

Different Information Demand on Electronic Auctions of Used Sports Equipment among Participants' Experience Groups

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Abstract—The purpose of this study was to investigate in different participants' information demand on used sports equipment. The study collected data from literature review and survey. Through analyzing relevant researches about electronic auction information, the study generated 34 information of used sports equipment. The pilot was selected 30 subjects in Feb. 2014 to test reliability (0.879) and validity. Then, 111 samples of study were collected from internet survey during Mar. to Apr. 2014. As the result, the participants can be classified into four groups. There were (beginners), (pro-buyers), (general-buyers), (sellers). The four groups of participants have significant different demand on used sports equipment information. The beginners group showed the highest demand on item damage condition, use of time and location. The pro-buyers group showed the highest demand on aggregate shipments fee, special offers and leave feedback to a seller. The general-buyers group showed the highest demand on buy it now price. The sellers group showed the highest demand on system functions. The study suggested that the participants should provide variously important information to meet different groups' need.

Keywords- *Electronic Auction participants; Information Demand; used sports equipment*

I. INTRODUCTION

In traditional second hand auction market, both sellers and buyers do not have enough time to develop a thorough bidding strategies. Due to the irregular auction time, it is difficult to satisfied sellers and buyers on the same time [1]. Nowadays, electronic auctions is a convenient and efficient access that will not be restricted from geography [2]. Electronic auctions is also a virtual space that provides sellers and buyers to do business [3]. According to research, there are over half of the second hand products listing on electronic auctions site [4]. Second hand products still have its value is because their durable characteristics [5]. In Taiwan, regular exercise population has increased gradually from 2007's 20.2% to 2013's 30.4% [6]. Therefore, the need of sports equipment can be expected. Because of the electronic auctions characteristics, products cannot be seen or touching on the internet [7], it is important to show the right and needed information on the internet. The study's purpose is to find out what is the important information of used sport equipment. Then compare different participant's information demand.

According to the research, electronic auctions have six factors [8], there are auctioneer, seller, buyer, products, rules

and phases. The study use different experience electronic auction participants to analyze the demand of information.

For the buyers, they need to know completely information about the product before purchasing so they can make a wise decision [9], especially the high value or unfamiliar product. In order to reduce the trade risk, consumer may find solutions to increase their confidence [10]. Information searching is one of the solution to reduce the trade risk [11], information searching is an activity that consumer can consult or rely on before they doing a business.

The study focus on the information that provided by electronic auction platform of second hand sports equipment, there are 34 information [12,13] that listing on the site. The study separate information to 3groups, there are product descriptions, product price, system function (Table1) .

TABLE I
Information Demand on Used Sports Equipment

Descriptions	Price	Function
1.Brand	14.Starting price	22.Date
2.Uniqueness	15.Auction reserve price	23.Time left
3.Use of time	16.Buy it now price	24.Shipping
4.Selling reasons	17.aggregate shipments fee	25.Transnational transport
5.Item damage condition	18.Special offers	26.Number of total feedback limitation
6.Category	19.Current bid	27.Number of negative feedback limitation
7.Title	20.Number of bids	28.Automatically extend
8.Location	21.Highest bidder	29.Close the bid earlier
9.Pictures		30.Automatic re-published
10.Quantity		31.Quantity of bids
11.Number of browsing		32.Leave feedback to a buyer
12.Number of sent to friend		33.Leave feedback to a seller
13.Number of following		34.Announce the winning bidder

II. METHOD

A. The study site

The used sports equipment market has great potentialities in Taiwan. Not only the growing exercise population, but the regular surfing internet population in Taiwan reach over 1,000,000 in 2012 [14]. The great amount of online shopping market and the rise of environmental awareness [15,16] also promote to establish the used sports equipment shop on electronic auction.

B. Data collection

The researchers posted the self-admitted survey in bulletin board system, which is the most popular discuss website in Taiwan. The bulletin board system has over 1,500,000 members and the sports shop board has an average browsing number of 1,000 per month.

In February, the study collected 30 subjects for the pilot study to test the validity and reliability. The final survey was taken during Mar. to Apr. in 2014 in bulletin board system. The total amounts of return were 111, 103 were valid and the returned rate was 92.8%.

