

Appendix

TABLE A1

Overview dependent and moderator variables

Name	Definition and operationalization	Coding scheme	Descriptive data
Source	Captures the source (e.g., journal) of the paper	Open coding	See Table A2
Country	Captures the (main) country (or countries) in which data were collected. Countries were reported following ISO 3166-1 alpha-2 geocodes (ISO n.d.).	AU = Australia, AT = Austria, BE = Belgium, BR = Brazil, CA = Canada, CL = Chile, CN = China, FR = France, DE = Germany, HU = Hungary, IN = India, ID = Indonesia, IR = Iran, IE = Ireland, JP = Japan, JO = Jordan, MY = Malaysia, MX = Mexico, NL = Netherlands, NZ = New Zealand, PE = Peru, PT = Portugal, SG = Singapore, KR = South Korea, ES = Spain, SE = Sweden, TW = Taiwan, TH = Thailand, TR = Turkey, AE = United Arab Emirates, UK = United Kingdom, US = United States of America	US = 77, IN = 23, BE = 18, NL = 18, CN = 10, AT = 9, KR = 9, TW = 8, AU = 7, DE = 7, ES = 6, MX = 4, UK = 4, SG = 3, PT = 3, MY = 3, Unknown = 3, Other ^a = 19
Type of gamified advertising	Captures the type of gamified advertising that is studied in the paper	1 = In-game advertising 2 = Advergaming	1 = 48.4% ^(136/281) 2 = 55.9% ^(157/281)
Variables	Captures the variables that are studied in the paper	Open coding	See Table A3
Theories	Captures the theories that are used in the paper to explain the effectiveness of gamified advertising	Open coding	See Table A4
Level of maturity	Captures the age range of the participant in a particular paper. Based on consumer socialization literature (John 1999) three relevant age categories were identified.	1 = < 12 years old 2 = 13-17 years old 3 = 18+ years old	1 = 23.8% ^(53/223) 2 = 8.5% ^(19/223) 3 = 77.1% ^(172/223)

Game genre	Captures the most prominent genre of the game that was used as stimulus material. The list of genres was based on Roettl et al. (2016).	1 = card, 2 = adventure, 3 = puzzle, 4 = quiz, 5 = sport, 6 = shooter, 7 = racing, 8 = arcade/casual, 9 = strategy, 10 = simulation, 11 = fighting, 12 = roleplaying, 13 = other, 99 = unknown	Total: 1 = 0.0% ^(0/197) , 2 = 2.5% ^(5/197) , 3 = 14.7% ^(29/197) , 4 = 1.5% ^(3/197) , 5 = 14.7% ^(29/197) , 6 = 7.1% ^(14/197) , 7 = 33.0% ^(65/197) , 8 = 20.8% ^(41/197) , 9 = 0.0% ^(0/197) , 10 = 5.6% ^(11/197) , 11 = 6.1% ^(12/197) , 12 = 1.0% ^(2/197) , 13 = 3.6% ^(7/197) , 99 = 4.6% ^(9/197)
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Note. Categories for most coded variables are not mutually exclusive, meaning that percentages can exceed 100%. ^a Other = Brazil; Canada; Chile; France; Hungary; Indonesia; Iran; Ireland; Japan; Jordan; New Zealand; Peru; Sweden; Thailand; Turkey; United Arab Emirates.

TABLE A2

Overview of sources with number of publication per topic

Source name	Number of publications	Topic			
		In-game advertising		Advergaming	
		<i>n</i>	%	<i>n</i>	%
Journal of Advertising	24	12	50.0	13	54.2
Journal of Interactive Advertising	21	14	66.7	8	38.1
International Journal of Advertising	18	9	50.0	10	55.6
Advances in Advertising Research	14	8	57.1	6	42.9
Computers in Human Behavior	14	8	57.1	6	42.9
Journal of Consumer Behaviour	9	2	22.2	7	77.8
Journal of Promotion Management	9	7	77.8	2	22.2
Journal of Interactive Marketing	7	5	71.4	2	28.6
Young Consumers	5	3	60.0	2	40.0
Journal of Marketing Communications	5	2	40.0	3	60.0
Other ^a	154	66	42.9	96	62.3
Total	280	136	48.6	155	55.4

Note. In a single paper, both advergaming and in-game advertising can be examined. Meaning that the topics are not mutually exclusive and the percentages per row can exceed 100%.

