Recreation Specialization and Participant Preferences among Windsurfers: An Application of Conjoint Analysis

Hiroaki Ninomiya* and Hideo Kikuchi**

*Faculty of Economics, Oita University
700 Dannoharu, Oita, 870-1192, Japan
hnino@cc.oita-u.ac.jp

**School of Health and Sport Sciences, Chukyo University
101 Tokodachi, Kaizu, Toyota, Aichi 470-0393 Japan

[Received November 6, 2003 ; Accepted January 5, 2004]

The purpose of this study is to investigate behavioral differences among windsurfer specialization subgroups through the use of conjoint analysis. Recreation specialization is a concept that explains the developmental process of behavior patterns whereby recreation participants acquire knowledge and skills and progress to higher stages of involvement in a particular leisure activity over time. This conceptual framework has been employed in understanding leisure and sport behaviors through a segmentation approach. In this research, conjoint analysis was used to examine windsurfers’ preferences. Three attributes -- wind velocity, season and crowding -- were considered in the research design. The data were collected through interviewing windsurfers in Sumiyosihama Resort Park, Japan. Participant observation was also conducted simultaneously. Windsurfing participants were segmented in terms of skill, frequency of participation and types of activity. Four types of leisure and sport participants could be identified: occasional windsurfers, social windsurfers, competitive windsurfers and pleasure windsurfers. On the one hand, occasional windsurfers and social windsurfers were types of social participants, on the other hand, competitive windsurfers and pleasure windsurfers were types of serious participants. The findings of the conjoint analysis include the following: season was the most influential factor in participant preferences for occasional and social windsurfers, while season and wind velocity were more influential factors for competitive windsurfers.

Keywords: recreation specialization, conjoint analysis, preference behavior, windsurfing

1. Introduction

Windsurfing has become a popular water sport since it was introduced in Japan in 1972. It is estimated that the number of windsurfing participants as of 1998 was around 300,000 [Ministry of Transport, (1998)]. Recently, improved equipment for windsurfing has been developed, and its operability and function have progressed rapidly [Hirano and Yanagi, (2000)]. It is expected that windsurfing will become more widespread in Japan in the future.

This study uses the conceptual framework of recreation specialization to analyze windsurfers’ preference behaviors in the participation decision making process. Recreation specialization is a concept that explains the developmental process of behavior patterns whereby recreation participants acquire knowledge and skills and progress to higher stages of involvement in a particular leisure activity over time. Findings based on this framework are useful for understanding the behavior characteristics of each subgroup in terms of participants’ different expectations and desires. To examine windsurfers’ preferences, conjoint analysis was used in this research. The conjoint models were developed to estimate consumer behaviors in the sphere of marketing research [Wittink and Cattin, (1989)], and have recently become a useful technique for analyzing participant preferences in leisure and sport activities. The use of this type of analysis allows researchers to determine the preference structure of the individuals under study. Thus, the purpose of this study is to investigate behavioral differences in...
preference structure among windsurfer specialization subgroups using conjoint analysis.

2. Literature Review

2.1. Specialization Framework

Bryan (1977) has argued that leisure and sport participants can be arranged along a specialization continuum from the general to the particular and progressing to higher stages of the developmental continuum. Subgroups of participants with varying stages of specialization have been examined in many studies [Ninomiya et al., (2002a)]. Recreation specialization has been used as a framework to explore variation among leisure and sport participants in terms of social conflicts [Devall and Harry, (1981)], depreciative behaviors [Wellman et al., (1982)], crowding perceptions [Hammit et al., (1984); Graefe et al., (1985); Tarrant et al., (1997)], motivations [Chipman and Helfrich, (1988); McFarlane, (1994)], preferences [Virden and Schreyer, (1988)], substitution decisions [Choi et al., (1994)]. This conceptual framework has been employed in understanding leisure and sport behaviors through a segmentation approach.

2.2. Applications of Conjoint Analysis


3. Methods

3.1. Collection of Data

Data for this study was collected in two phases in Sumiyosihama Resort Park, Oita, Japan. In the first phase, participant observation has been conducted for thirty-six days between July 1 and December 12, 1999. The researcher played the role of a participant-as-observer and, following the encounter, recorded observations in fieldnotes. In the second phase, semi-structured interviews have been conducted with sixty-four windsurfers from July 1 through September 26, 1999.

3.2. Procedures of Conjoint Analysis

Conjoint models represent a decompositional approach for predicting an individual’s preferences for a stimulus object as a whole. It makes possible to clarify the relative importance of each attribute by decomposing the overall preference measure. Conjoint analysis allows the researcher to determine the individual’s part-worth utilities for each of the attributes under study. This research analyzed the data using the OTHOPLAN and CONJOINT programs of the Statistical Package for Social Sciences (SPSS 9.0) for the conjoint analysis.

