MARKET SEGMENTATION USING PERCEIVED CONSTRAINTS

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Abstract.—We examined the practical utility of segmenting potential visitors to Cleveland Metroparks using their constraint profiles. Our analysis identified three segments based on their scores on the dimensions of constraints: *Other priorities*—visitors who scored the highest on 'other priorities' dimension; *Highly Constrained*—visitors who scored relatively high on all dimensions of constraints; and *Least Constrained*—visitors who scored the lowest on all dimensions. We then explored variation among the identified segments by socio-demographics, motivation, involvement and place attachment. Statistically significant variations were observed across the identified segments on most of our indicators. We suggest that managers examine constraint profiles with socio-demographic and attitudinal indicators as a platform for developing marketing strategies to attract prospective recreationists.

1.0 INTRODUCTION

A substantial body of research has demonstrated the role of constraints in decision-making processes. Jackson (1991) noted that "barriers and perceptions of barriers enter, both overtly and covertly, into the decision-making process of individuals at all stages of leisure engagement" (p. 280). In a decision to engage in leisure activity, there is always a trade-off between the expected benefits from the experience and the cost involved to overcome constraints associated with the decision. With the acknowledged importance of perceived constraints as a variable in explaining people's decision-making process, the construct has been used as a tool for segmenting recreationists (Jackson, 1993; Kim, Crompton & Botha, 2000; Tian, Crompton & Witt, 1996). Market segmentation has also been a cornerstone of park and recreation agencies' marketing and promotion strategies. This study extended previous research by demonstrating the practicality of segmenting recreationists with their perceived constraints. We attempted to (1) identify homogeneous groups of recreationists based on their perceived constraints; and (2) profile identified market segments based on their socio-demographic characteristics, motivation, involvement and place attachment.

1.1 Leisure Constraint

Tsai and Coleman (1999) stated that "throughout the process of leisure engagement, people are exposed to various constraints which can affect their leisure preferences, inhibit their desire to undertake new activities, reduce their enjoyment in leisure, and limit their full involvement in leisure" (p. 243). Crawford and Godbey (1987) proposed a tripartite approach to classify constraints: (a) structural—arise from external conditions within the environment (e.g., cost, time, transportation); (b) intrapersonal—psychological condition internal to the individual (e.g., personality, attitudes, moods); and (c) interpersonal—arise out of interpersonal interaction or the relationships with friends, family and others (e.g., lack of companions). While the tripartite approach has been acknowledged as a significant progress in leisure constraint research, the empirical research confirming this approach has documented that constraint items could fall into more than one category (Raymore, 2002; Samdahl, 2005; Shaw & Henderson, 2005). Alternatively, Jackson (2005) put forth that there is a reasonably stable and replicable set of constraints dimensions. They are the cost of participation, time and commitment, availability and quality of facilities, social and geographical isolation, and personal skills and abilities.

1.2 Motivation

Motivation has been widely used to explain leisure behavior (Iso-Ahola, 1999). Our conceptualization of human motivation follows Lawler's (1973) expectancy-value model of motivation which posits that motivation to initiate and maintain a certain action can be understood in light of the human pursuit of specific physical and psycho-social outcomes. Much of the research addressing the motivation of leisure behavior has emanated from the work of Driver and his associates (Driver & Knopf, 1977; Driver & Tocher, 1970). Driver and his colleagues developed their own scale, termed the Recreation Experience Preference (REP) scale, to capture the psychological, social, and perceived physiological reasons people engaged in outdoor recreation. The relationship between motivation and constraints has been assessed in several studies. Carroll and Alexandris (1997) systematically investigated the connection between constraints and motivation to participate in recreational sport activities. They found a negative relationship in which higher levels of motivation were associated with lower levels of perceived constraint. Alexandris et al. (2002) reported similar findings in which there was a significant negative influence of constraint on amotivation and intrinsic motivation. In the study of participants in employee recreation programs, however, Hubbard and Mannell (2001) found no direct relationship between motivation and perceived constraints.

