Using ZMET to Construct the Consensus Map of the Users on Yahoo Auction Platforms

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Abstract

Many consumers often collect the related product information before shopping, for price negotiating and accordingly purchasing the product if the negotiation is successfully executed. Therefore, the online auction gradually becomes the important means of consumer shopping behavior. In this paper, the Zaltman Metaphor Elicitation Technique (ZMET) is proposed to construct the integrated mental model of the users on Yahoo auction platforms by utilizing the behavior model of C2C consumer to deeply verbally interview the user peer-to-peer and the non-verbal (pictures, photos) analysis is also fulfilled at the same time. As a result, the ZMET outcomes could provide the valuable reference for the businesses which are interested to build the on-line auction website in the future.

Keywords: Auction Platforms, Zaltman Metaphor Elicitation Technique, Mental Model, Consensus Map

1. Objectives and motivation

Online auction purchases not only dissolve the pricing mechanism in traditional transactions, but also offer customers a new way of shopping; this new way of purchase leads to another boom of e-commerce. According to a report issued by Organization for Economic Co-operation and Development (OECD), total transaction amount of e-commerce worldwide is increasing. Because communities with similar interests, although located in different geographical areas, can be linked by internet, many new trade activities are formed. Such diversified trade activities attract more people to join the boom of e-commerce and, as a result, auction websites are established one after another. The popularity of online auction triggers the motivation of this study. One of the popular auction websites in Taiwan – Yahoo Auction – is studied by this research to understand its key mechanisms. Investigation of these mechanisms is presented as well.

This study uses the Zaltman Metaphor Elicitation Technique (ZMET) proposed by Professor Gerald Zaltman in 1990s to study customers’ psychological rationale of using Yahoo Auction platform and identifies what the critical drivers to their behavior are in order to construct a mental model that is applicable to the public. Effective marketing strategies can be drafted based on this model and this study serves as references for future entrants to related industries and merchants on auction platforms. This study provides valuable information for businesses and operations and helps to increase competitiveness of businesses.

2. Research methodology

In this study the Zaltman Metaphor Elicitation Technique is utilized to construct the consensus map of web consumer. Zaltman Metaphor Elicitation Technique is a mixed non-text language (images) and texts (In-Depth Interview) to study consumers. This new consumer research method is proposed by Prof. Zaltman of the Mind of the Market Laboratory of Harvard University in the 90’s [1]. Our intent is to contribute further to the understanding of consumers’ impressions of advertising and the meanings that they associate with it, as well as to introduce the Zaltman Metaphor Elicitation Technique (ZMET) more formally as a means to conduct advertising research[1] [2]. ZMET is a hybrid methodology grounded in various literatures, including verbal and nonverbal communication, visual sociology,
visual anthropology, literary criticism, semiotics, mental imagery, cognitive neuroscience, and phototherapy. The method involves semi-structured, in-depth, personal interviews centered on visual images that the informant brings to the interview [3] [4].

The main concept of includes metaphor, image analyze and story-telling, using images as a medium, metaphors as a method for exploration tool (Metaphor Analysis). Images can be used to communicate its visual metaphor, as seen in Figure 1.

![Figure 1. Metaphor cognitive operation plans [1]](image)

ZMET provides the compound method of credibility and efficiency, especially image analysis. It can develop non-textual communication channels and induce specific thoughts and feelings of the consumers; displaying the mental modes of the consumers and other insights into the rich inner world of the consumers [5].

3. Research design and process

3.1 Interview design

To meet the requirement of ZMET, this study uses semi-structured interviews. Interview outline and process are provided to interviewees in advance to help them answer specific questions during interviews. Visual impression is also incorporated in interviews [3] [4]. Mishler [6] thinks that because this method includes guided conversation, it is more effective, reliable and better matches the studied subject than traditional structured interviews. In this study, the concept of laddering [7] is applied to designing guided interviews so that constructs are developed ladder by ladder. In order to identify individuals’ constructs, a picture or photo chosen by the interviewees and interview outline are to be provided during in-depth guided interviews.

