

Participation in Manipulative Online Sales Tactics (PMOST): Development and its Relationship with Cynicism, Regret, Impulsive Buying, and Self-Control

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ABSTRACT

Purpose –This study develops the Participation in Manipulative Online Sales Tactics (PMOST) scale and examines its associations with consumer cynicism, post-purchase regret, impulsive buying, and self-control. The study distinguishes consumers' exposure to manipulative online sales tactics from their behavioral participation in those tactics.

Design/methodology/approach –PMOST was developed using three independent convenience samples of adult Turkish online shoppers who met the eligibility criteria. Study 1 included 749 participants and produced a 26-item structure. One additional Promotions & Price item was introduced before Study 2, resulting in the final 27-item scale. Study 2 included 1,043 participants, and Study 3 included 1,707 participants. Exploratory and confirmatory factor analyses, reliability analyses, criterion-related analyses, and moderation analysis were conducted.

Results –Parallel analysis favored an eight-factor solution at the exploratory stages, whereas the theory-driven nine-factor solution showed small but consistent improvements in the independent CFA samples and retained the theoretical distinction between Trigger-based Tactics and Gamification & Entertainment. The final 27-item, nine-dimensional scale showed satisfactory reliability. The hypothesized mediation model involving consumer cynicism was not supported. A post hoc exploratory model indicated that PMOST was associated with cynicism both directly and indirectly through post-purchase regret. The interaction between impulsive buying and self-control was statistically significant but small and was opposite to the hypothesized direction.

Discussion –The findings support PMOST as a multidimensional measure of consumers' behavioral participation in manipulative online sales tactics. The mediation and moderation findings should be interpreted as cross-sectional associations and require replication using longitudinal or experimental designs.

1. INTRODUCTION

Manipulation is an intentional form of influence aimed at steering decisions in line with another party's interests, often by bypassing or constraining reflective evaluation (Rudinow, 1978; Susser et al., 2019). In digital settings, the boundary between persuasion and manipulation depends not only on whether a feature influences behavior, but also on whether it operates through hidden influence, asymmetrical choice architecture, deception, obstruction, or the exploitation of cognitive biases (Mathur et al., 2021).

Online platforms can embed these mechanisms in interface design, scarcity and urgency cues, social proof, personalized recommendations, payment facilities, and other features that structure consumers' choices (Gray et al., 2018; Mathur et al., 2019; Weinmann et al., 2016). Experimental evidence also indicates that some dark patterns can move consumers toward decisions they would not make in a more neutral choice environment (Luguri & Strahilevitz, 2021).

Findings in consumer behavior indicate that manipulative practices meaningfully shape perceptions of brands. In large-sample studies, Koukova et al. (2023) showed that retailers engaging in manipulative behaviors are perceived as less trustworthy and sincere, which in turn reduces consumer loyalty. Similarly,

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manipulative intent is defined as a brand's attempt to persuade consumers using inappropriate or unfair methods (Thomas et al., 2013), and this intent has been reported to negatively influence product perceptions, purchase intentions, and willingness to pay in digital content settings (Garaus et al., 2021).

In online environments, fake reviews and the selective presentation of reviews are among the most common forms of manipulation. A substantial proportion of participants believe that brands try to strengthen their image through fake online reviews; such practices undermine brand credibility and weaken purchase intentions (Mardumyan & Siret, 2023). Wang et al. (2023) reported that online review manipulation has increased on e-commerce platforms and that detecting fake reviews is negatively associated with product sales. In this sense, manipulation can be viewed as a "phishing" mechanism that may yield short-term benefits for firms while leading consumers to make harmful decisions (Akerlof & Shiller, 2015).

Although manipulative sales tactics may increase purchase motivation in the short term, they can weaken trust and retailer relationships when consumers perceive the underlying design as deceptive or unfair (Koukova et al., 2023; Voigt et al., 2021). Experimental evidence likewise indicates that dark patterns can increase consumers' acceptance of offers they would otherwise decline, although more aggressive designs may also provoke backlash (Luguri & Strahilevitz, 2021). These findings make manipulative online sales tactics relevant not only to immediate purchasing behavior but also to the development of skeptical and cynical marketplace evaluations (Helm et al., 2015; Kıcı, 2025). Recent scale-development research further supports moving beyond broad attitudinal evaluations to examine how specific consumption-related behaviors are structured, measured, and linked to downstream outcomes (Seo et al., 2026).

Manipulative review practices can lead consumers to question the credibility of e-WOM content and weaken trust in online shopping environments (Handoyo, 2024; Mardumyan & Siret, 2023). Sellers may shape consumer perceptions by highlighting positive reviews, filtering negative reviews, or generating deceptive reviews (Mathur et al., 2019; Wang et al., 2023).

Consumer vulnerability is not limited to a fixed demographic group; it can arise from individual, situational, and marketplace conditions that reduce consumers' control over decision making (Hill & Sharma, 2020). In online shopping, time pressure, social proof, personalized cues, and interface-based steering may intensify such vulnerability and increase the likelihood of unintended decisions (Luguri & Strahilevitz, 2021; Mathur et al., 2019). These conditions make it important to examine not only whether consumers encounter manipulative tactics, but also whether they change their behavior in response to them.

1.1. Manipulative Online Sales Tactics

Although empirical studies point to numerous manipulative practices in online marketing, the literature reviewed for this study consistently highlights ten recurring manipulative online sales tactics. These include promotion- and price-based steering, scarcity and urgency signals, loyalty and subscription practices, personalized recommendation systems, notification- and communication-based prompts, social proof and user reviews, payment and financial facilitation, gamification and entertainment elements, logistics and return convenience, and interface- and navigation-based steering.

Within PMOST, these tactics are conceptualized as manipulative because they are deployed as choice-steering mechanisms that capitalize on asymmetries, urgency, salience, reduced friction, or other contextual pressures and prompt behavior beyond the consumer's initial purchase plan. The retained items assess this behavioral participation through outcomes such as shopping more, accelerating a purchase decision, increasing purchase desire, or expanding a purchase beyond the original plan. A free-delivery threshold, for example, can induce consumers to add an otherwise unnecessary product, while installment facilities, loyalty rewards, personalized recommendations, return convenience, and gamified prompts can lower perceived cost or risk and steer consumers toward additional spending. PMOST therefore measures consumers' behavioral participation in manipulative online sales tactics, not mere exposure to or awareness of platform features.

