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ScienceDirect
Journal of Business Research 60 (2007) 108 – 114
JOURNAL OF BUSINESS RESEARCH

Cognitive–affective model of consumer satisfaction. An exploratory study within the framework of a sporting event

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Abstract

The aim of this research is to better understand the consumer satisfaction process within the framework of a sporting event. The literature reveals two different ways of introducing affect into the cognitive satisfaction model: as a mediator or as an independent factor. Empirical analysis of these rival models supports the second conceptualization. The study of the relationships among the constructs of the final hypothesized model shows that the key affective factor that determines satisfaction is "arousal", as opposed to "pleasure", which has a non-significant effect. The cognitive element is also important for determining satisfaction and future behavior intentions, and all of the antecedents are independent in the satisfaction process.
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Keywords: Satisfaction; Cognitive–affective model; Sporting event

1. Introduction

Knowledge of customer perception about the performance of a service company is a fundamental question in marketing orientation and customer-focused management. Customer satisfaction is one of the determinants of company performance that is attracting the most attention in services marketing literature on private and public organizations. The growth of leisure culture has increased sports consumption and competitiveness within the sports industry. This has forced organizations to focus on ways to outdo their competitors in satisfying consumer needs.

Studies have proliferated in the sport management literature about consumer satisfaction (e.g. Triadó et al., 1999; Murray and Howat, 2002; Greenwell et al., 2002; Van Leeuwen et al., 2002). Nevertheless, all research has focused on services such as private sports centers, public sports services or attendance at sporting events. None of them has studied specific periodic events with short operating times and repeat participation in future editions.

This research has focused on the measure of consumer satisfaction in this type of an event: a popular long-distance race organized every year by the City Council of Cartagena (Spain). The runners are in this case the consumers of the service, and municipal managers are in charge of efforts to satisfy them.

In accordance with the latest dominant perspective on the conceptualization of the satisfaction process (Mano and Oliver, 1993), cognitive and affective elements are antecedents of satisfaction, and consumer loyalty is a consequence. According to this approach this research has the following aims: (1) to select the cognitive–affective model from among the competing models available in the literature; and (2) to study the relationships among the constructs that make up the satisfaction model.

2. Cognitive–affective model of consumer satisfaction

Consumer satisfaction has attracted much attention in the literature because of its potential influence on consumer behavioral intentions and customer retention (Cronin et al., 2000). The literature on consumer satisfaction has focused primarily on people as cognitive beings, whereby the outcome of a comparison process between expectations and perceived performance leads to satisfaction (Wirtz and Bateson, 1999). Recently, however, several researchers proposed that cognition and affective responses to a product stimulus mold consumers' evaluative

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doi:10.1016/j.jbusres.2006.10.008

judgments (Oliver, 1997). According to this latter approach, satisfaction is the consumer's fulfillment response; a judgment that the product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels under- or overfulfillment (Oliver, 1997). The inclusion of affect into the conceptualizations of consumer satisfaction is particularly important regarding services due to their experiential nature (Wirtz et al., 2000). Affect represents the feelings, as opposed to thinking, side of consciousness, which taps the cognitive domain (Oliver, 1997). Researchers in the field of psychology have conceptualized this variable in several ways, in particular Izard's discrete emotion model (1972, 1991) and Russell's model of affect (1980).

Russell's model suggests that affect is the mediating variable among stimuli, the cognitive process, and response behavior. Russell pointed to pleasantness/unpleasantness and arousal/quietude as the two primary orthogonal dimensions of affect which describe the internal emotional state of people *per se*.

In contrast to Izard's discrete emotion model, Russell's conceptualization is richer because the taxonomy includes low arousal effect (Oliver, 1997). This conceptualization has no discriminant validity problems (Holbrook, 1986) and its predictive and exploratory power seems to provide good external validity (Wirtz, 1994).

Moreover, Russell's framework is particularly useful in studying services for capturing human–environment and interpersonal iterations (Russell and Pratt, 1980). Hence, this research considers the two affective dimensions (arousal and pleasure) for modelling the runner satisfaction process.

The next section describes the two different ways of introducing affect into the cognitive satisfaction model that the literature proposes.

