



# Exploration of e-Marketing Strategies for Cosmetic Products Based on Word-of-Mouth Information

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Exploration of e-Marketing Strategies for Cosmetic Products  
Based on Word-of-Mouth Information

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## **ABSTRACT**

A methodological approach is proposed to understand the potential importance of e-WOM in e-Marketing. Focusing on the cosmetic product market in Japan, a social network named @COSME is chosen for the study. More specifically, actual blogs concerning skin lotions are collected from @COSME in the period between November 1, 2007 and October 31, 2008. By identifying key words which are used by either manufactures for promoting skin lotions on the Internet or consumers in their blogs, it is examined how such key words would overlap each other, thereby providing a basis to establish effective e-marketing strategies in e-WOM communications.

**Keyword:** Japanese Cosmetics Market, e-WOM (Word of Mouth), Blogs, Bloggers, e-Marketing

## **1. Introduction**

During the past decade, the Internet has impacted the way marketing is conducted substantially. Before the Internet, the emphasis was on the mass marketing through TV, radio, newspapers, journals and other media directed one way from the media to customers, whereas the one-to-one marketing was laborious, time-consuming and costly, and could be conducted only in a limited way through direct mail, hearings via telephone, interviews at exits of stores and the like. As the use of the Internet has spread rapidly, the importance of e-marketing has become clear, where the mass marketing and the one-to-one marketing can be combined simultaneously with speed and little cost through the Internet.

Along this new trend, CRM (Customer Relationship Management) has become increasingly important, where corporations and customers engage themselves in two way communications and exchange information valuable to each other. In particular, in the midst of new era called WEB2.0, CGM (Consumer Generated Media) has been drawing much attention of practitioners and researchers, where information exchanged among consumers through social networks would affect each other significantly and play a vital role in e-marketing. Such exchange of information among indefinite consumers through the Internet is called e-WOM (Word of Mouth), and those consumers who are involved in e-WOM are referred to as bloggers.

The study of WOM outside the Internet can be traced back to the middle of 1990`s, represented by a paper by Ellison and Fudenberg (1995) which proposed a WOM model and analyzed its implications. Bone (1995) discussed how WOM affected purchasing decisions of consumers, while Goldenberg, Libai and Muller (2001) found that the

effects of WOM would depend on the level of closeness of those involved in WOM. More recently, a new model was proposed in Banerjee and Fudenberg (2003) for measuring the effects of WOM. Along with this line of research on offline WOM outside the Internet, e-WOM began to attract more attention of researchers. An information filtering algorithm was proposed in Shardanand and Maes (1995) for identifying preferences of consumers from e-WOM so as to provide personalized recommendations. Stauss (1997, 2000) examined potential threats and opportunities resulting from online articulations by consumers. Balasubramanian and Mahajan (2001) developed a conceptual framework for describing three types of social interaction utilities within a virtual community. Exploiting this framework, Henning-Thurau, Gwinner, Walsh and Gremler (2004) studied online samples of some 2000 consumers, identifying key elements for consumers to participate in e-WOM. Dellarocas (2003) discussed potentials and difficulties of development of online feedback mechanisms for digitization of e-WOM.

While the above papers shed light into the inside of e-WOM from various perspectives, to the best knowledge of the authors, no research exists in the literature focusing on how interactions of consumers through e-WOM could be utilized for enhancing the effects of e-marketing. The purpose of this paper is to establish a methodological approach for understanding the potential power of e-WOM based on real data. Focusing on the cosmetic product market in Japan, a social network named @COSME is chosen for the study. More specifically, actual blogs concerning skin lotions are collected from @COSME. By identifying key words which are used by either manufactures for promoting skin lotions on the Internet or consumers in their blogs, our analysis aims at examining how such key words would overlap each other, thereby providing a basis to establish effective e-marketing strategies in e-WOM communications.

The structure of this paper is as follows. Section 2 describes the data set to be employed throughout the paper. The basic analysis of the data set is also provided. Key words used by either manufactures for promoting skin lotions on the Internet or consumers in their blogs are identified in Section 3. These key words are categorized in terms of development intention, the content of the key words, engineering difficulty and touch (sense of feel). In Section 4, the collected blog data would be examined through text-mining in order to see how the key words overlap between the product descriptions and the blog data. Some implications of the analysis would be also discussed. Finally, concluding remarks are given in Section 5.

## 2. Data Description and Basic Analysis

For the study, we first select top ten skin lotions in the popularity ranking of @COSME in year 2008. Table 2.1 exhibits these ten products with Popularity Ranking, Product ID, Price, Volume (ml), Price per Volume, and Release Date.