C. Measure

The questionnaire included three dimensions which were demographic variables, internet experience, and information demand on used sports equipment. The demographic variables included gender, age, and education level. The internet experience included role of the auction, transaction method, the age started to use the internet, daily average time to brows the auction, price of the product. The information demand on used sports equipment included 34 functions. The respondents need to judge the importance of the information on a 5-point scale.

In order to test the validity of the measurement, the study analyzed from relevant studies to evaluated fact validity. The researchers also invited scholars and experts who have been studied in the internet behavior and sports marketing to hold a focus group meeting. The results from pilot study showed that the validity was acceptable.

The study applied 30 subjects to do the Cronbach α test. The results showed that the Cronbach alpha of the information demands of the used sports equipment was 0.879 which indicated the reliability was acceptable.

III. RESULTS AND DISCUSSION

A. The distributions of demographic variables

There were 103 respondents in this study. Most of the respondents were male (65%). The average age was 27-year-old. 68.9% subjects' education level was university graduate (Table2).

TABLE2
The distribution of demographic variables

Variable		N	%
Gender	Male	67	65%
	Female	36	35%
	Total	103	100%
Education Level	Senior high school	6	5.8%
	University graduate	71	68.9%
	Graduate school	26	25.2%
	Total	103	100%

Variable	MIN	MAX	MEAN	SD
Age	18	52	27	6.23

B. Internet experience

In the internet experience, 84 (81.6%) of the respondents act as buyers, 80 (77.7%) of the respondents use "buy it now" as their transaction method. In average, the age of starting use the internet and the hour of browsing auction daily were 14-year-old and 1.47 hour. The average price of the product was 1500. Other data are shown below (Table 3).

TABLE3

Internet experience

Variable		N	%
Role of auction	Buyer	84	81.6%
	Seller	19	18.4%
	Total	103	100%
Transaction method	Self-bid	21	20.4%
	Proxy agent	2	1.9%
	Buy it now	80	77.7%
	Total	103	100%

Variable	MIN	MAX	MEAN	SD
Age of starting use the internet	5	35	14	5
Hour of browsing auction daily	0.1	15	1.47	2.12
Price of the product	120	15,000	1,500	1,966

Based on demographic variables and internet experience, the study applied the cluster analysis to divided electronic auction participants into four groups. There are beginners, pro-buyers, general-buyers, sellers. The characteristics of each group showed on Table 4. The users in the beginners group spent less time on surfing internet auction and paying the minimal price among four groups. The users in pro-buyers spent 3.28 hours on surfing the online auction and spent NT\$4,000 in average. The users in general-buyers mostly were male college students and was the youngest group (24-year-old) among the four groups. The users in sellers all used the self-bid as their transaction method.

TABLE4
The characteristics of user groups

Categories	Beginners (19)		Pro-buyers (14)		General-buyers (53)		Sellers (17)	
	%	N	%	N	%	N	%	N
Buyer	100	19	85	12	100	53	0	0
Seller	0	0	15	2	0	0	100	17
Self-bid	0	0	0	0	19	10	65	11
Proxy agent	0	0	0	0	3	2	0	0
Buy it now	100	19	100	14	78	41	35	6
Male	0	0	42	6	100	53	47	8
Female	100	19	58	8	0	0	53	9
Senior	0	0	14	2	3	2	12	2
University	47	9	57	8	83	44	59	10
Graduate	53	10	29	4	14	7	29	5
Age Mean & SD	25	0.83	38	6.85	24	3.25	30	4.06
Age of starting use the internet Mean & SD	12	2.65	22	6.59	12	3.3	15	2.36
Hour of browsing auction daily Mean & SD	0.97	0.59	3.29	5.04	1.17	0.78	1.52	1.46
Trade price Mean & SD	744	607	4040	3848	1079	730	1864	1854

