

Chapter 29

A Status Property Classifier of Social Media User's Personality for Customer-Oriented Intelligent Marketing Systems: Intelligent-Based Marketing Activities

Tsung-Yi Chen

Nanhua University, Chiayi County, Taiwan

Yuh-Min Chen

National Cheng Kung University, Tainan City, Taiwan

Meng-Che Tsai

National Cheng Kung University, Tainan City, Taiwan

ABSTRACT

Enterprises need to obtain information about not only specific customer preferences, but also, more importantly, customers' psychological characteristics that significantly influence their consumption behaviors and response to intelligent-based marketing activities. If enterprises want to implement more precise intelligent selling activities for customers, customers' personality information will serve as a highly valued reference. The automatic detection method proposed in this study is based on techniques such as text semantic mining and machine learning to conduct personality type prediction on the target by collecting and analyzing the target's social media data. In the test, 5,858 statuses were obtained, 815 of which were labeled, with 122 effective tags. In general, when $n = 5$, the labeling rate can reach 60-80%. The status property classifier (SPC) proposed in this study can predict the personality type (PT) of the user publishing the status set with a high degree of accuracy by conducting text semantic mining on the status set.

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1. INTRODUCTION

The business purpose of enterprises is to gain profits by creating customers (Drucker, 1995). As a natural result, enterprises must carry out marketing activities to attract customers to consume products or services. Conventionally, non-personalized marketing techniques such as radio advertisements, TV commercials, flyers, and web banners have been frequently used by enterprises to promote their products and services. However, customer-oriented marketing techniques are gradually attracting attention in recent years. In business intelligence (BI), customer-oriented marketing emphasizes the necessity of obtaining information about customers before marketing, so as to dynamically adapt to customer demands. The results from the research conducted by Park and Holloway (2003) indicate that customer-oriented adaptive selling behavior can indeed promote product sales.

An intelligent-based enterprise needs to obtain information about specific customer preferences, and more importantly, about customers' psychological characteristics. The collected customer information has a significant influence on their consumption behaviors and response to marketing activities. Therefore, effective communication strategies will influence customers' attitudes and behaviors (Knapp & Daly, 2002). The relationship between psychological characteristics, also known as personality traits, and communication strategies is that personality dominates interactive behaviors and communication methods between individuals, indicating that individuals with different personality traits tend to use different approaches to communicate. Therefore, if enterprises want to implement more precise adaptive selling activities for customers, customers' personality information will serve as a highly valued reference.

Different personality models have their own assessment scales. In order to obtain the personality type of a testee, it is inevitable to conduct a questionnaire test or experts' practical observation of the testee's behavioral interaction with other people, in order to analyze his/her test responses or behavioral recordings further, and thereby infer the testee's classification result. If enterprises attempt to gain customers' personality information, they must perform tests or observations on numerous customers. This definitely requires time, human resources, and is cost intensive, which is apparently not a cost-effective investment when compared to the benefits that can be obtained from adaptive selling. However, from the perspective of an intelligent-based enterprise, collecting customers' personality information without any trace and conducting targeted selling will be the most optimal situation. Therefore, we can come to the conclusion that a new evaluation technique that can perform automatic personality prediction on a great number of objects without any trace will be able to meet enterprises' requirement with respect to adaptive selling.

However, it is not easy to predict the target's personality traits, especially when the target is a customer whom we have never met. Fortunately, various booming online social media in recent years may provide opportunities for solving this difficulty. Nowadays, a great many people expose their personal information and interact with others through various popular social media sites such as Facebook and Twitter (Golbeck et al., 2011). Especially on Facebook, the world's premier social media site in terms of the number of users (Wikipedia, 2015; Stieglitz et al., 2018), the online social behaviors of users are particularly evident.

On these social media platforms, users are not likely to disclose their own personality traits in a direct fashion. However, both the behaviors of operating their own personal accounts and the digital records of interacting with others can be used as clues for inferring users' personality traits. Similar to the past observation of targets in the real world, the observation now is just transferring to the virtual world. Up to now, there have been a large number of research results showing that the characteristic of user information on social media is related to their scores in personality traits (Golbeck et al., 2011; Adali &

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