3. Competing models of satisfaction

The literature review shows two dissimilar approaches for modelling the customer satisfaction process. The main difference lies in the conceptualization of the relationships between disconfirmation and emotions. However, both perspectives hold the same hypothesized relations between disconfirmation and satisfaction, emotions and satisfaction, and satisfaction and loyalty. The literature of satisfaction supports these relationships as follows:

Disconfirmation-satisfaction. Consumers make their evaluations of the consumption experience and indicate that the comparison between the perceived outcome and some prior standard drives their satisfaction judgment (Bigné and Andreu, 2002). Thus, a positive disconfirmation would lead to a positive consumer satisfaction. Wirtz and Bateson (1999) and Spreng and Chiou (2002) empirically proved this relationship.

Emotions-satisfaction. The literature suggests that emotional reactions associated with the consumption experience are important in the determination of satisfaction (Matilla and Wirtz, 2000; Jayanti, 1996; Erevelles, 1988). Authors such as Mano and Oliver (1993) and Wirtz and Bateson (1999) have studied the relationships between pleasure during the consumption process and satisfaction. Likewise, Bigné and Andreu's (2002) study proves that satisfaction increases as a function of the level of pleasure and arousal. Therefore, any element that improves the consumer's affective state would lead to a higher level of satisfaction.

Satisfaction-loyalty. Finally, the literature acknowledges the link between customer satisfaction and loyalty (Nguyen and Leblanc, 1998) and several researchers have proved that customer satisfaction is a key determinant of future behavior intentions (e.g. Murray and Howat, 2002; Cronin et al., 2000).

Nevertheless the main difference between the two approaches is their distinct view of the relationship between disconfirmation and emotions, according to the consideration of emotions as a mediator variable or as an independent variable between cognitive evaluations and satisfaction.

3.1. Emotions as a mediator between cognitive evaluations and satisfaction

This perspective suggests that emotions act as a mediator among cognitive evaluations such as perceived product performance or disconfirmation of some comparison standard, and overall satisfaction (Oliver, 1993; Oliver and Westbrook, 1993).

Bigné and Andreu (2002) explain this approach. They suggest a direct relationship between disconfirmation and emotions on the basis of the cognitive theory of emotions (Bagozzi et al., 1999). In the cognitive theory, the cognitive activity that the consumer performs to process the emotional situation produces the emotional experience. Therefore, the degree of pleasure and arousal increases as a function of the perceived disconfirmation (Wirtz and Bateson, 1999). Menon and Dubé (2000) and Oliver et al. (1997) empirically proved this relationship.

3.2. Emotions as independent factors between cognitive evaluations and satisfaction

According to this approach, emotions act as independent variables that, together with a cognitive construct, explain more about satisfaction than either construct would on its own (Liljander and Strandvik, 1997). Oliver (1993) agrees with this view and suggests that disconfirmation and emotions can be different sources of satisfaction. This draws on the locus-of-causality literature in attribution theory (Oliver, 1993), where the locus dimension connects with the source of causality; that is, the cause resides either in you, in some other people, or in the situation. Thus, as Oliver (1993) points out, if the consumer understands that s/he is solely responsible for the purchase of a bad product, consumer's guilt could aggravate dissatisfaction. Alternatively, if the product is susceptible to situationally-caused failings, sadness could increase dissatisfaction. In other words, the runner can feel dissatisfaction if s/he thinks that a situational factor could be the cause of this state, independently of their cognitive evaluation. Therefore, consumers make attributions that affect the relationship between disconfirmation and emotions.

On the basis of the prior analysis of the convergent and divergent literature regarding the relationships of the diverse constructs modelling the cognitive–affective satisfaction process, this research identifies two different models of runner satisfaction (Fig. 1).

4. Method

4.1. Data collection

The data for analysis in this article come from 352 participants. The procedure for obtaining the data includes a self-administered questionnaire sent via postal mail with a cover sheet and a post-paid letter. The response rate was 38%; the responses include 137 useable completed questionnaires. The heterogeneity of the individuals responding supports the conclusion that the data are representative of the population. Informants are predominantly men (95%) and range in age from 20 to 63 years (mean: 39; standard deviation: 8.7). Fifty of them (36.5%) were participating in their first race and only three runners were professionals. The distribution of the demographic data of the sample is very similar to the population (the registration form includes a request for demographic information). This data base is comparable to the sample data.