Ranking	Product ID	Price(¥)	Volume(ml)	Price per Volume	Release Date
1	KAO103	5,250	120	43.8	2007/1/27
2	KTKH001	420	300	1.4	unknown
		1,176	900	1.3	
3	SICR001	11,025	170	64.9	2007/2/21
4	YHMK001	1,100	400	2.8	unknown
5	ESSA001	1,011	230	4.4	unknown
		4,095	1000	4.1	
6	KEI001	5,250	120	43.8	2007/1/27
7	JTW001	609	237	2.6	unknown
		1,029	473	2.2	
8	SRE002	6,300	130	48.5	2007/10/21
9	KNRM001	2,625	60	43.8	2008/5/9
10	PRBB001	21,000	120	175.0	2003/11/1

Figure 2.1 Ten Products Selected for the Study

All the blogs at @COSME mentioning at least one of the ten products in Table 2.1 during the period between November 1, 2007 and October 31, 2008 are collected. There are approximately 3100 such blogs. For each blog, a BPV (Blog Profile Vector) is defined as shown in Table 2.2. Here, Blog ID uniquely specifies each blog. The product discussed in the blog is indicated by Product ID. Date and Time is to state the time at which the blog is written. User Name describes the nickname of the blogger and Age is the age of the blogger. Skin Type of the blogger is indicated by the blogger.

Attracted Factors is a nine dimensional binary vector, where 1 is entered if the blogger is attracted by the corresponding factor and 0 is entered otherwise. Elements Mentioned is a twelve dimensional binary vector, where 1 is entered if the corresponding element is mentioned in the blog and 0 is entered otherwise. Repeated Use is to indicate whether or not the blogger has repeatedly used the product mentioned in the blog, while Desire to repeat shows whether or not the blogger intends to use the product repeatedly. Overall Impression describes the general impression of the blogger for the product, and Score is graded by the blogger between 1 through 7.

The collected blog profile vectors are summarized in Table 2.3 according to each element. One sees that the number of blogs increased by about 50% between the periods November-07 through April-08 and May 08 to October-08. Concerning Age, the bloggers in 20`s account for about 50%, followed by those in 30`s about 35%. About 40% of the bloggers are concerned with Mixed Skin, meaning that they have both Dry Skin

and Oily Skin in different parts of their body. The bloggers with Dry Skin account for 26%, followed by those with Sensitive Skin about 16%. The bloggers are largely attracted to skin lotions because of Moist with 31%, Low Stimulus with 20% and Pore and Corneous Care with 12%. The most referenced element in the blogs is Feeling with 32.3%, followed by Product Quality and Price both with 15%. Only 25% of the bloggers have repeatedly used the product mentioned in their blogs and about the same portion of the bloggers would use the product repeatedly in the future. Those bloggers who favorably support their products amount to 73%, with only 10% of the bloggers writing negative comments in the blogs. This point is reflected in Score where about 50% of the bloggers grade the score of 5 or higher.

Blog ID		
Product ID		
Date		
Time		
User Name		
Age		
Skin Type	1: Ordinary Skin	
	2: Sensitive Skin	
	3: Dry Skin	
	4: Mixed Skin	
	5: Oily Skin	
	6: Atopi skin	
Attracted Factors	1: Moist	
	2: Pore & Corneous Care	
	3: Acne Care	
	4: Aging Care	
	5: Strain	
	6: Whitening	
	7: Low Stimulus	
	8: Unevenness Prevention	
	9: Sunblock	
Elements Mentioned	1: Recommended via Word of Mouth	
	2: Advertisement	
	3: Product Quality	
	4: Potential Effects	
	5: Feeling	
	6: Comparison	
	7: Favorite Manufacturer	
	8: Sample	
	9: Service	
	10: Smell	
	11: Design	
	12: Price	
Repeated Use	0: No ; 1: Yes	
Desire to Repeat	0: Not Mentioning ; 1: No ; 2: Yes	
Overall Impression	P: Positive	
	N: Negative	
	M: Middle	
Score	Grading between 1through 7	

Figure 2.2 Blog Profile Vector

Date	# of Blogs	%
Nov-07	190	6.0
Dec-07	179	5.6
Jan-08	174	5.5
Feb-08	198	6.2
Mar-08	238	7.5
Apr-08	240	7.6
May-08	325	10.2
Jun-08	308	9.7
Jul-08	313	9.9
Aug-08	298	9.4
Sep-08	396	12.5
Oct-08	315	9.9
Total	3174	100.0