H1. PMOST is a multidimensional construct comprising empirically distinguishable factors.

1.2. PMOST, Cynicism, and Regret

Consumer cynicism is commonly conceptualized as a tendency that strengthens suspicion that marketing messages and firm intentions may be opportunistic or self-interested. This suspicion may lead consumers to

evaluate persuasion attempts more critically and to develop stronger coping strategies against steering attempts. Meta-analytic evidence indicates that the activation of persuasion knowledge is associated with more critical evaluations of marketers' actions and stronger coping strategies (Eisend & Tarrahi, 2022). In addition, a recent review on consumer suspicion emphasizes that suspicion, together with more deliberate information search and cautious processing, can attenuate automatic or heuristic responses to persuasive stimuli (Panigyraki & Polyportis, 2024).

Within this framework, because cynical consumers are more likely to interpret manipulative online sales tactics as persuasion attempts, their level of participation in these tactics (PMOST) may be expected to be lower. Reduced participation could in turn decrease post-purchase regret by lowering the likelihood of risky or subsequently negatively evaluated purchase decisions. Accordingly, cynicism may be indirectly associated with regret through PMOST, yielding a testable mediation assumption. This theoretical account is also consistent with recent evidence showing that cynicism can increase skepticism toward sales tactics and that skepticism can make evaluations of advertising more negative (Kiçir, 2025).

H2. Consumer cynicism is negatively associated with PMOST.

H3. PMOST is positively associated with post-purchase regret.

H4. Consumer cynicism is negatively associated with post-purchase regret.

H5. PMOST mediates the relationship between consumer cynicism and post-purchase regret.

1.3. PMOST, Impulsive Buying, and Self-Control

In online contexts, impulsive buying is typically conceptualized as a purchase tendency grounded in momentary affect and intuitive processing that shortens the decision-making process. Scarcity cues, social proof, personalized recommendations, and other online stimuli have been shown to intensify purchase intentions and impulse-related responses (Ahn & Lee, 2024; Ladeira et al., 2023; Zhao et al., 2022; Zhao et al., 2025). Therefore, as impulsive buying increases, individuals may be expected to participate more frequently in manipulative online sales tactics (i.e., higher PMOST).

In this relationship, self-control may function as a protective mechanism that limits the translation of impulsive tendencies into behavior. Higher self-control enables individuals to regulate conflicts between short-term pleasures and long-term goals more effectively and weakens impulsive purchase behavior (de Ridder et al., 2012; Gillebaart & Schneider, 2024). Thus, the impulsive buying–PMOST association may be expected to be weaker among individuals with higher self-control.

H6. Impulsive buying is positively associated with PMOST.

H7. Self-control is negatively associated with impulsive buying and PMOST.

H8. Self-control attenuates the relationship between impulsive buying and PMOST.

1.4. This Study

While existing literature has primarily addressed manipulation through perceptual and ethical dimensions, no measurement tool was identified that can directly assess the extent of consumers' behavioral participation in manipulative sales tactics. Yet, exposure to manipulative tactics and participating in those tactics are not the same. In digital environments in particular, coupons and discounts, scarcity–urgency signals, social proof messages, and financial facilitation can accelerate decision processes for some consumers and increase unplanned spending.

In this study, we developed an instrument to assess consumers' participation levels in manipulative online sales tactics (PMOST) and examined how such participation relates to selected consumption behaviors. Accordingly, PMOST is expected to fill an important gap as a structured self-report measure and to provide a basis for research and interventions that can support consumer well-being by helping identify risky tendencies at an early stage.

2. METHOD

2.1. Participants and Procedure

The study was conducted with three independent samples using convenience sampling. Across all studies, inclusion criteria were being 18 years or older, residing in Turkey, having Turkish literacy, owning a personal credit card, and having made at least one online purchase via a browser or mobile application within the past year. Personal credit-card ownership was included because the Payment & Financial dimension contained an item assessing card-specific installment and reward offers, and participants therefore needed direct experience with such facilities. Accordingly, the findings should be generalized to adult Turkish online shoppers who met these eligibility criteria rather than to all online consumers. Participants who did not provide informed consent, did not meet the eligibility criteria, or met the exclusion criteria described below were excluded. Data were collected through online questionnaires administered via Google Forms. Survey links and QR codes were distributed voluntarily through Instagram, X, Facebook, LinkedIn, WhatsApp groups, and email. In Study 1, some participants were also recruited face to face on university campuses and in nearby social spaces. No monetary incentives were provided.

To ensure sample independence, each study targeted distinct participant pools and recruitment channels. Study 1 primarily included university students from two cities in Northern and Eastern Turkey, Study 2 consisted of students from a university in Central Turkey, and Study 3 included students from universities across multiple regions of Turkey, mainly recruited via Instagram.

In Study 2 and Study 3, participants were asked whether they had previously seen or completed the PMOST items, and those reporting prior participation were instructed not to proceed.

After data screening, analyses were conducted on 749 participants in Study 1, 1,043 participants in Study 2, and 1,707 participants in Study 3. In Study 2, the sample was randomly split into two subsamples, with 520 participants used for exploratory factor analysis and 523 for confirmatory factor analysis. Participants under 18 years of age and those with standardized total scores $|z| > 3.29$ were excluded (Tabachnick & Fidell, 2019). The available study records did not permit a reliable retrospective reconstruction of the numbers of individuals who initially accessed the questionnaires or were removed at each screening stage; therefore, only the final analytic sample sizes are reported. There were no item-level missing values in the final analytic datasets; therefore, no imputation was performed. The retained analytic files did not contain response-time metadata or a separate duplication log, so these screening details could not be reconstructed retrospectively.

2.2. Measures

The Scale of Participation in Manipulative Online Sales Tactics (PMOST): The items of the scale were developed to assess consumers' behavioral participation in manipulative sales tactics encountered during online shopping. Items were generated from conceptual frameworks and empirical research on online marketing, persuasion, manipulation strategies, and platform-based choice architecture. Exploratory and confirmatory factor analyses indicated that PMOST has a multidimensional structure. Items are rated on a 5-point Likert scale (1 = not at all true of me, 5 = completely true of me), and the scale contains no reverse-scored items. Subscale scores represent participation in distinct tactics. In the criterion-related analyses, the total score was used as an aggregate indicator of participation across these tactics and should not be interpreted as evidence that PMOST is strictly unidimensional. Higher scores indicate greater participation in manipulative online sales tactics.