4.2. Measures

According to Wirtz and Bateson (1999) two single items measured disconfirmation with a 5-point semantic differential scale: (1) "overall, my experience in the race was better/worse than expected" (Oliver, 1980); (2) "overall, my expectations about the race was better/poorer than I thought" (Churchill and Surprenant, 1982).

Ten items from the Russell's model (1980) assessed emotions on a 5-point semantic differential scale; six items correspond to pleasure and four items to arousal (Bigné and Andreu, 2002). The respondents showed their feelings during the popular race when answering these questions (Wirtz and Bateson, 1999).

Runners assessed their overall satisfaction with the event on a five-point Likert-type scale taken from available sources (e.g. Westbrook and Oliver, 1981; Westbrook, 1987).

Finally, four items of the scale of Zeithaml et al. (1996) measured customer loyalty, using a five-point Likert-type scale ranging from "strongly agree" to "strongly disagree"

Appendix includes the measurement scales of the study.

4.3. Assessment of the measures

The evaluations of the items started with an exploratory assessment of the reliability and dimensionality of each separated construct, using the item-to-total correlation, Cronbach's alpha and exploratory factor analysis. Following the recommendations of Nurosis (1993), Nunnally (1978) and Hair et al. (1999), several items did not fulfill the statistical criteria for item retention; item-to-total correlation above .30 (Nurosis, 1993); Cronbach's alfa above .70 (Nunnally, 1978); factors loading exceeding .50 considering this sample size (Hair et al., 1999). The elimination of these items (three for the scale of pleasure, and one for the arousal, satisfaction and loyalty measurements) improved the psychometric properties of the original proposal.

The measurement evaluation continued with a more robust assessment of the quality of the measures through a confirmatory factor analysis, using the covariance matrix as input via the LISREL 8.50 (Jöreskog and Sörbom, 2001) maximum likelihood (ML) method.

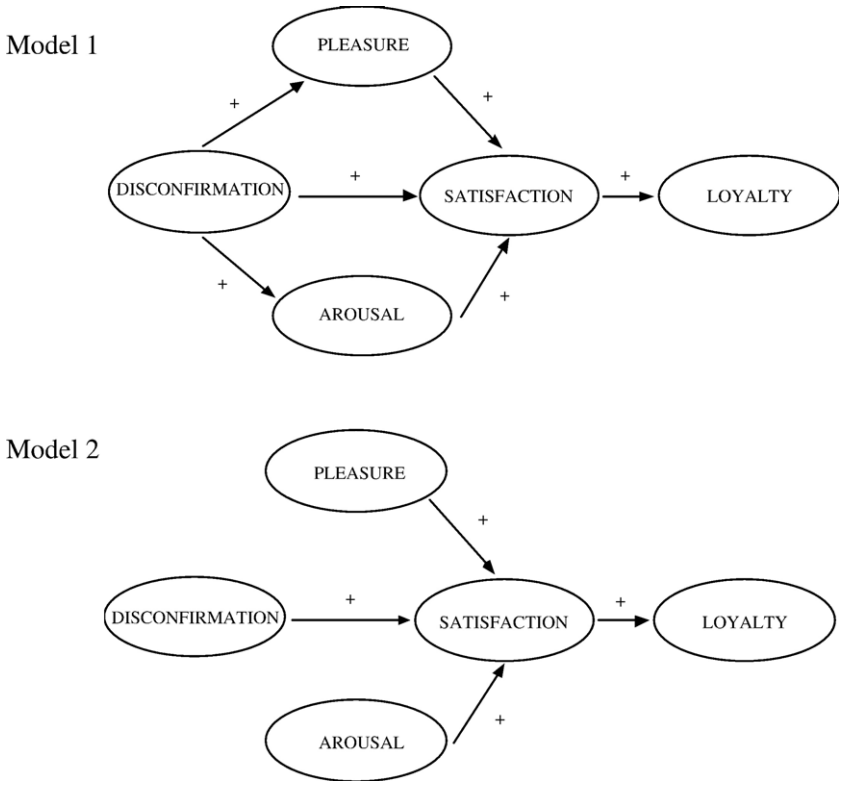

Fig. 1. Competitive models of satisfaction.