Age	# of Blogs	%
10-14	31	1.0
15-19	207	6.5
20-24	698	22.0
25-29	905	28.5
30-34	801	25.2
35-39	332	10.5
40-44	153	4.8
45 and over	46	1.4
Total	3173	100.0

Skin Type	# of Blogs	%
1: Ordinary Skin	294	9.3
2: Sensitive Skin	502	15.8
3: Dry Skin	833	26.3
4: Mixed Skin	1250	39.4
5: Oily Skin	217	6.8
6: Atopi skin	77	2.4
Total	3173	100.0

Attracted Point	# of Blogs	%
1: Moist	2099	30.9
2: Pore & Corneous Care	814	12.0
3: Acne Care	370	5.4
4: Aging Care	519	7.6
5: Strain	648	9.5
6: Whitening	563	8.3
7: Low Stimulus	1372	20.2
8: Unevenness P	406	6.0
9: Sunblock	5	0.1
Total	6796	100.0

Elements Mentioned	# of Blogs	%
1: Recommended via Word of Mouth	848	9.5
2: Advertisement	15	0.2
3: Product Quality	1333	14.9
4: Potential Effects	488	5.5
5: Feeling	2886	32.3
6: Comparison	378	4.2
7: Favorite Manufacturer	72	0.8
8: Sample	388	4.3
9: Service	138	1.5
10: Smell	934	10.5
11: Design	121	1.4
12: Price	1331	14.9
Total	8932	100.0

Repeated Use	# of Blogs	%
Yes	795	25.1
No	2378	74.9
Total	3173	100.0

Desire for Repeat	# of Blogs	%
0: Not Mentioned	2298	69.6
1: No	184	5.8
2: Yes	781	24.6
Total	3173	100.0

Overall Impression	# of Blogs	%
M	524	16.5
N	330	10.4
P	2319	73.1
Total	3173	100.0

Score	# of Blogs	%
0	19	0.6
1	102	3.2
2	137	4.3
3	311	9.8
4	594	18.7
5	858	27.0
6	664	20.9
7	333	10.5
N	155	4.9
Total	3173	100.0

Figure 2.3 Summary of Blog Profile Vectors

### 3. Classification of Key Words

During the period November 1, 2007 through October 31, 2008, the descriptions of all skin lotions (not limited to the ten products selected) and the blogs concerning the skin lotions are data-mined so as to identify key words. Table 3.1 provides a list of 28 key words chosen based on the frequency of appearances. Through an extensive interview with development engineers at Kao Corporation (2008), these key words are classified along two axes. The first axis is concerned with the five important factors that development engineers always keep in their mind for the development of skin lotions.

- I. Feeling for the first touch
- II. Feeling after several seconds of use
- III. Feeling after several minutes of use
- IV. Overall feeling after use
- V. Special Function

The second axis is related to the meaning of the key words.

- A. Key words describing the state of the skin
- B. Key words describing the state of the product
- C. Key words describing the function of the product

In Table 3.2, the key words are rearranged to exhibit the classification along the two axes.

No.	Key Word	Type	
I	1	thickness	B
	2	clamminess	B
	3	effectiveness for sebaceous trouble	C
	4	weak acidness	C
	5	additive-free	C
II	6	stickiness	B
	7	penetration	C
III	8	glossiness	A
	9	elastic softness	A
	10	wet softness	A
	11	dry softness	A
	12	smoothness	A
	13	coolness	A
	14	pleasantness	A
	15	smart	A
	16	glow	A
	17	driness	A
IV	18	youthfulness	A
	19	moistness	A
	20	freshness	A
	21	warming	C
	22	conditioning	C
	23	texture	A
	24	wrinkle	A
	25	wet freshness	A
	26	whitening	A
V	27	quasi drug	C
	28	sensitiveness	A

Figure 3.1 List of Key Words



	A: Key words describing the state of the skin	B: Key words describing the state of the product	C: Key words describing the function of the product
I Feeling for the first touch		(1) thickness (2) clamminess,	(3) effectiveness for sebaceous trouble (4) weak acidness (5) additive-free
II Feeling after several seconds of use		(6) stickiness	(7) penetration
III Feeling after several minutes of use	(8) glossiness (9) elastic softness (10) wet softness (11) dry softness (12) smoothness (13) coolness (14) pleasantness (15) smart (16) glow (17) driness		
IV Overall feeling after use	(18) youthfulness (19) moistness (20) freshness (23) texture (24) wrinkle (25) wet freshness (26) whitening		(21) warming (22) conditioning
V Special Function	(28) sensitiveness		(27) quasi drug

Figure 3.2 Classification of Key Words

Through the interview (2008), these key words are also ranked along two separate axes: touch vs. technological difficulty as shown in Table 3.3. It can be seen that the following key words [“wet freshness (A,IV)”, “wet softness (A,III)”, “glow (A,III)” and “elastic softness (A,III)”] seem to be technologically more difficult to achieve than other key words.