Cynicism (Consumer Cynicism Scale): The 8-item instrument developed by Helm et al. (2015) to assess consumers' generalized beliefs that marketing practices lack honesty and are opportunistic was adapted to Turkish culture by Göktaş (2019). Responses (e.g., "Most businesses are more interested in making profits than in serving consumers") are rated from 1 to 5 (1=strongly disagree, 5=strongly agree). Total scores range from 8 to 40, with higher scores indicating higher consumer cynicism. Cronbach's α was reported as .83–.92 in the original study and .806 in the adaptation study; in the current sample, Cronbach's α = .893.

Regret (Post-Purchase Consumer Regret Scale): The scale developed by Lee and Cotte (2009) to examine post-purchase consumer regret has a four-factor structure (16 items total), with two factors reflecting process regret and two factors reflecting outcome regret, each comprising four items. In this study, the eight items comprising

the outcome regret domain, namely foregone alternatives and a change in significance, were used because the criterion-related analysis focused on consumers' negative evaluations of the purchased outcome and the alternatives they had forgone. The process regret dimensions concern the amount and quality of deliberation preceding the decision and therefore fell outside the specific outcome examined in this study. The scale was adapted to Turkish culture by Güney and Kocamaz (2018). Items (e.g., "If I were to go back in time, I would choose something different to buy") are rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Total scores range from 8 to 40, with higher scores indicating higher post-purchase regret. Composite reliability values for foregone alternatives and a change in significance were .929 and .885, respectively, and Cronbach's α values in the adaptation study were $\alpha=.841$ and .842. In the current sample using the total score, Cronbach's $\alpha = .899$.

Impulsive buying (Buying Impulsiveness Scale): The scale developed by Rook and Fisher (1995) is a single-factor, 9-item measure designed to assess individuals' general tendency toward unplanned and spontaneous purchasing. The scale was translated into Turkish by Altıngül (2015) and adapted to the online shopping context. Items (e.g., "I often buy things without thinking") are rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree); one item is reverse-scored ("I carefully plan most of my purchases"). Total scores range from 9 to 45, with higher scores indicating higher impulsive buying. Cronbach's α was reported as .88 in the original development study, .916 in Altıngül's (2015) study, and .925 in the current sample. Although Altıngül (2015) examined the factor structure of the Turkish version, that study did not report the estimation method or detailed fit indices. The structure was therefore re-tested with CFA in the present sample. A single residual covariance between Items 1 and 2 was specified after inspection of the CFA results because both items describe closely related forms of spontaneous and unplanned purchasing. This data-informed local specification was not prespecified or independently cross-validated and should therefore be interpreted cautiously (DWLS; CFI = .998, TLI = .997, RMSEA = .067, SRMR = .032; factor loadings = .67-.90).

Self-control (Consumer Spending Self-Control Scale): The scale developed by Haws et al. (2012) is a single-factor, 10-item measure designed to assess consumers' ability to monitor and regulate spending-related thoughts and decisions in line with self-set standards. The scale was adapted to Turkish culture by Yener (2020). Items in the Turkish version (e.g., "I carefully consider my needs before making purchases") are rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Total scores range from 10 to 50, with higher scores indicating higher self-control. Cronbach's α was reported as .93 in the development study, $\alpha=.930$ in the adaptation study, and $\alpha=.934$ in the current sample.

2.3. Item Generation

Scale items were generated based on theoretical frameworks and recent empirical studies addressing manipulative sales and persuasion tactics used in online shopping environments. Prior studies focusing on price and promotion strategies, scarcity and urgency cues, loyalty and membership programs, personalization and recommendation systems, notification and communication, social proof and user reviews, payment and financing facilitation, gamification, logistics and return policies, and steering through interface and navigation design were reviewed, and items were developed to represent behavioral participation in each tactic. In the initial step, 37 items were generated under ten literature-based factors and refined to preserve content validity and clarity, preparing the pool for pilot testing (Appendix Table A1).

The item-generation review was integrative and theory-guided rather than a systematic evidence synthesis. Relevant sources were identified primarily through Web of Science and Google Scholar before the initial item pool was finalized in 2025. Searches used combinations of the terms manipulative online sales tactics, online sales tactics, digital persuasion, dark patterns, deceptive design, online choice architecture, scarcity, urgency, social proof, personalized recommendations, loyalty programs, payment facilitation, gamification, free shipping, returns, interface design, and online consumer behavior. The review was organized around recurring online sales mechanisms, including pricing and promotion, scarcity and urgency, loyalty and membership, personalization and recommendation, notification and communication, social proof and reviews, payment facilitation, gamification, logistics and returns, and interface-based steering. Its purpose was to obtain broad conceptual coverage for item generation rather than to conduct a systematic review or estimate effects.

The drafted items were first reviewed by two researchers holding PhDs in Turkish language studies in terms of comprehensibility, clarity, and linguistic appropriateness, and were revised accordingly. Following agreement on the linguistic revisions, a researcher holding a PhD in consumer behavior and marketing evaluated the item pool in terms of content coverage and theoretical alignment. These reviews were qualitative and were used to refine item wording and content coverage; they were not conducted as a formal quantitative content-validity study, and CVR and CVI coefficients were therefore not calculated. The draft scale was then administered in a pilot study. Although participants suggested additional tactics, such as influencer codes and shopping credits offered by platforms, supplementary evaluations indicated limited prevalence of these practices, and they were therefore not included in the draft scale.