1.3 Leisure Involvement

Involvement has been defined as "an unobservable state of motivation, arousal, or interest toward a recreational activity or associated product. It is evoked by particular stimulus or situation and has drive properties. In other words, leisure involvement refers to how we think about our leisure and recreation, and it affects our behavior" (Havitz & Dimanche, 1997, p. 246, adapted from Rothschild, 1984). It is generally acknowledged that involvement is best viewed as a multidimensional concept (Havitz & Dimanche, 1997; Laurent & Kapferer, 1985; McIntyre & Pigram, 1992). Among several facets suggested, three dimensions—attraction, centrality, and self expression—have consistently been shown to be reliable and salient within leisure context (Havitz & Dimanche, 1997; McIntyre & Pigram, 1992; Wiley, Shaw & Havitz, 2000). *Attraction* is conceptualized in terms of individuals' perceptions of activity importance and the pleasure or hedonic value derived through the activity. *Centrality* indicates that other aspects of an individual's life are centered on a given leisure activity. Finally, *self expression* refers to the extent to which a leisure activity provides an opportunity to express a desired image of themselves that individuals wish to convey to others. Few studies have systematically studied the role of constraints on leisure involvement (Jun, Kyle, & Mowen, 2005; Kyle & Mowen, 2003). Using data collected from Cleveland Metroparks, Kyle and Mowen (2003) examined the effect of constraints on the development of involvement. Their study showed that the time-related dimension inhibited the development of all dimensions of involvement (i.e., attraction, centrality and self expression) while the dimension related to the condition encountered on site positively affected *centrality*. Furthermore, Jun et al.'s (2005) study documented that the experience of constraints inhibited respondents' ability to become involved with specific leisure activities to the extent experienced by those who are relatively less constrained.

1.4 Place Attachment

The research on place attachment examines the meaning places have for people while the term place attachment refers to an emotional or affective bond between a person and a particular place (Williams & Patterson, 1999). Our conceptualization of place attachment follows the work of Kyle, Mowen, and Tarrant (2004) who suggested that place attachment can be defined in terms of four components: affective, place identity, place dependence, and social bonding. Kyle et al. (2004) used *affective* to refer to a person's emotional bond with a setting. *Place identity* reflects cognitive connection between the self and the setting. *Place dependence* measures "how well a setting serves goal achievement given an existing range of alternatives (how well does this setting compare to others for what I like to do)" (Jorgensen & Stedman,

2001, p. 234). Lastly, *social bonding* indicates individuals' attachment to the place developed through social relationships (Kyle et al., 2004). While little is understood about the relationship between place attachment and constraints, it can be assumed that individuals' developmental trajectories of human-place bonding would not be identical due to the intervention of constraints. Past investigations have shown that recreationists vary in a level of association with a certain place, depending upon their socio-demographic characteristics and frequency and intensity of engagement (Bricker & Kerstetter, 2000; Confer, Graefe, Absher & Thapa, 1999). The difference indicates that personal and social situational factors can intervene to varying degrees to inhibit or facilitate the individual's progression in the development of human-place bonding.

2. 0 METHODS

2. 1 Sample

Data for our study were collected from subscribers to Cleveland Metroparks' *Emerald Necklace*, a free monthly publication for residents who have registered to receive it. The publication features information about Cleveland Metroparks facilities, services, and special programs that are offered each month. At the time of the survey, the database consisted of approximately 50,000 subscribers. From this subscriber database, 1,500 names and addresses were randomly drawn in the summer of 2002. Survey instruments were distributed using a modified Dillman (2000) procedure which involved the mailing of a survey instrument and cover letter, followed by a reminder/thank you postcard two weeks later, and a final survey instrument to non-respondents one month following the initial mailing. This procedure yielded 860 completed surveys (a 57.3 percent response rate).

2.2 Measures

Respondents' motivations for visiting Cleveland Metroparks were measured using 19 items selected from the battery of Recreation Experience Preferences (REP) scale items. Our decision criteria concerning the inclusion/exclusion of items was based on the agency's prior use of these scales for their own internal research and program evaluation and reviews of past investigations conducted in similar contexts (Manning, 1999). These 19 items were drawn from six REP scale domains: *Learn* (3 items), *Autonomy* (3 items), *Activity* (3 items), *Social* (3 items), *Nature* (2 items), and *Health* (3 items).

