Appendix

Table S1. Literature review of specific affordances identified in prior literature

The affordance perspective in e-commerce			
Research context (Authors)	Utilitarian affordance	Social affordance	Hedonic affordance
Social commerce (Dong and Wang, 2018)	visibility, meta-voicing, triggered attending, guidance shopping, and trading	social connecting	
Social commerce (Tuncer, 2021)	visibility, meta-voicing, guidance shopping		
Social commerce (Lin et al., 2020)		interactivity, recommendation, and feedback	
Social commerce (Tang and Zhang, 2020)	utilitarian affordance	connective affordance	hedonic affordance
Live streaming commerce (Sun et al., 2019)	IT affordance: visibility, meta-voicing, guidance shopping		
Live streaming commerce (Xu et al., 2022)	live Streaming affordance		
IoT commerce (Bayer et al., 2020)	context-aware services, automated customer processes	natural interactions,	
The affordance perspective in gamification			
Enterprise collaboration system (Suh and Wagner, 2017)	rewardability, competition, and visibility of achievement		
Crowdsourcing participation (Feng et al., 2018)	point rewarding and	feedback giving	
Environmental conservation (Du et al., 2020)	autonomy support, visibility of achievement, competition,	interactivity	
Workplace (Suh	reward, status,	self-expression	

et al., 2017)	competition		
Mobile intelligence and wearable computing (Jin et al., 2020)	potential affordance as moderator		
Online travel agencies (Shi et al., 2022)	achievement, identity, competition	self-expression	

Table S2: Measurements

Constructs		Measurement items	Mean	S. D.	Reference
Monetary rewardability	Gamification in online shopping offers me the possibility to:				
	REW1	obtain red pocket as a reward.	4.009	0.047	(Suh et al., 2017)
	REW2	get coupons when buying products.	4.113	0.049	
	REW3	buy products at a lower price.	4.165	0.046	
Connectiveness	Gamification in online shopping allows me to:				
	CON1	connect with my friends in the game task more frequently.	3.646	0.059	(Dong and Wang, 2018)
	CON 2	connect and invite my friends to participate in gamified activities.	3.561	0.062	
	CON 3	share the fun of gamified activities with my friends.	3.552	0.067	
	CON 4	interacting with my friends in the game task.	3.519	0.073	
	CON 5	maintain close social relationships with my friends in the game task.	3.533	0.071	
Playfulness	Gamification in online shopping:				
	PLY1	offers me enjoyable shopping activities.	3.208	0.060	(Feng et al., 2018)
	PLY2	provides funny and interesting gamified activities.	3.108	0.070	
	PLY3	offers some gamified tasks which are true joys.	3.245	0.069	
	PLY4	not brings me a lot of fun. (reverse)	3.321	0.073	
Novelty	Gamification in online shopping:				
	NV1	offers unique shopping experiences.	3.807	0.050	(McLean and Wilson, 2019)
	NV2	provide different effects and novel functions in games	3.788	0.057	
	NV3	provide several novel game elements and afford special purchase activities.	3.684	0.056	
	NV4	offer me various and new games during shopping processes.	3.580	0.061	
Immersive experience	While I playing games during online shopping process:				
	IE1	I am immersed in the gamified tasks that I am performing	3.439	0.059	(Daassi and Debbabi, 2021)
	IE2	The gamified activities make me forget the reality of the outside world.	3.080	0.069	
	IE3	I am absorbed in what I was playing.	3.311	0.065	
	IE4	My mind is immersed in the world of games.	3.274	0.068	

Constructs		Measurement items	Mean	S. D.	Reference
Purchase intention	PI1	I consider purchasing this product.	4.090	0.052	(Zhang et al., 2020)
	PI2	I have a desire to buy more products.	3.741	0.062	
	PI3	I have the inclination to purchase products.	3.712	0.055	

Table S3. Demographic distribution (N=212)

	Demographic variable	Frequency	Percentage
Gender	Male	73	34.4
	Female	139	65.6
Age	Less than 20	21	9.9%
	21~25	112	52.8%
	26~30	61	28.8%
	Above 30	18	8.5%
Education Background	Below undergraduate	27	12.8%
	Undergraduate	116	54.7%
	Postgraduation or above	68	32.5%
How long have you been experienced gamification in online shopping?	Less than 1 years	58	27.4%
	1~2 years	108	50.9%
	3~4 years	36	17.0%
	Above 4 years	10	4.7%