Table 1
Summary of the results of the confirmatory factor analysis

	DIS	PLE	ARO	SAT	LOY
Disconfirmation (DIS)	.747	.194	.213	.341	.334
Pleasure (PLE)	.441	.745	.736	.323	.209
Arousal (ARO)	.462	.858	.514	.508	.318
Satisfaction (SAT)	.584	.568	.713	.616	.593
Loyalty (LOY)	.578	.457	.564	.770	.611
Composite reliability	.855	.897	.759	.865	.823

Note: The lower triangle of the matrix presents the intercorrelations. The diagonal depicts the average variance extracted (AVE). The upper triangle of the matrix gives the values of shared variances.

Several fit indices were the basis for evaluating the measurement model: DELTA2 (Bollen, 1989), the comparative fit index (CFI) (Bentler, 1990) and the relative noncentrality index (RNI) (McDonald and Marsh, 1990) are the most stable and robust fit indices (Gerbing and Anderson, 1992). Additionally, other fit indices like the chi-square statistic and the root-mean-square error of approximation (RMSEA) (Steiger, 1990) can complete the evaluation (Hu and Bentler, 1999). Fit indices should fulfill the following criteria: RNI > .90 (Bagozzi and Heatherton, 1994); CFI > .90 (Kline, 1998); RMSEA < .08 (Hu and Bentler, 1999); DELTA2 > .95 (Widaman and Thompson, 2003). The results indicated an adequate close fit of the measures (χ^2: 169.47; *df*: 80; $p < .001$; DELTA 2: .928; RNI and CFI: .927; RMSEA: .08). Besides fit evaluation, confirmatory factor analysis allows the examination of the reliability and the construct validity of the proposed scales. Standardized loadings of individual items were highly significant and the values were larger than the recommended threshold of .70 (Steenkamp and Van Trijp, 1991) except for one item of the "loyalty" construct (.667). Composite reliability (Bagozzi and Yi, 1988) and average variance extracted (AVE) (Fornell and Larcker, 1981) indices presented higher values than those of the evaluation criteria of .5 (Hair et al., 1999). Regarding the convergent validity of the measures: all items were significant, they loaded on their respective hypothesized dimensions, and the parameters estimates were 10 to 20 times as large as the standard errors, as Anderson and Gerbing (1988) recommend. The measures also showed adequate discriminant validity after calculating the shared variances between pairs of constructs and verifying that this result was lower than the average variances extracted for the individual constructs (AVE) (Fornell and Larcker, 1981) in all cases except in one. In the interest of thoroughly discriminant validity, an additional test confirmed this assumption as the confidence interval (±2 standard errors) around the correlation estimate between any two latent indicators never included 1.0 (Anderson and Gerbing, 1988). Table 1 shows the constructs correlation matrix, shared variances, AVE and composite reliability.

5. Results

5.1. Competitive models analysis

After assessing psychometric properties, the next step was the evaluation of the competitive models of the cognitive–affective satisfaction process, through the estimate of two new path analyses considering the restrictions of the relationships among the constructs of each model (Fig. 1).

A chi-square difference test (Anderson and Gerbing, 1988) was the procedure for evaluating the competitive models. Anderson and Gerbing (1988) recommend this method to compare nested models; a non-significant change in chi-square between the two models would lead to the acceptance of more parsimonious. The results of the test showed a significant change (difference of chi-square: 75.01; *df*: 1; $p < .001$) in favor of Model 2. In order to support with a statistical test the results of the chi-square difference test in case of model misspecification (problems with the non-central distribution of the chi-square), the Friedman method of ranks (Rigdon, 1999) provides a non-parametric approach that can complete this evaluation. The results of this test showed a significantly lower value of the ranked residuals for Model 2 (χ^2: 9.075; gl: 1; $p < .01$). Thereby if arousal and pleasure are independent factors, this model is a better reproduction of the observed data. Other fit indices support this claim (Table 2); Model 2 has more adequate fit indices: RMSEA, RNI, CFI and DELTA2. Furthermore, the difference of PNFI (James et al., 1982) between the two models is above .09, a critical value for a significant gain of parsimony (Hair et al., 1999). Finally, Model 2 explains more variance in consumer satisfaction ($R_i^2 = .624$) and in consumer loyalty ($R_i^2 = .384$).

Table 2 depicts fit indices and squared multiple correlations for reduced form.