^aOther = Advanced Science Letters; Appetite; Archives of Pediatrics & Adolescent Medicine; Asia Pacific Journal of Marketing and Logistics; Australasian Marketing Journal; Australian and New Zealand Journal of Public Health; Business and Economics Research Journal; BVIMSR Journal of Management Research; Central European Management Journal; Communicare; Communication Research; Computer Law & Security Review; Convergence: The International Journal of Research into New Media Technologies; Critical Studies in Media Communication; Cyberpsychology, Behavior, and Social Networking; Cyberpsychology & Behavior; Electronic Markets; Entertainment Computing; Eurasia Journal of Mathematics, Science and Technology Education; European Journal of Marketing; European Journal of Science and Theology; Expert Systems with Applications; Food Quality and Preference; Frontiers in Psychology; Frontiers in Sports and Active Living; Health Affairs; Health Psychology; Indian Journal of Marketing; Industrial Management & Data Systems; Innovative Marketing; Interdisciplinary Journal of Contemporary Research in Business; International Journal of Arts and Technology; International Journal of Behavioral Nutrition and Physical Activity; International Journal of Business Ethics in Developing Economies; International Journal of Business Information Systems; International Journal of Communication; International Journal of Consumer Studies; International Journal of Electronic Business; International Journal of Electronic Business Management; International Journal of Electronic Commerce Studies; International Journal of Entrepreneurial Venturing; International Journal of Gaming and Computer-Mediated Simulations; International Journal of Human-Computer Interaction; International Journal of Information Management; International Journal of Internet Marketing and Advertising; International Journal of Mobile Communications; International Journal of Mobile Learning and Organisation; International Journal of Sports Marketing and Sponsorship; International Journal of Visual Design; Internet Research; JMIR Serious Games; Journal for Virtual Worlds Research; Journal of Advertising Research; Journal of Brand Management; Journal of Business Research; Journal of Children and Media; Journal of Consumer Affairs; Journal of Consumer Marketing; Journal of Consumer Policy; Journal of Creative Communications; Journal of Current Issues & Research in Advertising; Journal of Direct, Data and Digital Marketing Practice; Journal of Economic and Social Studies; Journal of Electronic Commerce Research; Journal of Food Products Marketing; Journal of Global Sport Management; Journal of Indian Business Research; Journal of Marketing Development and Competitiveness; Journal of Nutrition Education and Behavior; Journal of Organizational Computing and Electronic Commerce; Journal of Product & Brand Management; Journal of Public Policy & Marketing; Journal of Research for Consumers; Journal of Research in Interactive Marketing; Journal of Sport Management; Journal of the Academy of Nutrition and Dietetics; Journal of the Association for Information Systems; Journal of Theoretical and Applied Electronic Commerce Research; Journal of Vacation Marketing; Management Research Review; Marketing Intelligence & Planning; Media International Australia; New Media & Society; Nordicom Review; NTU Management Review; Obesity Reviews; Online Information Review; Pediatrics;

Performance Improvement Quarterly; PLOS ONE; Portuguese Journal of Marketing; Preventing Chronic Disease; Prisma Social; Psychology of Popular Media Culture; Psychology & Marketing; Public Organization Review; Qualitative Market Research; Review of Business Management; Social Behavior and Personality; Social Issues and Policy Review; Spanish Journal of Marketing; Sport Marketing Quarterly; The American Journal of Clinical Nutrition.