C. The degrees of importance among the demands on used sports equipment information

The top 3 demand information were item damage condition ($M=4.65, SD=0.57$), use of time ($M=4.43, SD=0.62$) and pictures ($M=4.29, SD=0.75$). The top 3 demand information of the “beginners” group were item damage condition ($M=4.79, SD=0.54$), pictures ($M=4.58, SD=0.51$), and use of time ($M=4.58, SD=0.69$). The top 3 demand information of the “pro-buyers” group were aggregate shipments fee ($M=4.21, SD=0.58$) special offers ($M=4.14, SD=0.53$) and leave feedback to a seller ($M=4.21, SD=0.58$). The top 3 demand information of the “general-buyers” group were item damage condition ($M=4.75, SD=0.48$), use of time ($M=4.45, SD=0.61$) and pictures ($M=4.25, SD=0.65$). The top 3 demand information of the “sellers” group were pictures ($M=4.76, SD=0.44$) item damage condition ($M=4.65, SD=0.49$) use of time ($M=4.47, SD=0.51$).

D. The different demands on used sports equipment information among four groups

The significant differences among the four groups of information demand were item damage condition, pictures, and location. From the score of item damage condition, the beginners group showed the significant higher score than the pro-buyers group ($M_{\text{beginners}}=4.79\pm 0.54$; $M_{\text{pro-buyers}}=4.07\pm 0.73, p<0.01$). From the score of picture, the sellers group showed the significant higher score than the pro-buyers group ($M_{\text{sellers}}=4.76\pm 0.44$; $M_{\text{pro-buyers}}=3.50\pm 1.02, p<0.01$). From the score of location, the beginners group showed the significant higher score than the sellers group ($M_{\text{beginners}}=4.05\pm 0.71$; $M_{\text{sellers}}=3.18\pm 0.95, p<0.05$). (Table5,6,7)

IV. CONCLUSION

The study based on demographic variables and internet experience to classify the used sports equipment electronic auction participants into four groups. The users in the beginners group spent less time on surfing auction and paying the minimal price. The users in the pro-buyers group spent more time and money on used sports equipment. The users in general-buyers group was the youngest group. The users of sellers group all used the self-bid as their transaction method. The four groups of electronic auction participants have significantly different demand on used sports equipment.

The beginners group showed the highest demand on item damage condition, use of time and location among the four groups. Therefore, the study suggested the seller’s strategies for beginners group should show more pictures. Also need to show originally purchasing date and location of the product.

The pro-buyers group showed the highest demand on aggregate shipments fee, special offers and leave feedback to a seller. The users in pro-buyers group emphasized on the price and the reputation of the sellers. The study suggested the seller’s strategies for pro-buyers should make some discount plans and showed the positive credits on history trades.

The general-buyers group showed the higher demand on buy it now price. The study suggested that the seller’s strategies for general-buyers should use the conveniently buy it now transaction method.

The sellers group showed the highest demand on categories, title, picture, products been browsing, sent to friend or following, auction reserve price, close the bid earlier and automatic re-published. Because the sellers all use self-bid transactional method, the auction system functions were important to them. The study suggested that the electronic auction platform should still maintain the basic system functions.

In order to find the segment of used sports equipment information, the study suggested that the following study should discuss the information demand on different kinds of sports

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TABLE5

The description score of importance for demand on used sports equipment

	Beginners		Pro-buyers		General-buyers		Sellers		Total		F	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
1.Brand	3.95	0.78	4.07	0.62	3.85	0.72	4.12	0.33	3.94	0.67	0.904	
2.Uniqueness	3.42	0.69	4.00	0.88	3.70	0.70	3.94	0.66	3.73	0.73	2.371	
3.Use of time	4.58	0.69	4.07	0.62	4.45	0.61	4.47	0.51	4.43	0.62	2.034	
4.Selling reasons	4.00	0.82	3.57	0.85	3.58	0.75	3.65	1.06	3.67	0.83	1.257	
5.Item damage condition	4.79	0.54	4.07	0.73	4.75	0.48	4.65	0.49	4.65	0.57	6.697*	B,G,S>P
6.Category	3.53	0.77	3.36	0.84	3.25	0.52	3.76	0.83	3.40	0.69	2.841*	S>G
7.Title	3.26	0.45	3.57	0.85	3.23	0.54	3.82	0.73	3.38	0.64	4.804*	S>B,G
8.Location	4.05	0.71	3.57	0.76	3.51	0.67	3.18	0.95	3.56	0.78	4.422*	B>G,S
9.Pictures	4.58	0.51	3.50	1.02	4.25	0.65	4.76	0.44	4.29	0.75	10.944*	B>P, S>G>P
10.Quantity	3.26	0.73	3.21	0.70	3.09	0.71	3.29	0.47	3.17	0.68	0.541	
11.Number of browsing	3.11	1.15	2.79	1.53	3.11	0.82	3.82	0.39	3.18	1.00	3.430*	S>P, S>G
12.Number of sent to friend	2.89	1.15	3.29	1.33	3.08	0.78	3.53	0.80	3.15	0.95	1.578	
13.Number of following	3.16	1.12	2.86	1.23	3.09	0.74	3.47	0.72	3.14	0.90	1.292	