3.2 Sampling

This study uses the Personal Involvement Inventory (PII) scale proposed by Zaichkowsky [8] to select subjects with high involvement with Web TV PPS. There are ten items in PII scale and each item is rated from one to seven. The lowest total score is ten and the highest is seventy. Higher score indicates higher involvement and this interpretation is kept as the fundamental principle to select samples.

3.3 Research process

Research process includes finalizing research objective and research questions, research methodology, literature review, using PII scale to select interviewees, pre-interview preparation, executing ten steps of ZMET, data analysis, constructing consensus map, and concluding the study.

3.4 Seven assumptions of ZMET

The ZMET takes into account the 7 concepts of the Cognitive Psychology [9]:
1) Most human communication is nonverbal.
2) Even when thoughts are ultimately expressed verbally, the thought-process is still nonverbal
3) Metaphor is an essential part of thinking and it is a highly useful mechanism to study if we attempt to understand the consumer behavior and their thoughts and feelings.
4) Images associated with sentiment often provide us with significant information, which can be an important factor in the research.
5) Consumers possess the mental model which represents their knowledge and behavior found in the associated thoughts (concepts, composition), based on their market experience.
6) Our deep and hidden cognitive structure is accessible.
7) Emotions and rationale intermingle in the minds of consumers.

3.5 Interview steps – ten steps of ZMET

Interviews followed the 10 steps for the ZMET as outlined by [1]:
Step 1: Storytelling: Participants describes the content of each picture.
Step 2: Missed issues and images: Participants describes the pictures he/she was unable to obtain and explains their relevance.
Step 3: Sorting Task: Participants sorts his/her pictures into meaningful piles.
Step 4: Construct Elicitation. A modified version of the Kelly Repertory Grid and the laddering technique [10] was used to elicit basic constructs and their interrelationships.
Step 5: Most Representative Picture. Participants were asked to select the picture most representative of the brand’s image.
Step 6: Opposite Images: Participants describes pictures that represent the opposite of the task, for example, "what is not Nike."
Step 7: Sensory Images: Participants were asked to use other senses to describe what does and does not represent the concept being explored.
Step 8: The Mental Map: Participants creates a map or a causal model using the constructs that have been elicited.
Step 9: The Summary Image: Participants, with assistance from a technician, creates a summary image using digital imaging techniques.
Step 10: The Vignette: Researcher creates a map or causal model involving the most important constructs.

4. ZMET application and mental model construction

4.1 PII scale analysis

Two hundred and thirty-four PII scale scores are collected from online auction customers and the scale is developed primarily based on the information of Yahoo Auction. As suggested by Zaichkowsky, the highest and lowest PII scores are removed to isolate data from outliers’ impact. There are seven PII scores of ten and twelve PII scores of seventy. High involvement is defined as the third and fourth quartile between the 169th to 222nd score, ranked from low to high. Fifty-four customers are selected.

Christensen and Olson [11] and Zaltman [1] point out that when researchers use in-depth interviews to construct consensus maps, interviewing a small group of people who can represent total population is sufficient to identify deep constructs. Interviewing four to five people who can represent total population can provide ninety percent of the information collected from general qualitative studies. Therefore, we consult these fifty-four selected people and ask for their participation willingness. Twelve people, ranging from eighteen to twenty-seven in age, are willing to participate in in-depth interviews. Most interviewees receive college education and details are presented in Table 1.

4.2 Key constructs identification

We compare input from different interviewees and identify similar and meaningful constructs. After data analysis, mutual constructs are identified [3]. This study identifies one hundred and eighty-five key constructs in total. This study then applies the selection principles for mutual constructs.
proposed by Christensen and Olson [11] and Zaltman [1]: Mutual constructs have to be found in more than one-third of total interviewees. Therefore, this study identifies thirty-one mutual constructs that are mentioned by four or more people.