TABLE A3

Overview of ad, game, and player characteristics studied in the context of gamified advertising

Characteristics	Number of papers	Topic			
		In-game advertising		Advergaming	
		<i>n</i>	%	<i>n</i>	%
Ad characteristics					
Type of advertising: IGA/AG vs. other (Agante and Pascoal 2019; An, Jin, and Park 2014; Bell and Buchner 2018; Bellman et al. 2014; Bidmon and Röttl 2018; Burrows and Blanton 2015; Chou and Yang 2020; Cicchirillo and Mabry 2016; Dardis et al. 2015; Dardis et al. 2016; Dias and Agante 2011; Duhaime, Tep, and Arcand 2020; Egger, Florack, and Hübel 2022; Evans, Wojdyski, and Grubbs Hoy 2018; Farias 2018; Folkvord et al. 2012; Folkvord et al. 2014; Folkvord et al. 2015; Folkvord et al. 2017; Folkvord, Anschütz, and Buijzen 2016; Folkvord, Anschütz, and Buijzen 2020; Folkvord, Veling, and Hoeken 2016; Gangadharbatla, Bradley, and Wise 2013; Ghosh, Sreejesh, and Dwivedi 2022; Glass 2007; Grigorovici and Constantin 2004; Güngör and Çadırcı 2019; Hang and Zhang 2020; Huang and Yang 2012; Hudders et al. 2016; Hudders, Cauberghe, and Panic 2015; Huh et al. 2015; Kim and Eastin 2015; Limbach et al. 2018; Mackay et al. 2009; Naderer, Matthes, and Mestas 2016; Neyens, Smits, and Boyland 2017; Norman et al. 2018; Norman et al. 2020; Nuijten et al. 2013; Owen et al. 2013; Panic, Cauberghe, and De Pelsmacker 2013; Panic, Cauberghe, and Pelsmacker 2012; Patrick, Yongjae, and Ross 2008; Pempek and Calvert 2009; Rosado and Agante 2011; Russell, Croker, and Viner 2019; Shefali and Aggarwal 2015; Smith et al. 2020; Sung and de Gregorio 2008; Theben, Fink, and Folkvord 2022; Tina and Buckner 2006; Van Berlo et al. 2021; Van Berlo, Van Reijmersdal, and Eisend 2021; Verhellen et al. 2014; Waiguny and Terlutter 2011; Waiguny, Nelson, and Terlutter 2013; Yang and Wang 2008; Yeu et al. 2013)	60	20	33.3	41	68.3
Brand placement prominence (Acar 2007; Aliagas, Privado, and Merino 2021; Cauberghe and De Pelsmacker 2010; Chaney et al. 2018; Chang et al. 2010; Dardis et al. 2016; Ghosh, Sreejesh, and Dwivedi 2022; Güngör 2020; Hernandez and Minor 2015; Herrewijn and Poels 2018; Kazakova, Cauberghe, and Thijs 2012; Kim et al. 2016; Lee and Faber 2007; Lin 2014; Peters and Leshner 2013; Redondo 2012; Rifon et al. 2014; Schneider and Cornwell 2005; Sung and Lee 2020; Van Reijmersdal, Rozendaal, and Buijzen 2012a, 2012b; Vashisht and Pillai 2017; Vashisht and Sreejesh 2017; Vashisht and Sreejesh 2015b; Vashisht 2017; Vashisht and Pillai 2016; Vashisht and Royne 2016; Vashist 2018; Vermeir et al. 2014; Williams 2019)	30	18	60.0	12	40.0
Degree of interactivity (Besharat et al. 2013; Catalán, Martínez, and Wallace 2019a; Chang et al. 2010; De Pelsmacker, Dens, and Verberckmoes 2019; Gao, Rau, and Salvendy 2009; Goh and Ping 2014; Granquist, Strömberg, and Söilen 2015; Herrewijn and Poels 2018; Hsiao, Lin, and Wu 2022; Kim and Leng 2017; Kim and Lee 2022; Lee, Park, and Wise 2013; Poels, Janssens, and Herrewijn 2013; Rifon et al. 2014; Siemens, Smith, and Fisher 2015; Sreejesh and Anusree 2017; Sreejesh, Anusree, and Ponnam 2018; Sukoco and Wu 2011; Van Reijmersdal et al. 2010; Vashisht 2021; Vashisht and Chauhan 2017; Vashisht, Mohan, and Chauhan 2020; Verberckmoes et al. 2016; Yang and Wang 2008; Zhu and Chang 2015)	25	15	60.0	10	40.0
Product type (Choi and Lee 2012; Choi, Yoon, and Lacey 2013; Choi, Yoon, and Taylor 2015; Esmailpour et al. 2017; Folkvord et al. 2012; Harris et al. 2012; Mallinckrodt and Mizerski 2007; Norman et al. 2018; Yang and Wang 2008)	9	0	0.0	9	100.0