* bold one represents top three important information among the 34 factors

TABLE6
The price score of importance for demand on used sports equipment

	Beginners		Pro-buyers		General-buyers		Sellers		Total		F
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
14.Starting price	4.00	0.88	3.79	0.58	3.70	0.91	3.76	0.66	3.78	0.83	0.615
15.Auction reserve price	3.58	0.77	3.71	0.73	3.36	0.88	3.76	0.83	3.51	0.84	1.436
16.Buy it now price	4.05	0.85	4.07	0.83	4.11	0.80	3.94	1.03	4.07	0.84	0.177
17.aggregate shipments fee	3.84	1.07	4.21	0.58	3.62	0.90	4.18	0.64	3.83	0.89	2.856
18.Special offers	4.00	0.94	4.14	0.53	3.83	0.87	3.82	0.53	3.90	0.80	0.712
19.Current bid	4.05	0.71	4.00	0.55	3.81	0.86	4.00	0.61	3.91	0.76	0.667
20.Number of bids	3.74	0.56	3.71	0.47	3.38	0.74	3.65	0.61	3.53	0.67	2.120
21.Highest bidder	3.47	0.90	3.71	0.47	3.40	0.86	3.94	0.75	3.54	0.83	2.196

* bold one represents top three important information among the 34 factors

TABLE7
The function score of importance for demand on used sports equipment

	Beginners		Pro-buyers		General-buyers		Sellers		Total		F	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
22.Date	3.63	1.01	3.14	1.10	3.55	0.75	3.59	0.51	3.51	0.83	1.147	
23.Time left	4.11	0.74	3.07	1.07	3.64	0.96	3.71	0.47	3.66	0.91	3.743*	B>P
24.Shipping	4.37	0.76	3.93	1.00	3.98	0.77	4.35	0.61	4.11	0.79	1.980	
25.Transnational transport	3.37	1.12	3.64	1.01	3.26	0.96	2.94	1.09	3.28	1.02	1.269	
26.Number of total feedback limitation	3.53	0.90	3.86	0.86	3.70	1.03	2.94	1.25	3.56	1.05	2.770*	G>S
27.Number of negative feedback limitation	3.63	0.90	3.36	0.84	3.75	1.05	3.41	0.94	3.62	0.98	0.922	
28.Automatically extend	2.84	1.01	3.14	1.03	3.19	0.76	3.00	1.12	3.09	0.91	0.745	
29.Close the bid earlier	3.21	0.85	3.21	1.05	3.23	0.67	3.65	0.70	3.29	0.77	1.452	
30.Automatic re-published	3.05	0.91	3.29	1.20	3.30	0.72	3.41	1.46	3.27	0.97	0.450	
31.Quantity of bids	3.05	0.91	3.14	1.29	3.25	1.00	2.82	1.13	3.13	1.04	0.732	
32.Leave feedback to a buyer	3.84	0.96	4.14	0.66	4.09	0.84	3.47	1.28	3.95	0.94	2.233	
33.Leave feedback to a seller	4.21	0.85	4.21	0.58	4.08	0.87	4.18	0.64	4.14	0.79	0.214	
34.Announce the winning bidder	3.42	0.96	3.21	1.25	3.19	0.62	3.24	1.25	3.24	0.90	0.310	

* bold one represents top three important information among the 34 factors