For enduring involvement, we used a modified version of McIntyre and Pigram's (1992) involvement scale designed to capture three dimensions: *Attraction* (5 items), *Centrality* (5 items), and *Self Expression* (4 items). Place attachment was measured using items adapted from Kyle and others' (2004) place attachment scale which reflects four domains: *Place Dependence* (5 items), *Affective Attachment* (4 items), *Place Identity* (3 items), and *Social Bonding* (3 items).

Lastly, our constraint items (17 items) were adapted from the early studies of constraints (Buchanan & Allen, 1982; McGuire, 1984). We conducted exploratory factor analysis (EFA) (principal axis with oblique rotation) to group the constraint items into similar conceptual categories (analysis conducted with SPSS version 11.0). This procedure yield four dimensions of leisure constraints: *Other Priorities* (5 items), *Setting Element* (4 items), *Access* (3 items), and *Social Factors* (4 items). These dimensions are very similar to several of those identified by Jackson (2005). All constructs demonstrated adequate internal consistency (Cronbach's alpha) as determined by Cortina's (1993) .60 minimum.

2. 3 Analyses

Confirmatory factor analysis (CFA) was employed to validate the factor structure of involvement, motivation, and place attachment. Cluster analysis was then used to classify respondents into homogeneous groups based on their scores on the dimensions of constraints. Lastly, Chi-square and one-way analysis of variance (ANOVA) with Tukey procedure for multiple comparisons were used to test variation among clusters regarding their (a) socio-demographics characteristics; (b) motivation; (c) involvement; and (d) place attachment.

3.0 RESULTS

3.1 Factor Structure of Constructs: Involvement, Motivation and Place Attachment

Confirmatory factor analysis (LISREL version 8.52) examined the suitability of our hypothesized factor structures for the data. The results of this analysis, depicted in Table 1, provided support for the structure of involvement (χ^2 = 417.28, df =70, RMSEA = .079, NNFI = .98, CFI= .98), motivation (χ^2 = 542.13, df =97, RMSEA = .077, NNFI = .97, CFI= .98) and place attachment (χ^2 = 588.99, df = 103, RMSEA = .074, NNFI = .95, CFI= .93). Further, the strength of the factor loadings and associated t-values provided evidence in support of the validity of the scale, and the estimates of internal consistency (Cronbach's alpha) provided evidence of the scale's reliability (all $\alpha > .60$; Cortina, 1993).

Table 1.—Item factor loading and means

Scale items		α	λ	t-value	M	SD
Motivation[1]						
Learn		.84				
L1	To learn about the natural history of the area		.81	27.50	3.86	.89
L2	To learn about the countryside		.80	26.54	3.88	.92
L3	To learn about the local history of the area		.85	28.91	3.75	.91
Autonomy		.74				
A1	To be on my own		.65	19.36	3.20	1.19
A2	To think about my personal values		.62	18.19	3.63	1.03
A3	To experience solitude		.84	26.23	3.68	1.08
Activity		.67				
AC1	To take risks		.43	11.50	1.83	1.00
AC2	To show others		.79	22.28	2.10	1.07
AC3	To test my endurance		.70	20.16	2.61	1.26
Social		.67				
S1	To be with members of my group		.50	13.60	3.25	1.16
S2	To meet new people		.64	17.71	2.73	1.19
S3	To share my skill and knowledge with others		.69	19.18	2.53	1.07
Nature		.80				
N1	To enjoy the view		.81	22.69	4.47	.69
N2	To be close to nature		.83	23.30	4.46	.72
Health		.72				
H1	To get exercise		.41	11.94	4.30	.79
H2	To relax physically		.73	22.26	4.17	.79
H3	Help reduce built-up tension		.84	26.07	4.00	.88
Involvement[2]						
Attraction		.86				
AT1	_____ is very important to me		.78	26.45	4.12	.80
AT2	_____ offers me relaxation when pressures build up		.70	22.59	4.24	.74
AT3	Participating in _____ is one of the most satisfying things I do		.82	28.16	3.89	.87
AT4	_____ interests me		.66	20.67	4.00	.79
AT5	I really enjoy _____.		.67	21.06	4.32	.68
Centrality		.86				
CE1	I find a lot of my life is organized around _____.		.90	33.02	2.81	1.06
CE2	_____ has a central role in my life		.85	30.35	3.00	1.11
CE3	I enjoy discussing _____ with my friends		.57	17.89	3.08	0.96
CE4	I find a lot of my life is organized around _____.		.86	30.79	2.68	1.02
CE5	Most of my friends are in some way connected with _____.		.51	15.46	3.11	1.14