Time and timing (Besharat et al. 2013; Cauberghe and De Pelsmacker 2011; Chaney et al. 2018; Charlton 2018; Hernandez et al. 2004; Kuo and Rice 2015; Redondo 2012)	7	5	71.4	2	28.6
Ad breaks and disclosures (An and Stern 2011; Cho and Riddle 2021; Choi, Yoon, and Lacey 2013; Evans and Hoy 2016; Folkvord et al. 2017; Van Reijmersdal et al. 2015)	6	0	0.0	6	100.0
Repetition of exposure to ad (Agante and Pascoal 2019; Bell and Buchner 2018; Catalán, Martínez, and Wallace 2019b; Cauberghe and De Pelsmacker 2010; Kim and Leng 2017; Martí-Parreño, Bermejo-Berros, and Aldás-Manzano 2017)	6	3	50.0	3	50.0
Game characteristics					
Game/brand fit (Chang et al. 2010; Goh and Ping 2014; Gross 2010; Hernandez et al. 2004; Hsiao, Lin, and Wu 2022; Kim and Eastin 2015; Kinard and Hartman 2013; Lee, Yang, and Hung 2017; Lewis and Porter 2010; Okazaki and Yagüe 2012; Peters and Leshner 2013; Poels, Janssens, and Herrewijn 2013; Sreejesh, Anusree, and Ponnampalani 2018; Vashisht and Pillai 2016; Vashisht and Sreejesh 2017; Vashisht et al. 2015a; Vashisht and Chauhan 2017; Vermeir et al. 2014; Wise et al. 2008; Yang et al. 2006)	20	9	45.0	11	55.0
Game speed and difficulty (Dardis et al. 2015; Dardis et al. 2019; Ghosh, Sreejesh, and Dwivedi 2021; Ghosh, Sreejesh, and Dwivedi 2022; Herrewijn and Poels 2013; Hwang et al. 2017; Kuo and Rice 2015; Lee, Park, and Wise 2013; Vashisht and Pillai 2016; Vashisht and Royne 2016; Vashisht and Sreejesh 2017; 2016; 2015a)	13	11	84.6	3	23.1
Game rhetoric and mechanisms (Gao, Rau, and Salvendy 2009; Ghosh 2016; Jin 2010; Jin and Phua 2015; Mishra and Malhotra 2020; Siemens et al. 2015; Sreejesh, Anusree, and Ponnampalani 2018; Sung and Lee 2020; Techawachirakul 2020; Tuten and Ashley 2013; Zhao and Renard 2018)	11	6	54.5	5	45.5
Customization (Bailey, Wise, and Bolls 2009; Dardis, Schmierbach, and Limperos 2012; Eastin et al. 2019; Gao, Rau, and Salvendy 2009; Malhotra, Mishra, and Saxena 2021; Wottrich, Verlegh, and Smit 2017)	6	3	50.0	3	50.0
Game outcome (win versus lose) (Chou and Yang 2020; Eastin et al. 2019; Ghosh 2016; Mau, Silberer, and Gödecke 2010; Steffen, Mau, and Schramm-Klein 2013; Yeu et al. 2013)	6	5	83.3	1	16.7
Type of content: e.g., violent, humorous (Gao, Rau, and Salvendy 2009; Lull et al. 2018; Panic, Cauberghe, and Pelsmacker 2012; Techawachirakul 2020; Waiguny, Nelson, and Marko 2013; Yoo and Peña 2011)	6	3	50.0	3	50.0
Active versus passive media consumption (Dardis et al. 2019; Gangadharbatla 2016; Granquist, Strömberg, and Søylen 2015; Herrewijn and Poels 2015; Nelson, Yaros, and Keum 2006)	5	5	100.0	0	0.0
Player characteristics					
Advertising literacy, media literacy and digital literacy (An and Kang 2019; An and Stern 2011; Chernikova and Branco 2019; Güngör 2020; Hudders et al. 2016; Hwang et al. 2018; Kim et al. 2016; Rozendaal et al. 2013; Soebandhi, Hartini, and Gunawan 2018; Van Reijmersdal, Rozendaal, and Buijzen 2012b; Vanwesenbeeck, Walrave, and Ponnet 2016; Vashisht and Pillai 2017; Vashisht and Sreejesh 2015a; Vashisht and Royne 2016; Verhellen et al. 2014; Waiguny and Terlutter 2011; Waiguny, Nelson, and Terlutter 2013)	17	7	41.2	10	58.8

