Using innovativeness to classify golfers: A comparison of cluster analysis and diffusion theory

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According to the World Golf Foundation GOLF 20/20, in 2000, golf accounted for $62.2 billion in goods and services. Schneiderman (2000) attributed the increase in popularity to demographic change. As the demographics of golfers have shifted, the consumer market has become more diverse and as a result has impacted the golf industry. This phenomenon has gone further to influence many equipment makers to produce and develop golf equipment specifically for the newly attracted segments.

Advancement in technology is another reason for the increased popularity of the game (Miller, Pursell, & Walker, 2000). Due to high technology applied to new golf clubs entering the market each year, the game of golf has become more enjoyable for an increasing number of people. With the newest golf products, golfers are now able to hit further and straighter while putting less force into the swing. Generally, the latest featured golf products are priced at a premium. Regardless of the cost golfers are still eager to purchase new golf equipment, since the product promises to improve the golfers' skill or score.

Each year golf manufacturers introduce new models. Not all models succeed and some companies end up with a substantial financial loss. Yoh, Pedersen, and Park (2006) contend that such failures are due to miscommunication. Others argue that it is the result of an inefficient introduction strategy (Marez & Verleye, 2004). In order to avoid these consequences, understanding consumer behavior prior to introducing a new product is critical.

The literature on diffusion of innovation provided the overall framework of the present study. Diffusion theory is a theory of communication concerned with new ideas and products. It has previously been applied in various disciplines yet rarely applied in the sport context. Rogers (1995) defines diffusion as a process by which an innovation is communicated and adopted through certain communication channels to members of a social system. The key concept in the diffusion of new product is consumer innovativeness. Innovativeness is generally viewed as a personality trait that all individuals possess to some degree. It has been revealed to be a good determinant in identifying consumers who are most likely to buy new products as well as classifying consumers into various adoption categories. In fact, there are several ways to measure innovativeness which include the time-adopter method, cross-sectional method, and self-report method. In this study, innovativeness was measured utilizing the self-report method in product or domain-specific context. Prior research that has employed domain-specific innovativeness to classify consumers used arbitrary cut-offs, percentile based split-up, and cluster analysis. This study utilized and compared the latter two techniques in segmenting the golfers. The percentile based split-up technique is using the standardized adopter categories generated by Rogers (1995). In other words, it is classification based on theory: innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%), and laggards (16%).

The main purpose of this study was to compare two different techniques in segmenting golfers. Furthermore, this study sought to examine the prominent variables for each classification that distinguish the adopter categories. The participants of the present study were 333 adult golfers who are members of the Colorado Golf Association and Colorado Women's Golf Association. Data were collected employing a web-based survey. The survey was comprised of seven major parts: innovativeness (Goldsmith & Hofacker, 1991), information acquisition activity for new golf product purchase (Murray, 1991), word-of-mouth communication behavior (Lam & Mizerski, 2005), susceptibility to interpersonal influence (Bearden, Netemeyer, & Teel, 1989), golf product involvement (Laurent & Kapferer's, 1985), golf consumption behavior, and demographic characteristics. To obtain acceptable response rate, an incentive was used and Dillmans' (2007) recommendation was followed. Statistical techniques for the present study involved exploratory factor analysis (EFA), internal consistency analysis, cluster analysis and discriminant analysis.

Based on the percentile based split-up classification (five adopter category explained above), the result of discriminant analysis using stepwise procedure revealed that golf involvement, golf consumption, print source information, and handicap level were able to discriminate the five groups. The hit ratio, the percentage of correct classification, was 42%.

Conversely, using hierarchical cluster analysis revealed three cluster solutions. The three groups were labeled as early adopters, early majority, and late majority. The result of discriminant analysis using stepwise procedure revealed that golf involvement, golf consumption, print source information, and susceptibility to social influence were able to discriminate the three groups. The hit
ratio was found to be at 51.7%.

The results of the analysis show there is a gap between theory classification and cluster analysis. In theory there are five adopter groups. However, cluster analysis revealed only three. This may be due to the characteristics of the sample. Indeed diffusion of innovation theory is a sound doctrine and we have no intent to criticize it. However, we may cautiously suggest that cluster analysis may be an improved method in that it is more specific to the sample being studied. The hit ratios for both methods are considered an acceptable level of predictive accuracy. The prominent variables also are consistent except for handicap level and susceptibility to social influence. In conclusion, marketers may find both techniques useful in yielding insights for new product situations and take advantage of the information in effectively penetrating the golf market while also communicating with their future prospects.