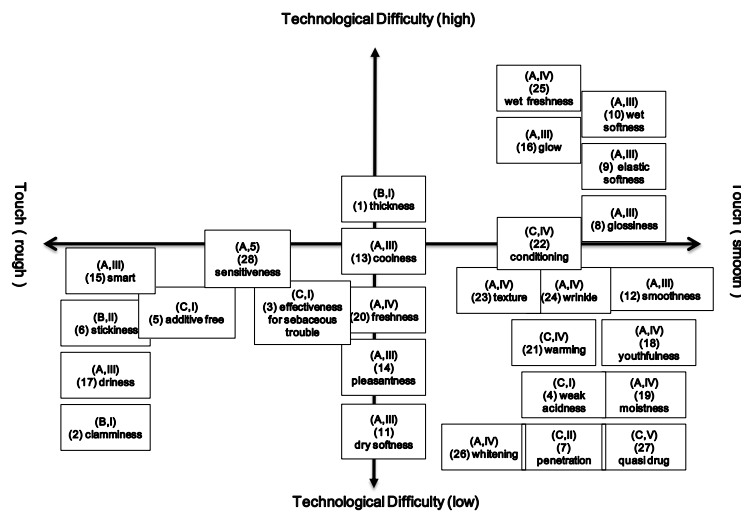


Figure 3.3 Touch vs. Technological Difficulty

#### 4. Product Intent and Consumer Perception

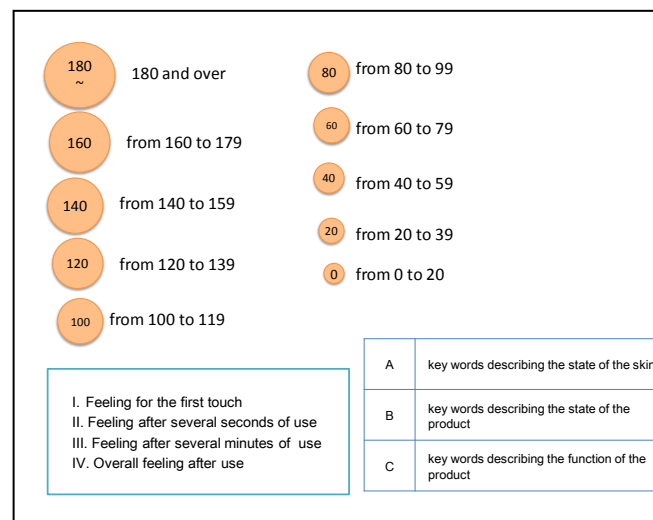
In this section, we examine the blog data through text-mining to see how the key words introduced in Section 3 appear in the blog data and overlap with those used in the product descriptions. Through this analysis, we investigate to what extent the intent of a manufacturer is communicated to consumers. We begin our study by categorizing the ten products according to their price range as follows, where the number in the parenthesis indicates the popularity ranking.

Low Price Products: KTH001(2), JTW001(7), ESSA001(5), YHMK001(4)

Middle Price Products: KNRM001(9), KAO103(1), KEI001(6),SRE002(8)

High Price Products: SICR001(3), PRBB001(10)

In Figures 4.1 through 4.3, the results of data-mining for the blog data are summarized. Here the number of blogs with reference to each key word is depicted following the format of Figure 3.3 for each product, where the circles below represent the volume. Similarly, Tables 4.1 through 4.3 describe the same results in a table form along with the summary of the blog profile vectors involved. The shaded boxes indicated that the corresponding key word is used in the description of the product, which may represent the intent of the development engineers.