3.2.1. Identifying the Attribute

In the present study, windsurfing magazines and previous research [Hammit et al., (1984); Graefe et al., (1985); Tarrant et al., (1997)] yielded three key attributes influencing windsurfers’ choice behaviors: wind velocity, season and perceived crowding. These attributes will be of deep concern for windsurfers to make the choices. Each of the three attributes was defined in the research design at three levels: wind velocity (weak wind, middle wind and strong wind), season (spring, summer and winter) and perceived crowding (no crowding, light crowding and high crowding).

3.2.2. Constructing the Profiles

The profile, a combination of attributes and levels, is presented to the respondent. The full-profile approach to data collection was used in a $3 \times 3 \times 3$
experimental design. The nine stimulus sets, which were an orthogonal main-effects plan, were generated by the OTHOPLAN program for a full profile conjoint analysis.

3.2.3. Collecting the Ordinal Data

The personal interviews were conducted to collect data for conjoint analysis. Windsurfers were shown the full profile descriptions of the hypothetical choice alternatives and were asked to rank the nine cards (Figure 1) of windsurfing situations from most to least preferred in terms of overall preferences.

3.2.4. Estimating the Part-worth Utilities

The ranking of the nine cards was used as data for ordinary squares regression analysis. The CONJOINT program is available to estimate part-worth utilities. The part-worth scores indicate the influence of each attribute on the respondents’ preferences, thus creating a windsurfing behavior profile.

3.2.5. Calculating the Relative Importance

The part-worth scores can be combined to show the overall importance of each attribute. The relative importance values are calculated by examining the range in the part-worth utilities for each attribute and then standardizing the value by the total range in value of all part-worths.

4. Results

4.1. Segmentation of Windsurfing Participants

According to past research [Bryan, (1977); Ditton et al., (1992); Scott and Godbey, (1994)] on recreation specialization, windsurfing participants could be segmented in terms of skill, frequency of participation and type of activity. Findings through participant observation and interviewing suggested that four types of leisure and sport participants could be identified (Figure 2): occasional windsurfers (n=10), social windsurfers (n=18), competitive windsurfers (n=13) and pleasure windsurfers (n=23). On the one hand, occasional windsurfers and social windsurfers were types of social participants, on the other hand, competitive windsurfers and pleasure windsurfers were types of serious participants. It was supposed that these subgroups could be arranged along a specialization continuum of windsurfing in this study [Ninomiya et al., (2002b)].

4.2. Preference Behaviors of Windsurfing Participants

The findings of conjoint analysis for the four subgroups are discussed as follows, based on participant observation fieldnotes. Figure 3 to Figure 6 indicate the relative importance and the part-worth utilities of each attribute on windsurfing behaviors. The Pearson’s R and Kendall’s tau statistics displayed at each Figure are correlations between the observed ranking values and estimated parameters. In contrast with the previous research [Timmermans, (1987); Louviere and Timmermans, (1992)] testing the predictive validity of the conjoint measurement model, there are relatively high variability values in this research.

The resulting preference structure for occasional windsurfers is presented in Figure 3. Season, accounting for 55.21%, was the most important attribute in determining preferences, and summer (1.40) was preferred over spring (.73); winter (-2.13) was not preferred. In fact, most occasional participants windsurf only in summer. Wind velocity...
accounted for 32.29%; occasional windsurfers preferred middle (4-7m/s) wind (1.10), and did not prefer strong (8m/s and over) wind (-1.13) and weak (2-3m/s) wind (-.97). It seems likely that when the wind is strong, occasional windsurfers cannot windsurf technically, and when it is weak they cannot enjoy windsurfing fully. Perceived crowding, accounting for only 12.50%, was the less important attribute; high crowding (.33) was preferred over light crowding (.13). No crowding (-.47) in the activity spaces was not preferred because beginners need technical advice and help for their safety while windsurfing.

In the preference structure for social windsurfers (Figure 4), the most important attribute was season, accounting for 50.48%; summer (1.04) and spring (.85) were preferred, but winter (-1.89) was not considerably preferred. This shows that social windsurfers do not want to endure cold while windsurfing. The importance of wind velocity was 36.42%; social windsurfers preferred middle wind (.96) over strong wind (.19). While some of them do not have enough skill for a strong wind, others tend to think about enjoying windsurfing without constraint. The least important attribute was perceived crowding, accounting for 13.10%. Social windsurfers preferred higher crowding (.48) over light crowding (.20) and no crowding (.28), as they often come to activity spaces more for social interchange with their friends than for the actual windsurfing.