Although Model 2 appears to be robust, respecification provides an additional way for improving the model (Anderson and Gerbing, 1988). The objective is to increase the degree to which the conceptualization captures the data and, in turn, to improve the validity of the conceptualization (Brady and Cronin, 2001). An examination of the modification indices suggested a new relationship in the model: a positive and significant direct relationship between disconfirmation and loyalty. Thus, this study considers Model 2b as the final model after respecification of Model 2 (Table 2). The direct path between disconfirmation and loyalty is one of the major results of the study of Bigné and Andreu (2002) after respecification of their theoretical model. These authors found that cognitive evaluation exerted a positive influence on willingness to intensify the service usage. From a theoretical perspective, the new path shows the importance of cognitive elements in the future behavior intentions, supporting the dual nature of satisfaction (Bigné and Andreu, 2004).

Table 2
Fit indices and statistics for the models

	$(\chi^2)^a$	*df*	RMSEA	CFI; RNI[b]	DELTA2	PNFI	R_i^2 SAT	R_i^2 LOY
Models								
Model 1[c]	248.253	84	.109	.865	.868	.650	.420	.256
Model 2[d]	173.245	83	.078	.926	.927	.687	.624	.384
Model 2b[e]	169.393	82	.078	.928	.930	.681	.605	.448

[a] Minimum fit function chi-square.
[b] When RNI is between 0 and 1 (both models tested), CFI equals RNI.
[c] Emotions as mediator.
[d] Emotions as independent factor.
[e] Model 2 after respecification (emotions as independent factor with a direct relationship between disconfirmation and loyalty).

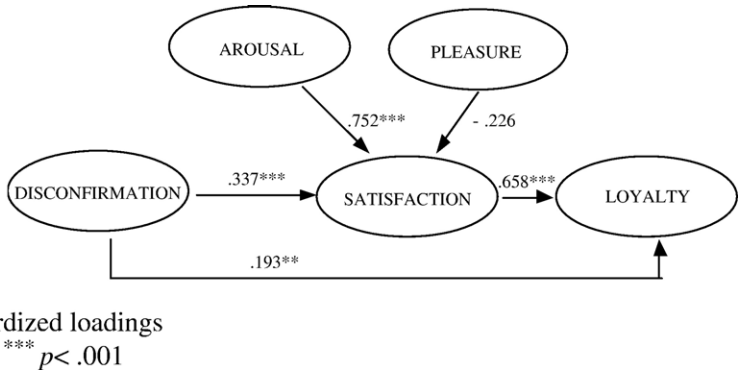

Fig. 2. Final model estimated.

An examination of the path among the constructs completed the model evaluation. Fig. 2 shows that all hypothesized paths were significant except the relationship between pleasure and satisfaction. The results indicate that disconfirmation and arousal have a positive and significant influence on customer satisfaction as independent factors, and the intensity of the relationship between arousal and satisfaction is stronger than disconfirmation. Also, the findings show a strong relationship between satisfaction and loyalty.

6. Discussion

6.1. Theoretical implications

This study has investigated the runner satisfaction process in a yearly race. The discussion has addressed three major issues.

First, after a literature review, this research has proposed two conceptual models of satisfaction: one with emotions as a mediator between disconfirmation and satisfaction, and another that considers emotions as an independent factor. The results of the test of the competing models provide empirical support for the latter conceptualization; emotions are independent of the cognitive evaluations of a service. This is in line with the studies of Westbrook (1987) and Koelemeijer et al. (1995).

Second, the path analysis has showed a non-significant effect of pleasure on satisfaction. Although generally positive emotions have a positive influence on satisfaction, combining high satisfaction with feelings that in other circumstances would have invoked dissatisfaction is also possible (Liljander and Bergenwall, 1999). The distinction between reactive and goal-directed emotions (Bagozzi et al., 1998; Koelemeijer et al., 1995) can help explain this result. Goal directed emotions distinguish this service, a sporting event. The runner can feel negative emotions related to negative pleasure, like the suffering involved in great physical effort or the anxiety to fulfill expectations about athletic performance, and at the same time feel satisfaction because s/he consciously seeks to experience these feelings.