Table 1.—Item factor loading and means *(continued)*

Scale items		α	λ	t-value	M	SD
Involvement[2] *(continued)*						
Self expression		.82				
SX1	Participating in _____ says a lot about who I am		.74	25.58	3.68	.91
SX2	You can tell a lot about a person by seeing them participating in _____.		.60	20.06	3.41	.83
SX3	When I participate in _____ I can really be myself		.77	25.05	3.71	.90
SX4	When I participate in _____ others see me the way they want to see me		.70	22.33	3.06	.93
Place Attachment[3]						
Place dependence		.90				
PD1	For the recreation activities I enjoy most, the settings and facilities provided by Cleveland Metroparks are the best		.78	25.74	3.98	.84
PD2	I prefer Cleveland Metroparks over other settings/facilities for the recreation activities that I enjoy most		.82	28.51	3.88	.86
PD3	For what I like to do, I couldn't imagine anything better than the settings and facilities provided by Cleveland Metroparks		.85	30.25	3.79	.92
PD4	I enjoy visiting Cleveland Metroparks more than any other sites		.83	29.13	3.74	.89
PD5	I get more satisfaction out of visiting Cleveland Metroparks than from visiting any other sites		.75	24.94	3.43	.91
Affective attachment		.82				
AF1	I enjoy discussing Cleveland Metroparks with other people		.54	16.08	3.71	.79
AF2	Cleveland Metroparks means a lot to me		.69	21.95	4.34	.68
AF3	I am very attached to Cleveland Metroparks		.80	27.41	4.03	.83
AF4	I feel a strong sense of belonging to Cleveland Metroparks and its settings/facilities		.82	27.98	3.90	.83
AF5	I feel as though Cleveland Metroparks' problems are my own		.64	19.95	3.17	.88
Place identity		.81				
ID1	I feel Cleveland Metroparks is a part of me		.86	30.34	3.55	.88
ID2	I identify strongly with Cleveland Metroparks		.88	31.28	3.62	.84
ID3	Visiting Cleveland Metroparks says a lot about who I am		.60	18.43	3.44	.84
Social bonding		.63				
NC1	My friends/family would be disappointed if I were to start visiting other setting and facilities		.57	16.28	2.47	.85
NC2	If I were to stop visiting Cleveland Metroparks sites, I would lose contact with a number of friends		.43	11.68	2.22	.95
NC3	Most of my friends/family would agree that Cleveland Metroparks settings and facilities are the best for what we like to do		.74	21.46	3.65	.79

[1]Respondents were asked to indicate the importance of the items in terms of their visits to Cleveland Metroparks. Measured along a scale where 1 = not all important through 5 = extremely important. Goodness-of-fit indices: χ^2 = 542.13, df =97, RMSEA = .077, NNFI = .97, CFI= .98

[2]From an extensive list of activities that could be enjoyed on Cleveland Metroparks facilities, respondents were requested to select their primary activity. Their primary activity was then inserted as the attitude object for the involvement items. These items were measured along a Likert-type scale where 1 = "Strongly Disagree" through 5 = "Strongly Agree." Goodness-of-fit indices: χ^2 = 417.28, df =70, RMSEA = .079, NNFI = .98, CFI= .98

[3]Measured along a Likert-type scale where 1 = "Strongly Disagree" through 5 = "Strongly Agree." Goodness-of-fit indices: χ^2 = 588.99, df = 103, RMSEA = .074, NNFI = .95, CFI= .93

3.2 Perceived Constraint Segmentation

In this investigation, we used a K-Mean cluster procedure to cluster respondents based on their scores on four constraint dimensions. The analysis revealed that a three-group solution provided the most meaningful and distinct result. The analysis of variance procedure was used to test differences among three clusters regarding the scores on all dimensions of perceived constraints (see Table 2). While the cluster procedure maximizes mean distance among the groups, the size of the F-values indicated substantial variation among the three clusters. Cluster I, *Other Priorities*, represented 40 percent (n = 340) of the sample and scored the highest on 'other priorities' dimension. Cluster II, *Highly Constrained*, accounted for 9 percent (n = 74) of the respondents and scored relatively high on all dimensions of constraints. Cluster III, *Least Constrained*, consisted of 52 percent (n = 446) of the respondents, scoring the lowest on all dimensions.