The preference structure for competitive windsurfers is presented in Figure 5. The importance of season accounted for 44.79%, almost the same as the importance of wind velocity, which accounted for 44.02%. Summer (1.36) was preferred over spring (.26), and winter (-1.62) was not preferred. Although most competitive windsurfers tend to windsurf frequently all the year round, they do not prefer the winter season. The competitive windsurfers preferred strong wind (1.13) over middle wind (.67) and did not prefer weak wind (-1.80). Because of the desire to master the skill level corresponding to a gale, strong wind is preferred. Perceived crowding, accounting for 11.20%, is of low importance. Competitive windsurfers wish for high crowding (.41) in the activity spaces and do not prefer no crowding (-.33) and light crowding (-.08).

In the preference structure for pleasure windsurfers (Figure 6), the most important attribute was wind velocity, accounting for 60.21%; strong wind (1.86) in particular and middle wind (.52) were preferred, but weak wind (-2.38) was not significantly preferred. Since pleasure windsurfers aggressively pursue opportunities for planing across water, they greatly prefer strong wind for speed sailing. The importance of season, accounting for 24.33%, was low; summer (.71) was preferred over spring (.29), and, as for other participants, winter (-1.00) was not preferred. The least important attribute was perceived crowding, accounting for 15.46%; pleasure windsurfers preferred high crowding (.49) over light crowding (.10) and no crowding (.59). The reason windsurfers are pleased to have a large number of participants in activity spaces is the pleasure they
have enjoying conversation concerning windsurfing while ‘waiting for wind’ when the wind does not blow.

5. Conclusions

The purpose of this study was to investigate behavioral differences among windsurfers using a conceptual framework of recreation specialization. Conjoint analysis was applied to examine participant preferences among specialization subgroups. Three attributes, wind velocity, season and perceived crowding, were considered in the research design. The data were collected through personal interviewing, and participant observation was also conducted simultaneously. It was found through quantitative and qualitative methods that windsurfers differ markedly in terms of preference behaviors. The conclusions of this study are as follows.

First, season was the most influential factor in preferences for occasional and social windsurfers, season and wind velocity were the important attributes for competitive windsurfers, and wind velocity was the most important attribute for pleasure windsurfers. Occasional and social windsurfers prefer middle wind, and competitive and pleasure windsurfers prefer strong wind. Thus, the former, social windsurfers and the latter, serious windsurfers were identified and their differences were reflected in their preference behaviors. Scott and Godbey’s (1994) fieldwork study indicates that social participants and serious participants are differentiated by their attitudes and behaviors. Also, this study suggests that differences in preference behaviors between social participants and serious participants in windsurfing vary in stages within a specialization continuum.

Second, no subgroup was perceived as crowding sensitive in windsurfing situations. All of the subgroups do not prefer to see fewer people and instead prefer to see more people in the activity spaces. The past research on recreation specialization and crowding indicates that the more specialized hikers become, the more they become sensitive to crowding [Graefe et al., (1985)], while the more specialized kayakers and canoeists become, the less they feel crowded when they encounter other participants [Tarrant et al., (1997)]. The findings from this study suggest that perceived crowding is not an influential factor in participant preferences for windsurfers, many of whom enjoy interchange and conversation with their friends in the activity spaces.

Recreation specialization has been used to explore variation among leisure and sport participants in terms of their preferences, motivations, attitudes, etc. [Scott and Shafer, (2001)]. The results of this study also suggest that recreation specialization offers a useful framework for understanding participant preferences in leisure and sport behaviors. However, no attempt had previously been made to examine preference structures using conjoint analysis and a conceptual framework of recreation specialization. The results of this study indicate that the application of conjoint analysis enhances understandings of preference behaviors in leisure and sport studies.
References


Name: Hiroaki Ninomiya

Affiliation: Associate Professor, Faculty of Economics, Oita University

Address: 700 Dannoharu, Oita, 870-1192, Japan

Brief Biographical History:
1990- Master’s Course, Graduate School of Physical Education, National Institute of Fitness and Sports in Kanoya
1992- Doctoral Program, School of Fitness and Sport Sciences, Chukyo University
1995- Research Assistant, School of Fitness and Sport Sciences, Chukyo University
1996- Assistant Professor, Faculty of Economics, Oita University
1998- Associate Professor, Faculty of Economics, Oita University

September/2003-March/2004 Visiting Researcher, Centre for Tourism Policy and Research, Simon Fraser University, Canada

Main Works:

Membership in learned Societies:
• Japan Society of Physical Education, Health and Sport Sciences
• Japan Society of Sports Industry
• Japan Society of Sport Sociology
• Japanese Society of Lifelong Sports
• Japan Society of Leisure and Recreation Studies