

Appendix C – The static game elements in the literature

	Static Game Elements									
Author	Points / Scores	Badges / Achievements	Leaderboards	Levels / Ranks	Rewards / Bonuses / Prizes	Punishments / Penalties	Avatars	Virtual Goods / Collections	Virtual Currencies	Tutorials
# of studies	37	21	27	21	30	12	5	3	3	2
(Clarke et al., 2017)	x			x	x			x	x	
(Lee et al., 2017)	x				x					
(Ahmed, Kevan A. Buckley, Robert Moreton, & Adel Elmaghraby, 2016)										
(Sodhi, Girouard, & Thue, 2023)										
(Bucchiarone, Bertoldo, & Favargiotti, 2021)			x	x	x					
(Gicquel et al., 2019)	x				x					
(Beutelspacher, Mainka, & Siebenlist, 2018)										
(Vicens et al., 2018)						x				
(Bousios, Gavalas, & Lambrinos, 2017)	x		x	x	x	x				
(Gabriel & Schmörlzer, 2022)	x				x					
(Schell & Kaufman, 2016)					x					
(Bu, Liu, & Zhang, 2023)										
(Sampaio, Morgado, & Barbosa, 2012)	x			x	x		x			
(Sun, Liu, & Lu, 2023)						x				
(Fang & Cho, 2020)										
(Kongeseri & Coley, 2019)										
(Bossavit & Parsons, 2016)										
(Dargan & Evequoz, 2015)		x			x					
(De Francisco et al., 2024)	x	x	x					x		
(Pflanzl, Classe, Araujo, & Vossen, 2017)						x				
(Becker, Ksenia Koroleva, Diogo Vitorino, & Novak, 2019)	x	x			x					
(Iacovides, Jennett, Cornish-Trestrail, & Cox, 2013)	x		x							
(Rehm, Foth, & Mitchell, 2018)	x	x	x							
(Jin & Zhao, 2021)	x		x	x	x		x			
(Avolicino et al., 2022)						x				
(He & Zhang, 2022)						x				
(Foxman & Forelle, 2014)	x				x					
(Peischi, Schantl, & Holzinger, 2014)	x	x	x	x						
(Thiel & Lehner, 2015)	x		x							
(Minge et al., 2014)			x							
(N. Prestopnik & Souid, 2013)					x					
(Mendez et al., 2019)	x	x	x		x					
(Y. Li & Wang, 2023)						x				
(Hassan & Hamari, 2020)	x		x	x						
(Latifi, Monfared, & Khojasteh, 2022)	x	x	x	x	x					
(Sergeyeva, Bogomiagkova, Orekh, & Kolesnik, 2020)	x			x	x				x	
(Fernandes & Junior, 2016)	x	x		x						
(Hassan & Nader, 2016)										
(Ortet, Costa, & Veloso, 2021)										
(Redondo, Giménez, Navarro, & Fonseca, 2020)										
(Ronzhyn, Wimmer, Vale Pereira, & Alexopoulos, 2020)	x	x	x	x			x			
(Resek et al., 2024)	x	x	x	x	x					
(Hassan & Hamari, 2019)	x	x	x	x						
(Bowser et al., 2014)		x	x		x					
(N. R. Prestopnik & Crowston, 2011)	x				x				x	
(Martis, Bassano, Solari, & Chessa, 2017)	x									
(Hassan, 2017)	x	x	x							
(Wang, Cho, & Scheller-Wolf, 2021)										
(Quecke & Mariani, 2021)										
(Ai, Meng, Li, & Liu, 2023)						x				
(Eveleigh et al., 2013)	x		x	x						
(Haase & Loebel, 2023)										x
(Thiel, 2015)	x		x							
(Bhéreur-Lagounaris, 2016)										
(Gastil & Broghammer, 2021)	x	x	x	x	x					
(Zuo et al., 2023)					x	x				
(Vanolo, 2019)	x	x	x	x	x		x			
(Tennent, Pantidi, & Benford, 2016)										
(Thiel, Reisinger, Röderer, & Fröhlich, 2016)	x	x	x	x			x			
(N. R. Prestopnik & Tang, 2015)	x				x					
(Anastasopoulou, Kokolakis, & Andriotis, 2017)										
(Torres-Toukouridis, Romero-Rodríguez, Aguaded, Pérez-Rodríguez, & Sandoval, 2017)	x	x	x	x	x					x
(Liang et al., 2024)										
(Scherer, Wimmer, & Schepers, 2012)										
(Xu & Zheng, 2024)						x				
(Liu, Dong, An, & Guo, 2021)					x					
(Padilla-Zea et al., 2022)	x	x	x	x	x					
(Chian, 2023)	x									
(Moreira, Ferreira, Escudero, Pereira, & Durao, 2020)	x	x	x	x	x					
(Abdollahian et al., 2013)										
(Romero-Hernandez, Gonzalez-Riojo, Diaz-Faes-Perez, & Manero-Iglesias, 2018)										
(Willis & Parningotan Manik, 2022)										
(X. Li, Wu, Xie, & Wang, 2023)						x				
(Wagner & Minge, 2015)										
(Hantke et al., 2018)	x	x	x	x	x			x		
(Palacin-Silva et al., 2018)										
(Gastil, 2023)	x	x	x		x					
(Briones et al., 2018)					x	x				