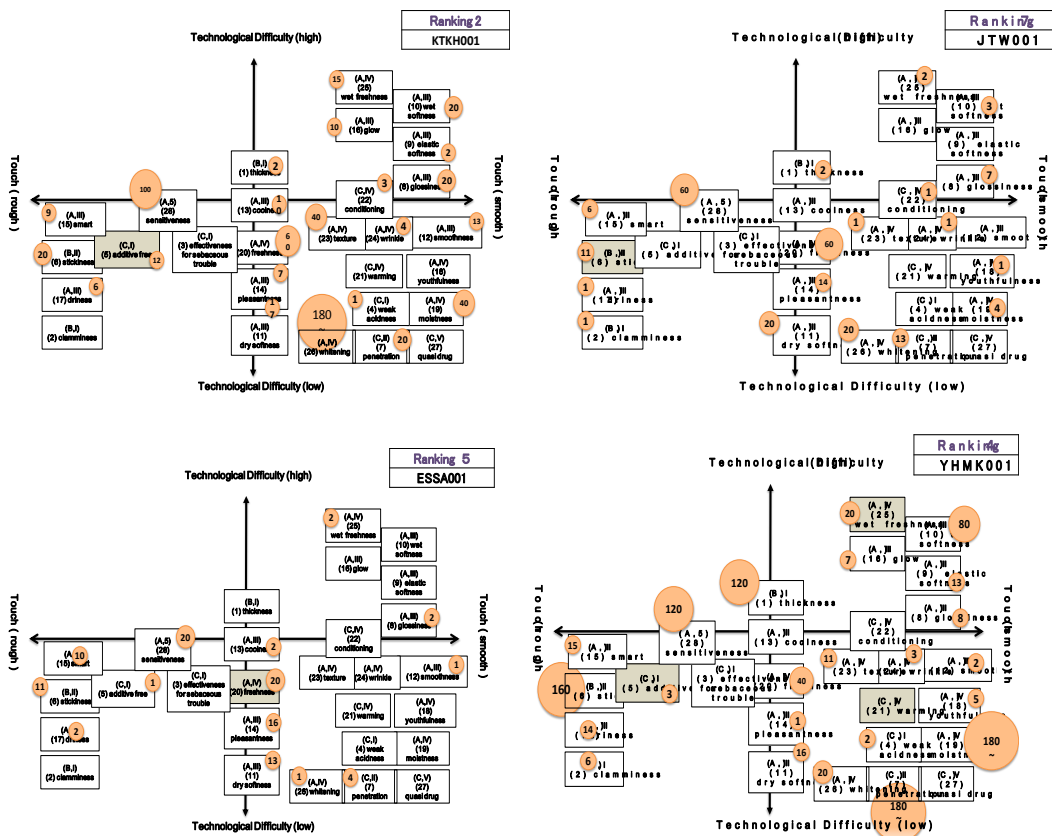


Figure 4.1 Low Price Products

Ranking/Product ID	Price ( ¥ )	2KTKH001		7JTWO01		5ESSA001		4YHMK001		Average			
		420	609	1000	1100	Number of Blog	%	Number of Blog	%	Number of Blog	%		
I	1 thickness	B	2	0.3	2	0.8	0	0.0	134	8.8	34.5	5.3	
	2 clamminess	B	0	0.0	1	0.4	0	0.0	6	0.4	1.8	0.3	
	3 effectiveness for seborrheic trouble	C	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	4 weak acidity	C	1	0.1	0	0.0	0	0.0	2	0.1	0.8	0.1	
	5 additive-free	C	12	1.7	0	0.0	1	0.8	3	0.2	4.0	0.6	
	Sub total		15	2.1	3	1.2	1	0.8	145	9.6	41.0	6.3	
	II	6 slickness	B	22	3.0	11	4.4	11	8.3	168	11.1	53.0	8.1
		7 penetration	C	38	5.0	13	5.2	4	3.0	228	15.0	70.3	10.7
		Sub total		58	8.0	24	9.6	15	11.4	396	26.1	123.3	18.8
		8 glossiness	A	38	5.2	7	2.8	2	1.5	8	0.5	13.8	2.1
9 elastic softness		A	2	0.3	0	0.0	0	0.0	13	0.9	3.8	0.6	
10 wet softness		A	28	3.9	3	1.2	0	0.0	80	5.3	27.8	4.2	
11 dry softness		A	17	2.3	24	9.6	13	9.8	16	1.1	17.5	2.7	
12 smoothness		A	13	1.8	0	0.0	1	0.8	2	0.1	4.0	0.6	
13 coolness		A	10	1.4	0	0.0	2	1.5	0	0.0	3.0	0.5	
