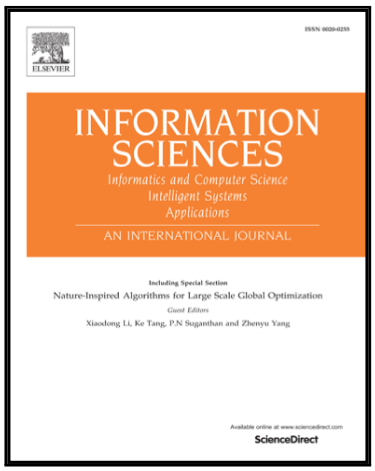

Understanding influence power of opinion leaders in e-commerce networks: An opinion dynamics theory perspective

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Understanding influence power of opinion leaders in e-commerce networks: An opinion dynamics theory perspective

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Abstract

In this paper, from the perspective of opinion dynamics theory, we investigate the interaction mechanism of a group of autonomous agents in an e-commerce community (or social network), and the influence power of opinion leaders during the formation of group opinion. According to the opinion's update manner and influence, this paper divides social agents within a social network into two subgroups: opinion leaders and opinion followers. Then, we establish a new bounded confidence-based dynamic model for opinion leaders and followers to simulate the opinion evolution of the group of agents. Through numerical simulations, we further investigate the evolution mechanism of group opinion, and the relationship between the influence power of opinion leaders and three factors: the proportion of the opinion leader subgroups, the confidence levels of opinion followers, and the degrees of trust toward opinion leaders. The simulation results show that, in order to maximize the influence power in e-commerce, enhancing opinion leaders' credibility is crucial.

Keywords: E-commerce network, opinion dynamics, bounded confidence rule, opinion leader subgroup, herd behavior.

1. Introduction

The rapid development of Internet technology and Web 2.0 has stimulated the growth of customer-centered e-commerce, which has recently received increased attention in the fields of business applications, business strategies, and user behavior [34]. Within the e-commerce environment, agents access social knowledge and share experiences peer-to-peer (P2P) or through word of mouth (WOM), and then make their own decisions. In such a collective decision-making process, opinions play a fundamental role since they can deeply interact with each other [3].