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Understanding the Qualitative Nature of Product Reviews by Integrating Text Processing Algorithm and Usability Feature Extraction

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Abstract : The quality of a product to be usable has become the basic requirement in consumer's perspective while failing the requirement ends up the customer from not using the product. Identifying usability issues from analyzing quantitative and qualitative data collected from usability testing and evaluation activities aids in the process of product design, yet the lack of studies and researches regarding analysis methodologies in qualitative text data of usability field inhibits the potential of these data for more useful applications. While the possibility of analyzing qualitative text data found with the rapid development of data analysis studies such as natural language processing field in understanding human language in computer, and machine learning field in providing predictive model and clustering tool. Therefore, this research aims to study the application capability of text processing algorithm in analysis of qualitative text data collected from usability activities. This research utilized datasets collected from LG neckband headset usability experiment in which the datasets consist of headset survey text data, subject's data and product physical data. In the analysis procedure, which integrated with the text-processing algorithm, the process includes training of comments onto vector space, labeling them with the subject and product physical feature data, and clustering to validate the result of comment vector clustering. The result shows 'volume and music control button' as the usability feature that matches best with the cluster of comment vectors where centroid comments of a cluster emphasized more on button positions, while centroid comments of the other cluster emphasized more on button interface issues. When volume and music control buttons are designed separately, the participant experienced less confusion, and thus, the comments mentioned only about the buttons' positions. While in the situation where the volume and music control buttons are designed as a single button, the participants experienced interface issues regarding the buttons such as operating methods of functions and confusion of functions' buttons. The relevance of the cluster centroid comments with the extracted feature explained the capability of text processing algorithms in analyzing qualitative text data from usability testing and evaluations.

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