14 pleasantness		A	7	1.0	14	5.6	16	12.1	1	0.1	9.5	1.4	
15 smart	A	9	1.2	6	2.4	10	7.6	15	1.0	10.0	1.5		
16 glow	A	10	1.4	0	0.0	0	0.0	7	0.5	4.3	0.6		
17 briness	A	6	0.8	0	0.0	2	1.5	14	0.9	5.8	0.9		
Sub total		140	19.3	55	21.9	46	34.8	156	10.3	99.3	15.1		
III	18 youthfulness	A	0	0.0	1	0.4	0	0.0	5	0.3	1.5	0.2	
	19 moistness	A	45	6.2	4	1.6	0	0.0	548	36.1	149.3	22.8	
	20 freshness	A	71	9.8	73	29.1	37	28.0	44	2.9	56.3	8.6	
	21 warming	C	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	22 conditioning	C	3	0.4	1	0.4	0	0.0	0	0.0	1.0	0.2	
	23 texture	A	40	5.5	1	0.4	0	0.0	11	0.7	13.0	2.0	
	24 wrinkle	A	4	0.6	1	0.4	0	0.0	3	0.2	2.0	0.3	
	25 wet freshness	A	15	2.1	2	0.8	2	1.5	39	2.6	14.5	2.2	
	26 whitening	A	218	30.1	26	10.4	1	0.8	34	2.2	69.8	10.6	
	Sub total		396	54.7	109	43.4	40	30.3	684	45.1	307.3	46.9	
IV	27 quasi drug	C	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	28 sensitiveness	A	115	15.9	60	23.9	30	22.7	135	8.9	85.0	13.0	
	Sub total		115	15.9	60	23.9	30	22.7	135	8.9	85.0	13.0	
	Key words Total		724	100.0	251	100.0	132	100.0	1516	100.0	658.0	100.0	
	Blog Total		524		279		216		821		460		