Brand familiarity (Aliagas, Privado, and Merino 2021; Catalán, Martínez, and Wallace 2019b; Ghosh, Sreejesh, and Dwivedi 2021; Herrewijn and Poels 2018; Hsiao, Lin, and Wu 2022; Kim and Leng 2017; Kinard and Hartman 2013; Lin 2014; Martí-Parreño, Bermejo-Berros, and Aldás-Manzano 2017; Siemens, Smith, and Fisher 2015; Van Berlo, Van Reijmersdal, and Rozendaal 2020; Van Reijmersdal et al. 2010; Waiguny, Nelson, and Marko 2013; Zhu and Chang 2015)	15	10	66.7	6	40.0
Cognitive capabilities and capacities (Evans and Hoy 2016; Folkvord et al. 2014; Folkvord et al. 2015; Folkvord, Anschütz, and Buijzen 2020; Folkvord, Veling, and Hoeken 2016; Güngör and Çadırcı 2019; Herrewijn and Poels 2014; Jung, Min, and Kellaris 2011; Sreejesh and Anusree 2017; Valaei et al. 2021; Vashisht and Sreejesh 2016; Vashisht and Sreejesh 2017; Vashisht 2017; Vyvey, Castellar, and Van Looy 2018; Yoon and Vargas 2013)	14	5	35.7	9	64.3
Age: Kids, adolescents, adults (An and Kang 2019; Bellman et al. 2014; Folkvord et al. 2017; Harris et al. 2012; Lewis and Porter 2010; Naderer, Matthes, and Mestas 2016; Neyens, Smits, and Boyland 2017; Owen et al. 2013; Rosado and Agante 2011; Toh and Leng 2014; Van Berlo, Van Reijmersdal, and Eisend 2021; Van Reijmersdal et al. 2010)	12	4	33.3	9	75.0
Involvement with game (Güngör and Çadırcı 2019; Hsiao, Lin, and Wu 2022; Lee and Faber 2007; Nicovich 2005; Nicovich 2010; Van Reijmersdal, Rozendaal, and Buijzen 2012b; Vashisht and Pillai 2017; Vashisht and Sreejesh 2015b; Vashisht 2017; Vashisht and Sreejesh 2016)	10	7	70.0	3	30.0
Gaming experience (Gangadharbatla, Bradley, and Wise 2013; Harris et al. 2012; Hernandez and Chapa 2010; Kim and McClung 2010; Lee and Faber 2007; Lewis and Porter 2010; Schneider and Cornwell 2005; Vashisht and Sreejesh 2015b)	8	6	75.0	2	2.05
Involvement with brand (Cauberghe and De Pelsmacker 2010; Choi 2019; Jin and Bolebruch 2009; Kazakova, Cauberghe, and Thijs 2012; Lee et al. 2017; Vanwesenbeeck, Walrave, and Ponnet 2016; Vashist 2018)	7	3	42.9	4	57.1
Other characteristics ^a	78
Total	264				

Note. In a single paper, both advergingaming and in-game advertising can be examined. Meaning that the topics are not mutually exclusive and the percentages per row can exceed 100%.

^aOther = Characteristics of the ad: Ad framing (e.g., positive/negative), brand anthropomorphism, Brand modality, brand trustworthiness, type of brand (e.g., local/national, commercial/noncommercial); Characteristics of the game: Antecedents of media richness (e.g., vividness, breadth), degree of customization, degree of novelty, dimensionality: 2D, 3D, 4D, game genre, gaming context (e.g., positive/negative, public/private), in-game music, realism, repetition of gaming, single-player/multiplayer, technical platform and controller type; Characteristics of the player: Brand familiarity, culture, family influence (e.g., parental influence, influence of siblings), game familiarity/game experience, game player type (Bartle's player types), gender, general advertising literacy/media literacy/digital literacy, general attitudes toward advertising, general attitudes toward product placements (in digital games), hunger, multitasking, opinion leadership, personalization intention, preexisting brand attitude, privacy concerns, self-construal, smartphone attachment, susceptibility of social norms (e.g., peer group influence, peer communication), susceptibility to advertising.