3.3. Socio-Demographic Variables

With the exception of 'gender,' all the selected socio-demographics indicators (i.e., age, education, income, and race) significantly varied among each of the constraint segments (see Table 3). Respondents of *Other Priorities* cluster were younger than the other clusters ($F_{(2, 857)}$=40.92, p = .000). For education, *Other Priorities* group had the largest proportion of respondents who graduated college graduate or attended grad school (60 percent), followed by *Highly Constrained* (42 percent) and then *Least Constrained* (48 percent) (χ^2 = 24.49, df = 8, p = .002). *Highly Constrained* segment had the largest proportion of respondents who earned less than $40,000 annually (46 percent) compared to *Least Constrained* (36 percent) and *Other Priorities* (18 percent) (χ^2 = 56.22, df = 14, p = .000). For race, *Least Constrained* had the largest White group (86 percent), followed by *Other Priorities* (83 percent), and then *Highly Constrained* (77 percent) (χ^2 = 21.04, df = 8, p = .007).

3.4 Motivation

Significant variation between segments was observed on three of the six dimensions: *learn*, *activity*, and *social* (Table 4). *Highly Constrained* segment scored the highest on *learn* dimension followed by *Least Constrained* and then *Other Priorities* ($F_{(2, 857)}$= 12.02, p = .000). *Highly Constrained* placed more importance on activity dimension than Other Priorities group ($F_{(2, 857)}$= 5.62, p < .01). *Other Priorities* was less inclined than the other segments to report social dimension as being important ($F_{(2, 857)}$= 9.68, p = .000).

3.5 Involvement

Of the three dimensions of involvement tested in Table 4, significant variation among segments was observed only on the *centrality* dimension ($F_{(2, 857)}$= 10.60, p = .000). *Least Constrained* group was more inclined than *Other Priorities* group to indicate the *centrality* dimension as being important. Regardless of their membership of group, all respondents scored high on the *attraction* dimension.

Table 2.—Segments' perceived constraints

	Other priorities		Highly constrained		Least constrained		
Scale items	M	SD	M	SD	M	SD	F-value
Constraints							
Other priorities	3.82 [a]	.55	3.16 [b]	.79	1.87 [c]	.55	1133.27***
Setting element	1.21 [a]	.34	1.98 [b]	.86	1.05 [c]	.17	218.78***
Access	1.12 [a]	.27	2.18 [b]	.99	1.06 [c]	.237	287.61***
Social factors	1.55 [a]	.52	2.46 [b]	.76	1.21 [c]	.44	204.71***

***p = .000, **p < .01, *p < .05
Note: Different superscripts indicate significant difference.

Table 3.—Socio-demographic profile of market segmentation

Socio-demographic variables	Market Segment: Other priorities	Market Segment: Highly constrained	Market Segment: Least constrained	
Age				F = 40.92
Mean (SD)	47.81 (12.10)[a]	53.38 (17.57)[b]	57.14 (15.27)[b]	df = 2
				p = .000
Gender	*N (%)*	*N (%)*	*N (%)*	χ^2 = .356
Male	110 (32.4)	22 (29.7)	148 (33.2)	df = 2
Female	230 (67.6)	52 (70.3)	298 (66.8)	p = .837
Education	*N (%)*	*N (%)*	*N (%)*	χ^2 = 24.49
Less than high school graduate	3 (.9)	2 (2.7)	9 (2.0)	df = 8
High school graduate	42 (12.4)	20 (27.0)	106 (23.8)	p = .002
Attended college	92 (27.1)	21 (28.4)	116 (26.0)	
College graduate	105 (30.9)	14 (18.9)	113 (25.3)	
Grad school	98 (28.8)	17 (23.0)	102 (22.9)	
Income	*N (%)*	*N (%)*	*N (%)*	χ^2 = 56.22
Less than $19,999	9 (2.6)	7 (9.5)	33 (7.4)	df = 14
$20,000 - $39,999	51 (15.0)	27 (36.5)	128 (28.7)	p = .000
$40,000 - $59,999	100 (29.4)	20 (27.0)	129 (28.9)	
$60,000 - $79,999	75 (22.1)	11 (14.9)	78 (17.5)	
$80,000 - $99,999	48 (14.1)	5 (6.8)	28 (6.3)	
$100,000 - $119,999	28 (8.2)	2 (2.7)	20 (4.5)	
$120,000 - $139,999	13 (3.8)	0 (0.0)	15 (3.4)	
$140,000 or more	16 (4.7)	2 (2.7)	15 (3.4)	
Race	*N (%)*	*N (%)*	*N (%)*	χ^2 = 21.04
African American	13 (3.8)	9 (12.2)	9 (2.0)	df = 8
Asian or Pacific Islander	42 (12.4)	8 (10.8)	51 (11.5)	p = .007
White	280 (82.8)	57 (77.0)	383 (86.1)	
Hispanic	2 (.6)	0 (0.0)	2 (.4)	
Native American	1 (.3)	0 (0.0)	0 (0.0)	