2.4. Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 26 and JASP version 0.95.4. The estimation method and rotation procedure used at each analytic stage are reported in the corresponding sections and table notes. Data analysis proceeded in multiple stages. First, in Study 1, exploratory factor analysis (EFA) based on parallel analysis (PA) and principal axis factoring (PAF) was conducted using data from 749 participants to examine the initial factor structure. Second, in Study 2, data from 1,043 participants were randomly split into two subsamples: 520 for EFA and 523 for confirmatory factor analysis (CFA). In both subsamples, an 8-factor (8F) baseline model and a theoretically specified alternative 9-factor (9F) solution were tested. In addition, the full Study 2 dataset ($N = 1,043$) was used in mediation analyses examining associations among PMOST, cynicism, and regret. Third, in Study 3, measurement models were re-tested via CFA in a larger sample, and the moderating role of self-control in the association between impulsive buying and PMOST was examined. The predictors were analyzed in their original metric, and conditional effects were estimated at low, mean, and high levels of self-control, corresponding to -1 SD, the mean, and +1 SD.

In EFAs, sample adequacy was evaluated using KMO and Bartlett's tests, and factor retention was examined through parallel analysis. Most factors were represented by at least three items. Sample sizes across studies were adequate according to MacCallum et al. (1999), and the CFA samples exceeded Kline's (2016) recommended criterion of $N \geq 200$. Parallel analysis in Study 1 suggested an eight-factor solution. Because Trigger-based Tactics and Gamification & Entertainment represented theoretically distinct persuasion mechanisms, a nine-factor solution was specified before the Study 2 analyses and compared with the eight-factor solution in Study 2 and Study 3. The two structures were treated as competing plausible models. Model preference was based on relative fit, parsimony, theoretical interpretability, and replication across the independent CFA samples.

3. RESULTS

3.1. Study 1: Exploratory Factor Analysis

In the EFA, Principal Axis Factoring (PAF) was used because it separates error variance and is relatively robust to violations of normality; given the expected correlations among factors, oblimin rotation was preferred (DeVellis & Thorpe, 2021; Hair et al., 2021; Howard, 2016). The factor-loading cut-off was set at .40; items below this threshold were excluded, yielding a 26-item solution. No meaningful cross-loadings were observed (Table 1).

Table 1. EFA results

Study 1 (N=749)						Study 2 (N=520)				
Factors (Tactics)	Item	Loadi ng	Uniquen ess	Unrota ted EV	Rotate d Prop. Var.	Item No	Loadi ng	Uniquen ess	Unrota ted EV	Rotate d Prop. Var.
F1 - Trigger-based tactics (Tb)	34. I participate in campaigns prompted by pop-up windows on the platform.	.567	.345	.297	.058	25	.611	.365	.298	.054
	35. Opportunity messages that appear whenever I open the platform lead me to make purchases.	.548	.414	.297	.058	26	.481	.454	.298	.054
	36. When I abandon my cart, reminder messages from the platform increase my desire to purchase.	.542	.361	.297	.058	27	.482	.395	.298	.054
F2 - Gamification & Entertainment (G&E)	29. When I participate in competition/game-style campaigns organized by the platform, my tendency to shop increases.	.505	.299	1.747	.084	23	.813	.204	.543	.068
	30. Gamified features on the platform (e.g., “completing tasks” or “collecting points”) encourage me to shop more.	.441	.340	1.747	.084	24	.591	.252	.543	.068
	28. Features on the platform such as sweepstakes or a “gift wheel” motivate me to shop.	.420	.346	1.747	.084	22	.583	.329	.543	.068
F3 - Logistics & Return (L&R)	31. The platform offering options such as easy returns or doorstep returns increases my confidence to shop.	.849	.277	10.700	.091	19	.778	.267	2.077	.093
	32. The fast-delivery option on the platform affects my purchase decision.	.833	.273	10.700	.091	20	.735	.292	2.077	.093
	33. Knowing that the platform will accept returns free of charge makes me shop more.	.725	.356	10.700	.091	21	.873	.185	2.077	.093
F4 - Loyalty & Subscription (L&S)	12. When I join the platform’s points/rewards system, I tend to shop more.	.753	.218	1.216	.082	8	.735	.223	1.065	.078
	11. I consider becoming a paid premium member of the platform to benefit from more campaigns.	.550	.505	1.216	.082	7	.639	.452	1.065	.078

		Study 1 (N=749)				Study 2 (N=520)				
Factors (Tactics)	Item	Loading	Uniqueness	Unrotated EV	Rotated Prop. Var.	Item No	Loading	Uniqueness	Unrotated EV	Rotated Prop. Var.
F5 - Scarcity & Urgency (S&U)	13. The benefits the platform offers frequent shoppers encourage me to shop.	.493	.358	1.216	.082	9	.559	.265	1.065	.078
	6. When I see alerts on the platform such as “Last 1 item!” or “Last 2 items!”, I buy the product quickly.	.932	.194	.852	.074	4	.843	.210	.745	.075
	7. When I see a countdown timer for a product price on the platform, I speed up my purchase decision.	.633	.341	.852	.074	5	.559	.354	.745	.075
	8. Messages on the platform such as “X people are viewing this product right now” persuade me to buy.	.468	.507	.852	.074	6	.425	.427	.745	.075
F6 - Payment & Financial (P&F)	24. The installment options offered by the platform make it easier for me to shop.	.805	.264	.763	.071	16	.892	.193	11.158	.102
	25. The “buy now, pay later (installment deferral)” option offered by the platform speeds up my purchase decision.	.696	.327	.763	.071	17	.843	.167	11.158	.102
	4. I try to take advantage of offers on the platform that are specific to my credit card (e.g., installments at the cash price/bonus points).	.673	.526	.763	.071	18	.831	.217	11.158	.102
F7 - Social Proof & Reviews (SP&R)	21. I tend to prefer products that I see many people have bought on the platform.	.816	.271	.560	.070	14	.851	.218	.662	.074
	22. The platform providing information such as “X people bought this product before you” influences me.	.623	.386	.560	.070	15	.593	.401	.662	.074
	20. A product’s high rating and large number of reviews on the platform make my purchase decision easier.	.597	.469	.560	.070	13	.593	.348	.662	.074
F8 - Personalization & Recommendation	15. When I add a product to my cart, I consider the complementary product	.617	.458	.498	.067	11	.796	.283	1.748	.084

Factors (Tactics)	Item	Study 1 (N=749)				Study 2 (N=520)				
		Loading	Uniqueness	Unrotated EV	Rotated Prop. Var.	Item No	Loading	Uniqueness	Unrotated EV	Rotated Prop. Var.
n Systems (P&RS)	recommendations shown by the platform.									
	14. The platform's "Selected for you" recommendations catch my interest and make shopping easier for me.	.530	.368	.498	.067	10	.658	.390	1.748	.084
	16. Seeing products I previously viewed shown to me again on the platform increases my desire to purchase.	.521	.471	.498	.067	12	.668	.404	1.748	.084
F9 - Promotions & Price (P&P)	1. Discount coupons offered by the platform I shop on encourage me to shop.	.808	.247	.404	.058	1	.748	.342	.519	.067
	2. Campaigns on the platform such as "buy one, get the second at a discount" or "3 for the price of 2" increase my desire to purchase.	.664	.450	.404	.058	2	.632	.435	.519	.067
	* When I see an extra discount specifically for my cart on the platform, I speed up my purchase decision.	—	—	.404	.058	3*	.468	.512	.519	.067

*: Added later as Item 3 in Study 2 and Study 3.