Ranking/Product ID	Price ( ¥ )	2KTKH001		7JTWO01		5ESSA001		4YHMK001		Average	
		420	609	1000	1100	Number of Blog	%	Number of Blog	%	Number of Blog	%
Skin Type	1: Ordinary Skin	47	9.0	20	7.2	27	12.8	74	9.0	42.0	9.1
	2: Sensitive Skin	59	15.1	46	19.9	29	13.6	156	19.0	89.5	15.5
	3: Dry Skin	81	15.5	34	12.2	21	9.7	236	29.7	93.0	20.2
	4: Oily Skin	30	5.9	53	19.0	39	18.1	43	5.2	46.3	10.1
	5: Normal Skin	240	48.6	254	114.4	109	48.2	278	33.3	169	40.5
	6: Atopic skin	11	2.1	2	0.7	4	1.9	34	4.1	12.8	2.8
	Total	524	100.0	279	100.0	216	100.0	821	100.0	460	100.0
	10-14	4	0.8	2	0.7	23	10.6	2	0.2	7.8	1.7
	15-19	40	7.8	35	12.5	54	24.9	68	8.3	49.3	10.7
	20-24	185	31.5	91	32.8	48	22.2	224	27.3	132.0	28.7
25-29	138	26.3	83	29.7	37	17.1	254	30.9	128.0	27.8	
30-34	111	21.2	52	18.6	29	13.4	156	19.0	89.8	19.5	
35-39	48	9.2	10	3.6	20	9.3	69	8.4	36.8	8.0	
40-44	17	3.2	6	2.2	4	1.9	29	3.5	14.8	3.0	
45 and over	1	0.2	0	0.0	2	0.9	7	0.9	2.5	0.5	
Total	524	100.0	279	100.0	216	100.0	821	100.0	460	100.0	
Attractors	1: Moist	188	35.9	8	2.9	23	10.6	734	49.0	233.3	29.8
	2: Pore & Cornus Care	220	42.0	166	59.5	63	28.7	151	18.4	124.0	13.2
	3: Acne Care	105	20.0	100	35.8	71	32.8	15	1.8	72.8	7.7
	4: Aging Care	22	4.2	5	1.8	0	0.0	22	2.7	12.3	1.3
	5: Skin	159	30.3	190	68.1	139	64.3	18	2.2	128.8	13.5
	6: Whitening	277	52.8	24	8.6	3	1.4	26	3.2	82.0	8.7
	7: Low Stimulus	193	36.8	84	30.1	12	5.6	372	45.3	218.5	23.0
	8: Unpleasantness Prevention	59	11.2	127	45.5	58	26.8	13	1.6	71.3	7.6
	9: Sunblock	4	0.8	1	0.4	0	0.0	0	0.0	1.3	0.1
	Total	1237	100.0	734	100.0	352	100.0	1432	100.0	938.8	100.0
Elements Mentioned	1: Recommended Use Word of Mouth	201	12.5	57	6.9	21	4.8	281	11.8	156.0	12.2
	2: Advertisement	0	0.0	1	0.1	4	0.9	1	0.0	1.8	0.1
	3: Product Quality	258	15.0	112	13.1	91	20.9	327	13.8	192.3	15.1
	4: Potential Effects	187	11.7	82	9.9	6	1.4	98	4.4	93.3	7.3
	5: Feeling	208	16.7	244	28.0	208	48.6	78	3.1	418.5	31.8
	6: Comparison	14	0.9	12	1.5	6	1.4	128	5.8	40.0	3.1
	7: Favorite Manufacturer	2	0.1	0	0.0	1	0.2	32	1.5	8.8	0.7
	8: Sample	7	0.4	1	0.1	7	1.6	2	0.1	4.3	0.3
	9: Service	1	0.1	0	0.0	0	0.0	0	0.0	0.3	0.0
	10: Small	275	17.1	232	28.1	79	17.0	38	1.5	156.0	12.2
11: Design	26	1.6	10	1.2	4	0.9	38	1.7	18.0	1.4	
12: Price	207	12.9	100	12.1	21	4.8	493	22.3	265.3	19.2	
Total	1605	100.0	827	100.0	442	100.0	2206	100.0	1270.0	100.0	
Repeated Use	Yes	158	9.8	78	28.0	82	38.0	137	16.7	118.3	25.3
	No	366	22.7	201	72.0	134	62.0	684	83.3	341.8	74.7
	Total	524	100.0	279	100.0	216	100.0	821	100.0	460	100.0
	0: Not Mentioned	306	58.4	186	67.0	175	80.5	503	61.3	315.0	68.5
	1: No	13	2.5	13	4.7	3	1.4	41	5.0	17.5	3.8
	2: Yes	115	21.9	78	28.0	40	18.5	277	33.7	127.8	27.7
	Total	524	100.0	279	100.0	216	100.0	821	100.0	460	100.0
	3: No	50	9.5	47	16.9	30	13.9	126	15.3	74.5	16.2
	4: Yes	47	9.0	21	7.5	8	3.7	49	6.0	25.3	5.5
	Total	97	18.5	68	24.4	38	17.6	175	21.3	100.0	21.7
Overall Impression	M	382	72.9	211	75.8	178	82.4	850	73.1	342.8	74.5
	P	204	39.0	279	100.0	216	100.0	821	100.0	460	100.0
	G	3	0.6	1	0.4	2	0.9	2	0.2	2.0	0.4
	D	1	0.2	0	0.0	0	0.0	0	0.0	0.2	0.0
	S	31	5.9	10	3.6	9	4.2	35	4.3	21.5	4.0
	3	54	10.3	31	11.1	16	7.4	86	10.5	46.8	10.2
	4	88	16.8	81	29.0	57	26.4	168	20.5	93.5	20.3
	5	136	26.0	88	30.8	73	33.8	272	33.1	141.8	30.8
	6	150	28.6	117	42.0	62	28.7	102	12.4	57.5	12.5
	7	62	11.8	28	10.0	34	15.7	55	6.7	25.0	5.0
Total	524	100.0	279	100.0	216	100.0	821	100.0	460	100.0	

