The Effects of Price Promotion Frames and Limited-time Scarcity Messages on Consumers' Purchase Intentions[1]

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The competition in the markets has been increasing rapidly. Marketers use different kinds of promotional strategies to deal with the changing environment. In this sense, price promotion frames are strategic tools which marketers can use to effect consumers' purchase intentions. Although it is suggested that different descriptions of the same problem does not change the response (Tversky et al. 1988), some other studies point out that different presentations of the same problem may cause different responses in regard to stock-up characteristics, consumable nature, price level, and product category characteristics (Chen et al. 1998; Sinha and Smith, 2000; Li et al. 2007; Lowe, 2010; Gamliel and Herstein, 2011). Scarcity messages also influence consumers' offer evaluations by increasing the amount purchased, satisfaction, product's perceived value, willingness to buy, and decreasing search effort and evaluation length (Lynn, 1992; Verhallen and Robben, 1994; Gendal et al., 2006; Howard et al. 2007 Aggarwal et al. 2011). Two types of scarcity messages are commonly used in practice and studied in the literature (Aggarwal et al. 2011): Limited-quantity where the offer is available just for a limited amount of product and limited time where the offer is available just for a period of time.

This study investigates the effects of different price promotion frames and limited-time scarcity messages on consumers' evaluations of deals. In other words, the study examines whether different price promotion frames are evaluated differently at the beginning, middle and end of the limited-time period, and if so which of them are evaluated more positively. By doing so, this study tries to determine whether different price promotions are preferred when the remaining time decreases for the promotions. Because scarcity messages cause a sense of urgency, consumers' preferences of frames may differ.

The promotion frames in this study are mathematically equivalent in not only unit cost but also absolute cost terms to investigate pure semantic effects of deals. This study focuses on two different product categories (shampoo and personal computer) which are different in terms of price levels and product category characteristics. This study investigates whether consumers' purchase intentions differ in regard to different promotion frames which are

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mathematically equivalent, different phases of promotion time period (the beginning, the middle and the end), and both. Although there are many studies which investigate different frames and scarcity messages separately, there is a lack of literature considering these concepts together. If consumers' evaluations differ for different promotion frames in different phases of promotion time period, it will allow managers to use suitable strategies for demand and inventory management.

The hypotheses of the study are as follows:

H_1: Purchase intentions of participants for computer differ in regard to different promotion frames.

H_2: Purchase intentions of participants for computer differ in regard to different phases of limited-time promotion.

H_3: Purchase intentions of participants for computer differ in regard to different phases of limited-time promotion and promotion frames together.

H_4: Purchase intentions of participants for shirt differ with regard to different promotion frames.

H_5: Purchase intentions of participants for shirt differ in regard to different phases of limited-time promotion.

H_6: Purchase intentions of participants for shirt differ in regard to different phases of limited-time promotion and promotion frames together.

Method

Data were collected from 468 undergraduate students from a mid-western Turkish university. Participants were randomly assigned to nine different questionnaire formats The design results in 3 (three different price promotion frames including 50% off, half-price, monetary discount) x 3 (different phases of limited-time promotion including beginning of the period, end of the period, middle of the period) design. Questionnaires consist of various combinations of price promotion frames and time frames of a promotion period. Participants were demanded to indicate their preferences (purchase intentions: 1: Absolutely not, 5: Absolutely) for two different products including shirt (low priced) and personal computer (high priced). Two way ANOVA for independent samples was employed.

Results

Levene's test of equality of error variances was higher than .05 for two products. Table 1 exhibits descriptive statistics for computer, and the results of two-way ANOVA are shown in Table 2.

Table 1. Descriptive Statistics (Computer)

	Half price			50% off			~~70~~ 35 Turkish Liras			Total		
	N	X	S	N	X	S	N	X	S	N	X	S
EP	52	3.77	1.23	52	3.73	1.16	52	3.08	1.45	52	3.53	1.32
MP	52	4.21	1.17	52	3.58	1.33	52	3.90	1.24	52	3.90	1.27
BP	52	3.63	1.14	52	3.92	1.08	52	3.60	1.18	52	3.72	1.13
Total	156	3.87	1.20	156	3.74	1.20	156	3.53	1.33	156	3.71	1.25

EP: End of the period
MP: Middle of the period
BP:beginning of the period

Table 2. ANOVA Results for Computer

	Sum of Squares	df	Mean Square	F	Sig.
Promotion Time	9.556	2	4.778	3.181	.042
Promotion Type	10.786	2	5.393	3.591	.028
Time x Type	19.983	4	4.996	3.327	.011
Error	689.308	459	1.502		
Total	7184.000	468			

Mean differences are statistically significant for different time phases of a promotion period, promotion types, and both promotion type and time phases. In other words, means of participants' purchase intentions differ with regard to promotion types, time phases, and the common effect of promotion time phases and promotion frames on participants' purchase intention is statistically significant. Therefore, H_1, H_2, and H_3 were supported. Post hoc tests are required to determine which means of sub-group pairs cause this difference.

Table 3 exhibits descriptive statistics for shirt, and the results of two-way ANOVA are shown in Table 4.

Table 3. Descriptive Statistics (Shirt)

	Half price			50% off			~~70~~ 35 Turkish Liras			Total		
	N	X	S	N	X	S	N	X	S	N	X	S
EP	52	3.83	1.21	52	3.71	1.01	52	3.36	1.17	156	3.63	1.15
MP	52	4.69	2.12	52	3.75	1.21	52	4.03	1.14	156	4.16	2.58
BP	52	3.60	1.10	52	3.92	0.83	52	3.62	.99	156	3.71	0.99
Total	156	4.04	2.05	156	3.79	1.03	156	3.67	1.13	468	3.84	1.74

EP: End of the period
MP: Middle of the period
BP:beginning of the period

Table 4. ANOVA Results (Shirt)

	Sum of Squares	df	Mean Square	F	Sig.
Promotion Time	10.799	2	5.400	1.828	.162
Promotion Type	25.145	2	12.573	4.258	.015
Time x Type	22.944	4	5.736	1.942	.102
Error	1355.442	459	2.953		
Total	8299.000	468			

While mean differences are not statistically significant for time frames of a promotion period, and type x time, they are statistically significant for promotion types. Therefore, H_4 and H_6 weren't supported while H_5 was supported. Post hoc tests are required to determine which means of sub-group pairs cause this difference.

Conclusions

Different price promotion frames which are equivalent in both unit cost and absolute cost terms are perceived differently for both shirt and computer. Participants' purchase intentions differ with regard to promotion time phases for computer product but not for shirt. When the price of the product increases, the perceived risk of not taking the advantage of limited-time promotion may increase, too. The common effect of promotion time phases and promotion frames on participants' purchase intention is significant for computer, but not for shirt product. Because the relative price of shirt is low, loss risk is lower. Therefore the impact of scarcity messages can be low for shirt. However computer is a high-priced item, so loss risk is higher, too and the scarcity messages can have strong effects on purchase intention for computer. Practitioners must take into account the attractiveness of promotion frames with regard to the time phases of promotion period. Further research can focus on different kind of promotion frames and scarcity messages.

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