Note: Different superscripts indicate significant difference.

Table 4.—Analysis of variance for three market segment clusters

Scale Items	Other priorities M	Other priorities SD	Highly constrained M	Highly constrained SD	Least constrained M	Least constrained SD	F-value
Involvement							
Attraction	4.11	.54	3.98	.64	4.13	.67	1.81
Centrality	2.72 [a]	.82	2.76	.86	2.98 [b]	.79	10.60***
Self-expression	3.45	.70	3.33	.77	3.50	.72	1.68
Motivation							
Learn	3.71 [a]	.82	4.18 [b]	.58	3.87 [c]	.77	12.02***
Autonomy	3.51	.88	3.59	.76	3.49	.93	.41
Activity	2.08 [a]	.81	2.42 [b]	.89	2.22	.90	5.62**
Social	2.68 [a]	.86	3.05 [b]	.78	2.92 [b]	.90	9.68***
Nature	4.49	.58	4.49	.64	4.45	.69	.32
Health	4.20	.62	4.18	.59	4.13	.70	1.08
Place Attachment							
Place dependence	3.77 [a]	.73	3.78	.86	3.91 [b]	.78	4.54*
Affective attachment	4.01 [a]	.66	3.98	.69	4.12 [b]	.66	3.81*
Place identity	3.46 [a]	.72	3.49	.70	3.61 [b]	.73	4.24*
Social bonding	2.64	.61	2.73	.60	2.75	.70	2.67

***p = .000, **p < .01, *p < .05

Note: Different superscripts indicate significant difference.

3.6 Place Attachment

Significant variation between segments was observed on three of the four place attachment dimensions: *place dependence*, *affective attachment*, and *place identity* (Table 4). In comparison to *Other Priorities*, *Least Constrained* scored higher on *place dependence* ($F_{(2, 857)}$= 4.54, $p < .05$), *affective attachment* ($F_{(2, 857)}$= 3.81, $p < .05$), and *place identity* ($F_{(2, 857)}$= 4.24, $p < .05$).

4.0 DISCUSSION AND CONCLUSIONS

Based on the observed differences, we would recommend focusing management efforts on facilitating visitation and use of *Highly Constrained* segment. While this group has the fewest resources available to enjoy Metroparks' amenities and services, *Highly Constrained* individuals appreciate benefits from all attributes of the place. Given their strong motivation, *Highly Constrained* is the most likely to be responsive to agencies' efforts such as fee waivers or subsidies and transportation assistance, which will alleviate the conditions that inhibit full involvement. Managers should also focus on providing experiences that offer opportunities for learning, leisure experience and family interaction. To deliver the marketing efforts, we suggest implementing population specific media strategies directed at racial minority groups who have lower levels of income and education. *Least Constrained* segment appears to be the easiest of the three for Metroparks managers to attract. Given its low intensity of perceived constraints and strong bond to the place, it is likely that the Metroparks will continue to attract this segment unless there is a serious decline in the quality of services or facilities in the area. The results suggest that *Other Priorities* may be the least viable market segment to attract to the area. Given their low motivation and place attachment, *Other Priorities* is least likely to be responsive to management and marketing action in terms of visitation, feedback, and stewardship. With limited financial and personal resources available to the agencies, it would better to address needs and preferences of those groups more interested in using the Metroparks.

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