Table S4. CMV-CLC results

Relationships	CLC Estimation (Path coefficients) β0	Original PLS Estimates (Path coefficients) β1	CLC Estimation (t-value)	Original PLS Estimates (t-value)	Difference (β1-β0)
Connectiveness~ Immersive experience	0.094	0.093	1.85	1.88	0.001
Playfulness ~ Immersion	0.241	0.239	3.45***	3.60***	0.002
Novelty ~ immersion	0.188	0.189	3.07***	3.08***	0.001
Monetary rewardability ~ Immersion	0.437	0.437	7.95***	8.26***	0.000
Immersion~ Purchase intention	0.560	0.562	11.85***	12.07***	0.002

Table S5. Reliability and Convergent Validity

Loading	Estimate	Std. error	t-stat.	p-value	95% Confidence Interval		AVE	Cronbach's alpha	Dillon–Goldstein's ρ
Connectiveness (CO1)	0.860	0.023	37.156	0.000	0.809	0.898	0.709	0.897	0.924
CO 2	0.864	0.027	32.457	0.000	0.806	0.909			
CO 3	0.801	0.048	16.883	0.000	0.691	0.871			
Playfulness (PL1)	0.890	0.015	61.337	0.000	0.861	0.917	0.791	0.912	0.938

PL 2	0.886	0.018	50.570	0.000	0.847	0.915			
PL 3	0.890	0.015	60.137	0.000	0.859	0.916			
PL 4	0.891	0.014	64.175	0.000	0.862	0.916			
Novelty (NV1)	0.844	0.024	35.905	0.000	0.790	0.881			
NV 2	0.797	0.035	22.689	0.000	0.713	0.855	0.685	0.847	0.897
NV 3	0.838	0.025	34.021	0.000	0.784	0.880			
NV 4	0.830	0.021	38.872	0.000	0.783	0.867			
Monetary rewardability (RE1)	0.809	0.029	27.686	0.000	0.745	0.859			
RE 2	0.836	0.020	41.345	0.000	0.795	0.874	0.709	0.798	0.881
RE 3	0.859	0.023	37.680	0.000	0.810	0.898			
RE 4	0.872	0.019	47.112	0.000	0.832	0.904			
RE 5	0.833	0.025	33.985	0.000	0.780	0.876			
Immersive experience (IM1)	0.880	0.015	59.784	0.000	0.850	0.908			
IM 2	0.852	0.022	38.798	0.000	0.801	0.889	0.740	0.883	0.919
IM 3	0.870	0.020	44.571	0.000	0.827	0.904			
IM 4	0.837	0.026	32.600	0.000	0.783	0.881			
Purchase Intention (PI1)	0.741	0.048	15.405	0.000	0.626	0.815			
PI2	0.821	0.026	32.212	0.000	0.765	0.863	0.654	0.812	0.851
PI3	0.859	0.020	43.849	0.000	0.814	0.891			

Table S6. Heterotrait-monotrait ratio of correlations matrix (HTMT matrix)

	Connectiveness	Playfulness	Novelty	Monetary rewardability	Immersive experience	Purchase Intention
Connectiveness						
Playfulness	0.289					
Novelty	0.412	0.677				
Monetary rewardability	0.518	0.431	0.505			
Immersive experience	0.477	0.610	0.638	0.732		
Purchase Intention	0.516	0.285	0.479	0.591	0.669	

Table S7. Fornell-Larcker matrix

	Connectiveness	Playfulness	Novelty	Monetary rewardability	Immersive experience	Purchase Intention
Connectiveness	**0.709**					

Playfulness	0.062	**0.791**				
Novelty	0.115	0.359	**0.685**			
Monetary rewardability	0.198	0.159	0.200	**0.709**		
Immersive experience	0.169	0.302	0.313	0.434	**0.740**	
Purchase Intention	0.149	0.066	0.152	0.244	0.316	**0.654**