Assumption checks indicated strong sampling adequacy ($KMO=.941$; Bartlett $\chi^2(325)=11668.081$, $p < .001$), and the overall model test was significant ($\chi^2=434.174$, $df=145$, $p < .001$). PA results showed that only the first eight empirical eigenvalues exceeded the simulation-based eigenvalues.

Although parallel analysis favored an 8F solution, we also extracted a theory-driven 9F solution by separating Tb and G&E; this structure was carried forward for subsequent model comparisons (Table 2). In the rotated 8F solution, factor contributions to variance ranged from .064 to .095, and the total explained variance was 64%. Model fit was good ($RMSEA=.052$, 90% CI [.046–.057]; $SRMR=.015$; $CFI=.975$; $TLI=.942$). In the 8F solution, the P&P dimension, composed of two items, showed high factor loadings (.808; .664) and acceptable internal consistency ($\alpha=.771$; $\omega=.756$). Therefore, to strengthen measurement, one additional item was added to this factor and a three-item structure was tested in subsequent studies.

Although Tb and G&E combined under a single factor in the EFA, their content and theoretical definitions correspond to different persuasion mechanisms; therefore, this distinction was further tested in confirmatory analyses. Inter-factor correlations are presented in Appendix Table A2.

3.2. Study 2: Factor Structure Refinement and Validation

Building on the exploratory findings of Study 1, Study 2 refined the factor structure of the scale and compared the 8F and 9F solutions using EFA and CFA across independent subsamples. To strengthen the measurement of the Promotions & Price (P&P) dimension, one additional item was introduced and the EFA was re-estimated using PAF with oblimin rotation ($KMO=.918$; Bartlett's $\chi^2(351)=9924.47$, $p < .001$). Parallel analysis supported an 8F solution, explaining 68.2% of the variance, with the added P&P item showing adequate factor loading.

Evidence from the exploratory analyses was mixed. The nine-factor solution showed better RMSEA, SRMR, CFI, TLI, and explained variance values in Study 1 and Study 2, whereas the Study 2 EFA BIC value favored the eight-factor solution. In the independent CFA subsample of Study 2 (N = 523) and in Study 3, the nine-factor model showed small but consistent improvements over the eight-factor model in CFI, TLI, RMSEA, and SRMR. The nine-factor structure was therefore retained on the combined basis of replicated CFA fit and the theoretical distinction between Trigger-based Tactics and Gamification & Entertainment, rather than on BIC alone.

Although the χ^2 difference between freely estimated and constrained models was statistically significant, χ^2 -based comparisons under robust WLSMV estimation are known to be sensitive to sample size and scaling. Therefore, model selection relied primarily on changes in relative fit indices (CFI, TLI, RMSEA, SRMR) and substantive interpretability. Constraining the covariance between Trigger-based Tactics and Gamification & Entertainment resulted in a statistically significant deterioration in model fit. This result was treated as supporting, but not independently establishing, the empirical distinction between the two dimensions. The DIFFTEST result was therefore interpreted together with the relative fit indices, factor correlations, HTMT values, and the theoretical content of the factors.

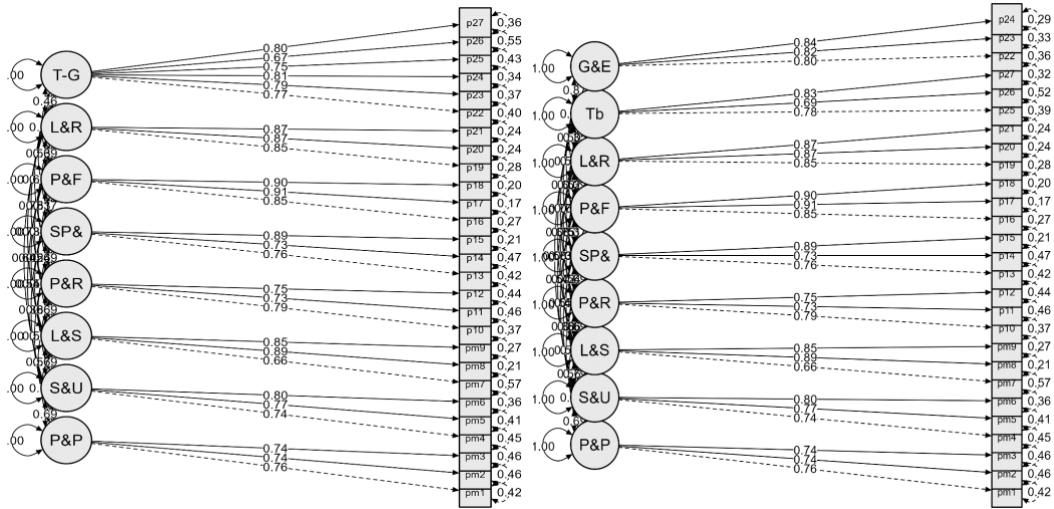
Table 2. EFA and CFA model comparisons for the 8F and 9F solutions across samples

Sample	Model	Explained Variance	RMSE A	SRM R	CFI	TLI	BIC	χ^2/df	DIFFTEST p (Tb vs G&E)	HTMT (Tb, G&E)
Study 1 749 (26 items, EFA)	8F	.640	.052	.015	.975	.942	-525.543	434.174/145	—	—
	9F	.655	.038	.011	.988	.969	-578.907	261.673/127	.025	.864
Study 2 520 (27 items, EFA)	8F	.682	.075	.018	.950	.892	-380.065	639.309/163	—	—
	9F	.697	.071	.015	.960	.902	-374.582	525.969/144	<.001	.907
Study 2 523 (27 items, CFA)	8F	—	.073	.056	.933	.921	—	1130.343/296	—	—
	9F	—	.072	.054	.937	.924	—	1068.970/288	<.001	.863
Study 3 1707 (27 items, CFA)	8F	—	.071	.046	.945	.934	—	2847.557/296	—	—
	9F	—	.068	.044	.951	.940	—	2548.972/288	<.001	.859

DIFFTEST p (Tb vs G&E) values are reported as χ^2 difference tests between freely estimated and covariance-constrained models and are interpreted in conjunction with relative fit indices.

