving content-based problems using pragmatics, syntax, semantics, and discourse practices.