TABLE A4

Overview of empirical and theoretical explanations of gamified advertising effects

Explanation	Number of papers	Topic			
		In-game advertising		Advergaming	
		<i>n</i>	%	<i>n</i>	%
Persuasion knowledge model and advertising literacy (Friestad and Wright 1994)	48	15	31.3	36	75.0
Placement, proximity, and prominence	43	30	69.8	13	30.2
Limited capacity model of motivated mediated message processing and cognitive load (Lang 2000)	33	18	54.5	15	45.5
Congruence	27	15	55.6	12	44.4
Flow (Csikszentmihalyi 1990)	27	12	44.4	15	55.6
Interactivity with content and levels of processing	26	11	42.3	15	57.7
Familiarity and existing associations	21	11	52.4	10	47.6
Presence	19	10	52.6	9	47.4
Meaning transfer and results transfer (e.g., affect transfer)	17	8	47.1	9	52.9
Dual process models (e.g., ELM & HSM) and involvement and attention	16	5	31.3	11	68.8
Mere exposure effect, fluency, and repetition (Zajonc 1968)	16	9	56.3	7	43.8
Game liking and general entertainment effects	15	5	33.3	10	66.7
Game involvement	13	7	53.8	6	46.2
Game characteristics, mechanics, and game rules	12	4	33.3	7	58.3
Child development and social cognition (e.g., PCMC; Buijzen et al. 2010)	10	1	10.0	9	90.0
Game difficulty	10	9	90.0	1	10.0
Media richness theory and vividness (Daft and Lengel 1986)	10	4	40.0	5	50.0
Realism integration and plot relation	9	9	100	0	0.0
Unconscious processing and priming effects	8	5	62.5	3	37.5
Customization	8	4	50.0	4	50.0
Transportation and story relation	8	4	50.0	4	50.0
Gaming experience and other player characteristics	8	7	87.5	1	12.5
Implicit and explicit memory	8	4	50.0	3	37.5
Conditioning and attentional bias	7	0	0.0	7	100.0
Distractor devaluation effect and competitive interference (Kent and Allen 1994)	6	5	83.3	1	16.7
Exposure time	6	5	83.3	1	16.7
Competition and multiplayer	5	3	60.0	2	40.0
Avatar character and embodiment	5	2	40.0	3	60.0
Other explanations ^a	91
Total	264				

Note. In a single paper, both advergaming and in-game advertising can be examined. Meaning that the topics are not mutually exclusive and the percentages per row can exceed 100%.

^aOther = Active-passive exposure; advergence personality; automorphism; arousal; associative propositional (explicit vs implicit); bimodality-multimodality; controller inputs; culture and cultural dimensions; demographics; dual appraisal emotions (lower and higher-order emotions); expectancy theories; expectancy violations theory; game speed; goal attainment; haptics embodied cognition; hedonic utilitarian experiences; hemispheric lateralization; instrumental conditioning (e.g., rewards/prizes); interruption; language and false memory; message framing (e.g., loss/gain framing); mood; multitasking; need for cognitive closure; need for cognition; novelty; order effects; ownership theory; picture superiority effect; privacy concerns; psychological ownership; reactance theory; regulatory focus theory; schema; search experience attributes; self-construal; self-determination theory (Deci and Ryan 1985); self-disclosure; smartphone attachment; social play, social context, social presence; attitude toward product placement and advertising; tactical engagement with ads; theory of reasoned action (Fishbein 1967), theory of planned behavior (Ajzen 1991), theory of reasoned goal pursuit (Ajzen and Kruglanski 2019), and technology acceptance model (Davis 1989); brand trust; user content creation (prosumption); virtual attribute experience; visual attention; uses and gratifications approach (Katz, Blumler, and Gurevitch 1974); wear-in and wear-out repetition effects.

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