Detailed factor loadings, AVE, CR, and Fornell-Larcker results are presented in Appendix Table A3. AVE and CR values supported convergent validity across factors. However, the Fornell-Larcker criterion was not met for Tb and G&E in either CFA sample or for P&RS in Study 2. Thus, discriminant validity was not uniformly established and was evaluated together with HTMT, model-comparison results, and the theoretical content of the factors.

Figure 1. First-order CFA models for 8F and 9F solutions



Note. Std. estimates(β); WLSMV; all paths $p < .05$

3.3. Criterion-Related Validity

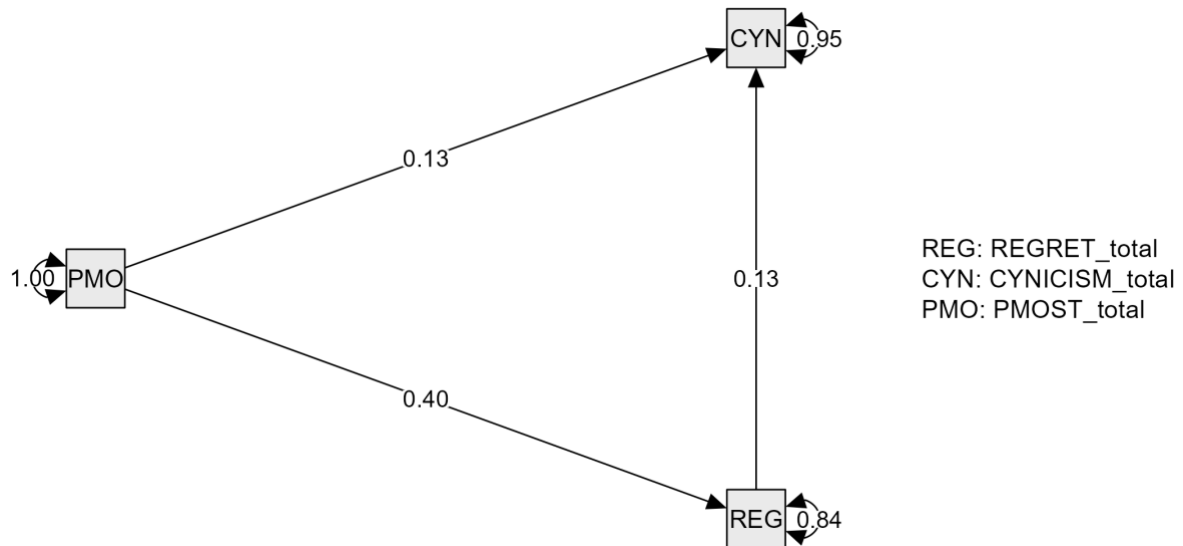
Because the association between PMOST and cynicism was positive, contrary to expectation ($r = .187, p < .001$), the planned directional model was not supported. We therefore tested a post hoc exploratory model in which cynicism was specified as an outcome associated with PMOST. In the full Study 2 sample ($N = 1,043$), PMOST was positively associated with regret ($B = .143, SE = .010, t = 14.07, p < .001, \beta = .400$). When regret was included in the model, the regression coefficients for regret ($B = .126, SE = .032, t = 4.00, p < .001, \beta = .132$) and PMOST ($B = .046, SE = .011, t = 4.06, p < .001, \beta = .134$) in relation to cynicism remained significant. The estimated indirect association was also significant ($B = .018, SE = .005, 95\% \text{ CI } [.009, .028], \beta = .053$). The model explained 16% of the variance in regret and approximately 5% of the variance in cynicism. Because the data were cross-sectional, this statistical mediation pattern does not establish temporal or causal ordering.

Table 3. Mediation analysis results for the criterion validity model ($N = 1,043$)

Path / Estimate	B	SE	t	p	β	95% CI (B)	R ²
a: PMOST→Regret	.143	.010	14.070	<.001	.400	–	.160
b: Regret→Cynicism	.126	.032	4.004	<.001	.132	–	–
c': PMOST→Cynicism (direct)	.046	.011	4.057	<.001	.134	–	.049
c (total): PMOST→Cynicism	.064	.010	6.128	<.001	.187	–	–
Indirect (a×b): PMOST→Regret→Cynicism	.018	.005	–	–	.053	[.009, .028]*	–

*: 95% bootstrap CI (5000 samples). β : standardized coefficient. SEs are based on robust MLR estimation. All tests are two-tailed ($\alpha = .05$).

Figure 2. Mediation results



3.4. Reliability

Scale reliability was evaluated across three independent samples. Cronbach's α and McDonald's ω coefficients and inter-item correlations are presented in Appendix Table A4 together with the corresponding descriptive statistics.

To examine temporal stability, test-retest reliability was evaluated in a subset of Study 2 participants ($N=131$), administered between 30.09.2025–07.10.2025; 113 participants were reached again approximately one month later (04.11.2025–09.11.2025), and coefficients were computed for 96 participants whose pseudonyms matched exactly (Appendix Table A5).