Third, the findings confirm all the rest of the proposed relationships in the model. The emotional component (arousal) exerts a stronger influence on satisfaction than cognitive element (disconfirmation). The emotional dimensions associated to sport consumption (Desbordes et al., 2001) could explain these findings. Affective responses are the key driver of satisfaction, which highly influences customer loyalty. The strength of this link clearly supports the results of other empirical studies (e.g. Bloemer and De Ruyter, 1998). Additionally, this research has found a weak direct relationship between disconfirmation and loyalty after respecification of Model 2 (Model 2b), in line with the results of Bigné and Andreu (2002, 2004). Anderson and Sullivan (1993) suggested that perceived quality positively influenced disconfirmation, and Bloemer and De Ruyter (1998) demonstrated that quality evaluations were positively related to loyalty. Considering that cognitive evaluations of perceived quality are the basis of disconfirmation, these judgments of performance could establish the relationship between disconfirmation and loyalty.

6.2. Managerial implications

The findings involve several implications for management. This study can help the organizers of this type of sporting event to better understand the customer satisfaction process and improve their performance, by following these recommendations:

First, cognitive and affective factors drive customer satisfaction, where the level of arousal exerts a stronger influence on satisfaction than disconfirmation. This means that managers not only should make an effort to offer a high quality service so as to get a more favorable disconfirmation of expectations, but they should also stimulate the emotions of the runner during the race, adding elements of excitement and surprise in order to enhance the arousal of the runners. For example, the participation of the spectators and their capability to cheer on the runners could increase the level of arousal. Accordingly, the organizers could ask their employees encourage and support the runners at all times.

Second, arousal also has an indirect influence on customer loyalty through satisfaction, as does disconfirmation, which also exerts a direct although weak influence. The importance of satisfying runners so that they come back for the next edition is obvious. Retaining loyal customers yields several benefits, such as increased efficacy of marketing instruments and lower sensitivity to a rise in prices. Therefore, organizers have to manage cognitive and affective elements. However, they have to take into account the direct influence of the cognitive element on loyalty. Although the organization has the ability to enhance

the affective state of the runner, a discrepancy between perceived performance and expectations could influence future behavior intentions negatively. To mitigate this negative disconfirmation, managers must improve the quality of the service and, above all, they must adjust their communication strategy to avoid creating false expectations.

6.3. Limitations and further research

This study has one major shortcoming: the non-consideration of two important antecedents of the satisfaction process: expectations and perceived quality. Although the disconfirmation measure represents an evaluation between expectations and perceived attributes of quality, authors such as Oliver (1993) or Wirtz and Bateson (1999) have proposed a more comprehensive model integrating these variables in the cognitive–affective satisfaction process. The inclusion of these antecedents could help to explain variations in the level of emotions and disconfirmation, and these variables could be valuable for managers to evaluate specific attributes of the service. Furthermore, this more comprehensive model could reveal additional information about the direct relationship between disconfirmation and loyalty. Finally, this research has focused on a single event conceptualized in an exploratory fashion. Replication would be desirable to provide additional support to the final model estimated. Suggestions include considering larger sample size in order to avoid statistical problems (to get a higher ratio between the number of parameter estimates with respect to sample size and to increase the statistical power).

Acknowledgements

The authors wish to thank the City Council of Cartagena for its financial support.

Appendix A. The measures

Disconfirmation
"Overall, my experience in the race was… ("better/worse than expected" on a 5-point scale).
"Overall, my expectations about the race were… ("better/poorer than I thought" on a 5-point scale).

Emotions
Please circle the number that best reflects your emotions during the race based on a series of adjectives.

"Pleased" 1 2 3 4 5 "Angry"	*"Amused" 1 2 3 4 5 "Bored"
"Happy" 1 2 3 4 5 "Unhappy"	"Lively" 1 2 3 4 5 "Down"
*"Delighted" 1 2 3 4 5 "Undelighted"	"Excited" 1 2 3 4 5 "Calm"
"Glad" 1 2 3 4 5 "Sad"	"Active" 1 2 3 4 5 "Passive"
*"Hopeful" 1 2 3 4 5 "Disillusioned"	*"Surprised" 1 2 3 4 5 "Indifferent"

Satisfaction (scaling from "strongly disagree" to "strongly agree" on a 5-point scale).
*This race is one of the best that I have run.
I am satisfied with my participation in this race.
My choice to run this race was a wise one.
Really, I have enjoyed running this race.
I don't regret having run this race.

Loyalty (scaling from "strongly disagree" to "strongly agree" on a 5-point scale).
I will tell my friends or family my satisfaction with this race.
Probably, I will run in this race next year.
I would recommend this race to a friend.
*Although the registration price increases, I will participate next year.
*Items dropped after exploratory analysis.

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