**Table 1: Information of twelve interviewees**

<table>
<thead>
<tr>
<th>NO.</th>
<th>Sex</th>
<th>Age</th>
<th>Occupation</th>
<th>Hours spend on Yahoo Auction every week</th>
<th>Experience with Yahoo Auction</th>
<th>PII score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>F</td>
<td>26</td>
<td>engineer</td>
<td>3-8 hours</td>
<td>more than three years</td>
<td>58</td>
</tr>
<tr>
<td>B</td>
<td>M</td>
<td>20</td>
<td>clerk</td>
<td>3-8 hours</td>
<td>one to two years</td>
<td>62</td>
</tr>
<tr>
<td>C</td>
<td>F</td>
<td>22</td>
<td>student</td>
<td>3-8 hours</td>
<td>two to three years</td>
<td>61</td>
</tr>
<tr>
<td>D</td>
<td>M</td>
<td>24</td>
<td>student</td>
<td>8-14 hours</td>
<td>two to three years</td>
<td>53</td>
</tr>
<tr>
<td>E</td>
<td>M</td>
<td>27</td>
<td>engineer</td>
<td>More than 14 hours</td>
<td>more than three years</td>
<td>56</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>22</td>
<td>student</td>
<td>3-8 hours</td>
<td>two to three years</td>
<td>53</td>
</tr>
<tr>
<td>G</td>
<td>M</td>
<td>21</td>
<td>student</td>
<td>8-14 hours</td>
<td>one to two years</td>
<td>55</td>
</tr>
<tr>
<td>H</td>
<td>M</td>
<td>24</td>
<td>engineer</td>
<td>8-14 hours</td>
<td>two to three years</td>
<td>68</td>
</tr>
<tr>
<td>I</td>
<td>F</td>
<td>18</td>
<td>student</td>
<td>3-8 hours</td>
<td>one to two years</td>
<td>64</td>
</tr>
<tr>
<td>J</td>
<td>F</td>
<td>22</td>
<td>student</td>
<td>8-14 hours</td>
<td>one to two years</td>
<td>57</td>
</tr>
<tr>
<td>K</td>
<td>F</td>
<td>22</td>
<td>student</td>
<td>8-14 hours</td>
<td>more than three years</td>
<td>56</td>
</tr>
<tr>
<td>L</td>
<td>F</td>
<td>21</td>
<td>student</td>
<td>3-8 hours</td>
<td>one to two years</td>
<td>60</td>
</tr>
</tbody>
</table>

**4.3 Paired-construct analysis**

After listing key constructs, paired-constructs are found by mapping interviewees’ descriptions with key constructs [12] [13]. Kelly Repertory Grid and Laddering technique are used to picture the relationship between constructs. Using these two methods can help interviewees to describe constructs precisely. Paired-constructs have to be mentioned by one-fourth or more of the total interviewees and have to have casualty [11] [14]. Casualty between constructs is summarized in Table 2.

**Table 2: Paired-construct statistics**

<table>
<thead>
<tr>
<th>Casualty construct</th>
<th>Number of people who mention this construct</th>
</tr>
</thead>
<tbody>
<tr>
<td>convenience→ high efficiency</td>
<td>4</td>
</tr>
<tr>
<td>high efficiency→ save time</td>
<td>4</td>
</tr>
<tr>
<td>save time→ money</td>
<td>3</td>
</tr>
<tr>
<td>complain→ release their pressure</td>
<td>6</td>
</tr>
<tr>
<td>release their pressure→ relax</td>
<td>4</td>
</tr>
<tr>
<td>diversified products→ diversified products</td>
<td>7</td>
</tr>
<tr>
<td>diversified products→ price comparison</td>
<td>3</td>
</tr>
<tr>
<td>cheap→ make purchases</td>
<td>7</td>
</tr>
<tr>
<td>make purchases→ curiosity</td>
<td>4</td>
</tr>
<tr>
<td>convenience→ save time</td>
<td>9</td>
</tr>
<tr>
<td>build wealth→ curiosity</td>
<td>4</td>
</tr>
<tr>
<td>make purchases→ happily</td>
<td>3</td>
</tr>
<tr>
<td>build wealth→ make purchases</td>
<td>3</td>
</tr>
<tr>
<td>cost down→ build wealth</td>
<td>8</td>
</tr>
<tr>
<td>happily→ pleasure</td>
<td>4</td>
</tr>
</tbody>
</table>
5. Conclusion

5.1 Consensus map construction

Consensus maps are built under ZMET and serves as a tool to enter customers’ subconscious. Consensus maps are drawn based on key constructs and paired-constructs that are found in one-fourth or more of the total interviewees. Figure 2 shows the consensus map.