3.5. Study 3: Confirmatory Re-Validation and Moderation Analysis

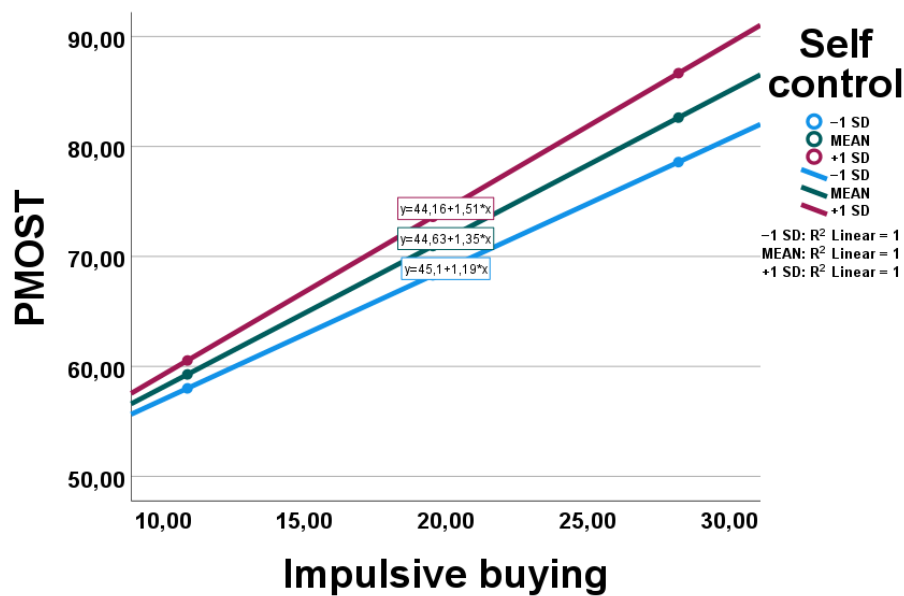
Following the model selection finalized in Study 2, the selected 9F structure was re-tested via CFA in a large independent sample in Study 3, and subsequently extended by examining the moderating role of self-control in the relationship between impulsive buying and PMOST. In Study 3, the 8F and 9F solutions of PMOST were re-tested via CFA, and the results are reported in Table 2. Because the χ^2 statistic is sensitive to sample size, particularly under robust WLSMV estimation with ordinal indicators, model evaluation was based primarily on CFI, TLI, RMSEA, and SRMR (Gazeloğlu & Greenacre, 2020; Kline, 2016). The χ^2/df values are reported descriptively in Table 2 and were not used as the primary criterion for model selection.

After establishing the measurement models, we examined whether self-control moderated the association between impulsive buying and PMOST. The overall model was significant and accounted for 27.9% of the variance in PMOST ($R = .528$, $R^2 = .279$, $F(3, 1703) = 219.724$, $p < .001$). The interaction between impulsive buying and self-control was statistically significant ($b = .017$, $SE = .005$, 95% CI [.008, .027], $p < .001$), and its contribution to explained variance was small ($\Delta R^2 = .006$, $F(1, 1703) = 13.707$, $p < .001$). The positive association between impulsive buying and PMOST was significant at low, mean, and high levels of self-control, as reported in Table 4 and illustrated in Figure 3. Because the direction of the interaction was contrary to H8 and its incremental contribution was small, the finding was interpreted cautiously.

Table 4. Moderation of self-control in the relationship between impulsive buying and PMOST

Factor	b	SE	t	p	LLCI	ULCI
Constant	46.420	3.977	11.673	<.001	38.620	54.220
Impulsive buying	.742	.159	4.669	<.001	.431	1.054
Self-control	-.051	.105	-.489	.625	-.258	.155
Impulsive buying × Self-control	.017	.005	3.702	<.001	.008	.027
Conditional effects (Impulsive buying → PMOST)						
Self-control (-1 SD = 25.574)	1.187	.061	19.515	<.001	1.067	1.306
Self-control (Mean = 34.797)	1.347	.054	24.713	<.001	1.240	1.454
Self-control (+1 SD = 44.019)	1.507	.077	19.480	<.001	1.355	1.658

Figure 3. The moderating role of self-control in the relationship between impulsive buying and PMOST



3.6. Socio-Demographic Differences in Total Scale Scores

Differences in scale scores across socio-demographic groups were examined using independent-samples t tests and one-way analysis of variance. Group comparisons were conducted separately for each study sample based on gender, age group, marital status, purchase frequency, purchase amount, income level, and educational attainment. Detailed results, including group means, standard deviations, sample sizes, and test statistics, are reported in Appendix Table A6.

4. DISCUSSION

Empirical results suggested that one item initially drafted for the P&P domain was more strongly associated with the P&F dimension, and that the navigation & interface tricks items clustered thematically around a triggering function. In the current form of the scale, this factor was therefore relabeled as Trigger-based tactics (Tb). By contrast, the failure to recover the notification & communication tactic in the draft structure was attributed to the fact that two of its items relied on external and discontinuous contact (Items 17 and 18) and that one item (Item 19) overlapped with a content-similar item (Item 34) that loaded on the Tb factor.

Although the theoretical model was initially designed with ten dimensions, parallel analysis and the rotated solutions indicated that the data were more parsimoniously represented by eight or nine dimensions. Across the independent CFA samples, the 9F model showed small but consistent fit advantages over the 8F model, while the 8F solution remained a plausible alternative.

The exploratory PMOST-regret-cynicism pattern is consistent with the distinction between behavioral participation and cognitive marketplace attitudes. PMOST was associated with post-purchase regret, and regret was in turn associated with consumer cynicism in the tested statistical model. However, the measurement sequence and cross-sectional mediation analysis cannot determine whether participation preceded regret or whether regret subsequently strengthened cynical beliefs. The finding should therefore be interpreted as an exploratory pattern of associations rather than as evidence of a causal process (Maxwell & Cole, 2007).

Study 3 also yielded a noteworthy finding: self-control strengthened the relationship between impulsive buying and PMOST. Although correlation analyses indicated that self-control was negatively associated with both impulsive buying and PMOST, the moderation analysis showed that the positive association between impulsive buying and PMOST became stronger as self-control increased. The additional variance explained by the interaction was small ($\Delta R^2 = .006$), and the finding should therefore be interpreted cautiously. This apparently contradictory pattern can be considered within contemporary dual-process and self-regulation models, which propose that self-control is not a fixed protective mechanism that suppresses impulses under all conditions, but may operate as a context-sensitive and flexible regulatory process (Hofmann et al., 2009; Inzlicht et al., 2014; Inzlicht et al., 2021). From this perspective, higher self-control may not always eliminate impulsive tendencies. In some online shopping contexts, it may accompany a more deliberate use or rationalization of platform-based tactics that are perceived as useful, financially advantageous, or consistent with consumers' shopping goals. This interpretation does not imply that self-control is generally a risk factor for problematic online shopping.

The finding can also be considered through the lens of cognitive dissonance theory (Festinger, 1957). Individuals with a higher perceived sense of self-control may preserve their belief that they remain in control by framing an impulsive purchase as planned, advantageous, or justified. Unplanned and impulsive purchases in digital environments may nevertheless be followed by cognitive dissonance and post-purchase regret (Aykut, 2025). At an allegorical level, a psychodynamic framework offers a parallel interpretation in which impulsive buying reflects pleasure-oriented demands, self-control reflects the regulatory function of the ego, and PMOST reflects the behavioral channel through which these competing tendencies are expressed (Freud, 1923/1961). Rather than suppressing every impulse, ego functions may organize or justify the manner in which an impulse is acted upon. However, the present study did not directly measure cognitive dissonance, rationalization, or psychodynamic mechanisms. These explanations therefore remain theoretical interpretations that require direct examination in future research.

Overall, findings across three independent samples indicate that problematic online shopping tendencies exhibit a coherent structural pattern not only at the level of PMOST but also in relation to the accompanying variables examined. While PMOST, regret, and impulsive buying clustered around similar risk profiles, self-control occupied the opposing pole of this structure. Prior research likewise suggests that low self-control is strongly associated with impulsive buying, particularly among young adults (Jain et al., 2023; Nyrhinen et al., 2023), and that persuasive stimuli encountered online, such as digital advertising and social media content, can increase impulsive buying tendencies among individuals with low self-control (Nyrhinen et al., 2024). Higher risk levels among women, younger age groups, single individuals, and those shopping more frequently and in higher amounts suggest that problematic online shopping may be more strongly tied to behavioral intensity and self-regulation processes than to socio-demographic factors per se (S. Kumar et al., 2024). The absence of meaningful differences in PMOST and related constructs across income levels further indicates that PMOST is more closely linked to psychological and behavioral processes than to economic capacity. The relatively limited differentiation in cynicism and its non-linear pattern across graduation levels may suggest that this dimension reflects more cognitive and comparatively stable attitudes rather than problematic shopping behaviors. Taken together, these findings across three samples support the criterion-related validity of PMOST and indicate that self-control and impulsive buying are relevant correlates of participation in manipulative online sales tactics. Whereas recent scale-based studies have primarily linked newly developed measures to evaluative outcomes such as perceived value or satisfaction (Seo et al., 2026), the present study extends this line of research by examining behavioral participation in relation to regret, impulsive buying, and consumer cynicism.

4.1. Practical Implications

PMOST may help researchers identify which platform-based tactics are most strongly associated with consumers' self-reported increases in shopping, accelerated purchase decisions, and heightened purchase desire. Its multidimensional structure may also assist consumer-protection bodies and platform auditors in comparing behavioral participation across promotion, scarcity, social proof, financial facilitation, personalization, logistics, loyalty, gamification, and trigger-based practices. PMOST is not intended as a clinical diagnostic instrument or as a direct measure of exposure. Rather, it provides a standardized measure of consumers' behavioral participation that may support future evaluations of consumer-awareness programs and changes in online choice architecture.

4.2. Limitations and Future Research Directions

Although the nine-factor structure was replicated across the independent CFA samples, this study has several limitations. First, manipulative online sales tactics are inherently dynamic and evolve alongside technological innovations and shifting consumer expectations. Accordingly, future research should identify emerging tactics and reassess the stability of the PMOST factor structure across changing digital contexts.

Second, the study was conducted within the Turkish cultural setting, which may limit the generalizability of the findings. Cross-cultural validations are necessary to examine whether the observed structure and relationships replicate across different cultural and marketplace environments.

Third, the cross-sectional survey design precludes conclusions about temporal or causal ordering. Although theoretically informed hypotheses were tested, the mediation and moderation findings represent statistical associations observed at one point in time. Cross-sectional mediation estimates may differ from the longitudinal processes they are intended to represent (Maxwell & Cole, 2007). Longitudinal, experimental, or intervention-based studies are therefore needed to examine whether participation in manipulative tactics precedes regret and whether regret is subsequently associated with changes in consumer cynicism.

Fourth, reliance on self-report measures introduces potential social desirability, retrospective, and common-method biases. Because the variables were measured within the same survey context and no marker variable or latent method factor was included, the contribution of shared method variance cannot be ruled out (Podsakoff et al., 2003). Future studies should combine self-report measures with behavioral data, platform records, or experimental observations.

Finally, although the nine-factor structure was reproduced across independent samples, formal measurement invariance and incremental validity against adjacent constructs were not examined. Future studies should test invariance across cultural and demographic groups, further examine the dimensional basis of the total score, and compare PMOST with constructs such as deal proneness, promotion susceptibility, compulsive buying, perceived manipulative intent, and digital literacy. Such evidence is needed before making stronger general-factor or between-group claims.

DECLARATIONS

Generative AI Statement: DeepL was used solely for language translation and proofreading purposes during the preparation of the manuscript. No AI-assisted tool was used for the conceptualization of the study, research design, data collection, data analysis, interpretation of the findings, or generation of the scientific content. The authors reviewed and approved all language-related revisions and take full responsibility for the final content of the manuscript.

Author Contribution Statement (CRediT): İhsan AKEREN: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Visualization, Writing - original draft, Writing - review & editing, Project administration. Bora GÖKTAŞ: Investigation, Writing - original draft. İhsan AKEREN was responsible for the conceptual development and overall preparation of the study, data organization and management, data collection, statistical analyses, visualization of the findings, and preparation of the Introduction, Results, Discussion, Practical Implications, and Limitations and Future Research Directions sections. Bora GÖKTAŞ contributed to data collection and the preparation of the Introduction section.

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Ethics Committee Approval: The ethical approval of the study was obtained with the decision of the Bayburt University Ethics Commission dated 17/09/2025 and number 454. All ethical standards in this study involving human participants were in accordance with the Declaration of Helsinki of 1964 and its subsequent amendments. Informed consent was obtained from all participants.

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