![Consensus map of Yahoo Auction](image)

Note: N is the number of people who mention this construct; n is the number of people who mention this construct when another specified construct is also mentioned.

Figure 2: Consensus map of Yahoo Auction

5.2 Consensus map observation

We select twelve interviewees with high involvement with Yahoo Auction as our source of information and we draw the consensus map by connecting difference ideas and looking at the casualty relationship table. Figure 2 (consensus map) shows eight initial constructs, i.e., “classified ads,” “cheap,” “complain,” “cost down,” “convenience,” “being lied,” “expectation,” and “diversified products.” They are independent and there is no correlation between them. Customers have seven final constructs toward Yahoo Auction, i.e., “money,” “pleasure,” “unsatisfaction,” “relax,” “curiosity,”
“joy” and “price comparison.” For example, initial construct of “convenience” has its relationship with “efficiency” and “save time”; final construct of “money” is also the final construct of “classified ads,” “fast,” and “save time.” The idea of time is money is further strengthened.

Of the thirty-one mutual constructs presented in Table 1, “convenience” is a construct mentioned by all twelve interviewees and “complain” is a construct mentioned by eleven interviewees. Construct coverage is the most fundamental indicator of consensus maps. More than eighty percent of mutual constructs are covered by individual constructs [1]. Among the twelve interviewees, the number of individual constructs varies from twenty to thirty-eight and construct coverage is 82.37%. This consensus map clearly shows high interrelation of interviewees’ individual mental model and presents the consensus of the interviewees. Therefore, we can find that these mutual constructs have significant marketing impact on Yahoo Auction.

The consensus map summarizes and combines twelve high-involvement interviewees’ perception of Yahoo Auction. After studying mutual constructs mentioned by one-third of the interviewees i.e., more than 4, and paired-constructs mentioned by one-fourth of the interviewees, i.e., more than 3, we find six mutual constructs that are independent and are not related to the others. Six mutual constructs are “peace of mind,” “marking campaign,” “waiting,” “safety,” “sells everything” and “hard to distinguish.” Zaltman and Coulter [1] believes that the focus of consensus maps should be the interrelation between constructs, instead of any stand-alone construct because consensus maps provide little insight if there is no mutual and consistent construct. Therefore, in this study we exclude the above six constructs from the consensus map.

5.3 Concluding remarks

This study identifies the initial constructs of customers’ motivation to use Yahoo Auction: When customers are not familiar with auction, they start from the “cost down” construct. “Convenience” is another construct that drives inexperienced auction customers to try and make purchase on auction platforms. “Diversity” of auction products widens the selection pool. “Convenience” motivates customers to make purchases, bid for the desired products, and “expect” the arrival of products. “ Classified ads” helps customers to quickly find their desired products. “Complaints” regarding online purchases are frequently heard and worrying about “being lied” has been the biggest concern of online shopping in virtual world.

As for the connecting constructs between initial constructs and final constructs, the wide spectrum of available products on Yahoo Auction provides customers with “diversified products.” Well organized classified ads enables “fast” review, “High efficiency” and “save time” are achieved as a result of convenience. The cheap price makes buyers want to “make purchases” and wait “happily” to look forward to the arrival of the products. Satisfying products bring “surprise” to customers; however, when customers are fooled by sellers, they become “angry.” For buyers, cost down is another way to “build wealth”. Customers can “release their pressure” by giving negative comments publicly when they want to complain about products or services.

The final constructs generated from the above initial constructs and connecting constructs are: fast “price comparison” is enabled by keywords search. Time is “money.” Customers don’t want to receive “unsatisfactory” products or services and have negative online shopping experience. Ultimately, customers desire “joy,” “relax,” “pleasure” and “satisfaction” from their online shopping experience.

The study shows that the mental model of Yahoo Auction has its positive side and negative side. Positive side include “convenience,” “diversified products,” “cheap,” “efficiency,” “save time,” “joy” and “satisfaction.” Negative side includes “being lied,” “complain,” “angry” and “unsatisfaction.” The result of our study can serve as reference for future entrants to online auction market as well as existing practitioners in the market. This study helps to develop and improve effective marketing strategies.

6. References