Table 4.1 Low Price Products

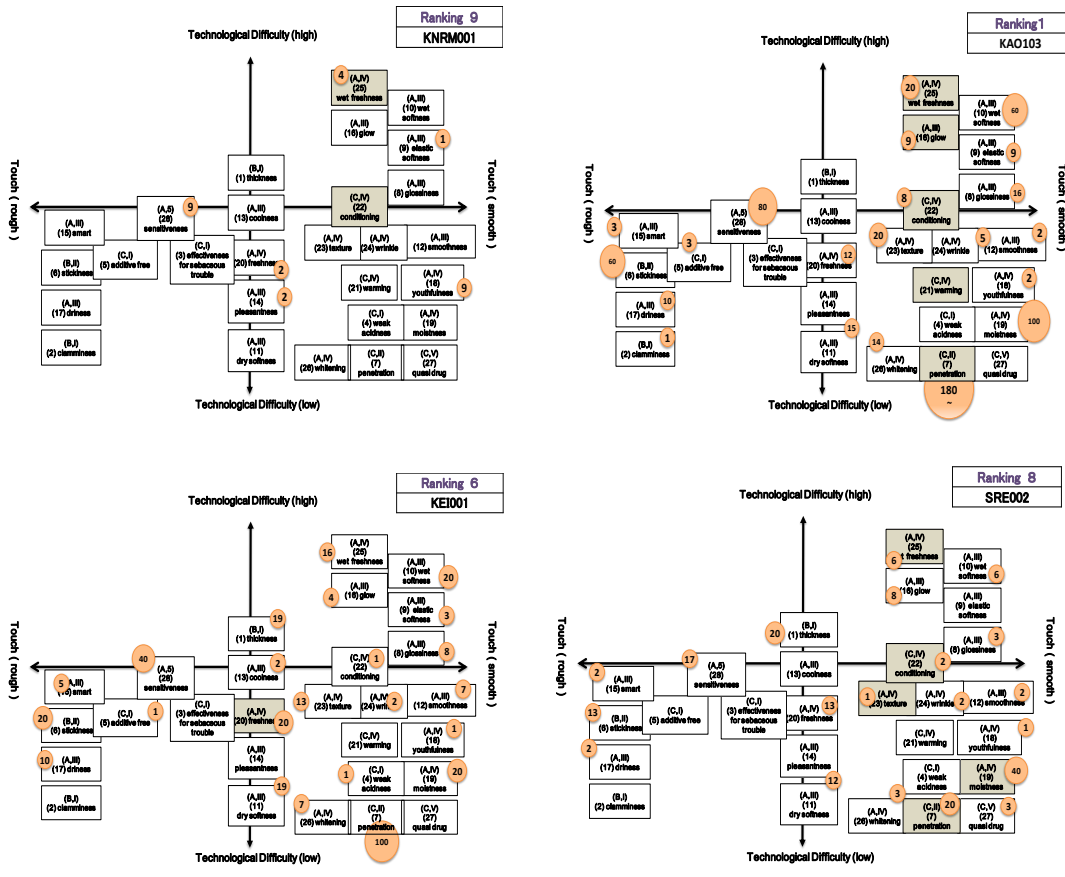


Figure 4.2 Middle Price Products

Ranking	Product ID	Type	#KNRM001 2625		#KAO103 5250		#KEI001 5250		#SRE002 6300		Average	
NO	Price ( ¥ )		Number of Blog	%	Number of Blog	%	Number of Blog	%	Number of Blog	%	Number of Blog	%
I	1	thickness	B	0.0	56	7.5	19	4.6	23	11.5	24.5	7.1
	2	clanniness	B	0.0	1	0.1	0	0.0	0	0.0	0.3	0.1
	3	effectiveness for sebaceous trouble	C	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0
	4	weak acidity	C	0.0	0.0	0	0.0	1	0.2	0	0.0	0.3
	5	additive-free	C	0.0	0.0	3	0.4	1	0.2	0	0.0	1.0
II	7	Sub total	C	0.0	60	8.1	21	5.1	23	11.5	26.0	7.5
	8	stickiness	B	0.0	7.0	9.4	23	5.6	13	6.5	26.5	7.7
III	7	penetration	C	0.0	181	24.3	117	28.3	34	17.0	83.0	24.0
	8	Sub total	C	0.0	251	33.7	140	33.9	47	23.5	109.5	31.6
IV	9	glossiness	A	0.0	16	2.1	8	1.9	3	1.5	6.8	1.9
	9	elastic softness	A	1	3.7	9	1.2	3	0.7	0	0.0	3.3
	10	wet softness	A	0.0	65	8.7	36	8.7	6	3.0	26.8	7.7
	11	dry softness	A	2	7.4	15	2.0	19	4.6	12	6.0	12.0
	12	smoothness	A	0	0.0	2	0.3	7	1.7	2	1.0	2.6
	13	coolness	A	0	0.0	0	0.0	0	0.0	0	0.0	0.0
	14	pleasantness	A	2	7.4	0	0.0	2	0.5	0	0.0	1.0
	15	smart	A	0	0.0	3	0.4	5	1.2	2	1.0	2.5
	16	glow	A	0	0.0	9	1.2	4	1.0	8	4.0	5.3
	17	driness	A	0	0.0	10	1.3	10	2.4	2	1.0	5.5
V	21	Sub total	C	5	18.5	129	17.3	94	22.8	35	17.5	65.8
	18	youthfulness	A	0	0.0	2	0.3	1	0.2	1	0.5	1.0
	19	moistness	A	9	33.3	118	15.8	38	9.2	47	23.5	53.0
	20	freshness	A	0	0.0	12	1.6	22	5.3	13	6.5	11.8
	21	warming	C	0	0.0	0	0.0	0	0.0	0	0.0	0.0
VI	22	conditioning	C	0	0.0	8	1.1	1	0.2	2	1.0	2.8
	23	texture	A	0	0.0	24	3.2	13	3.1	1	0.5	9.5
	24	wrinkle	A	0	0.0	5	0.7	2	0.5	2	1.0	2.3
	25	wet freshness	A	4	14.9	27	3.6	16	3.9	8	3.0	13.3
	26	whitening	A	0	0.0	14	1.9	7	1.7	3	1.5	6.0
	27	Sub total	C	13	48.1	210	28.2	100	24.2	75	37.5	98.5
	27	quasi drug	C	0	0.0	0	0.0	0	0.0	0	0.0	0.0
	28	sensitiveness	A	9	33.3	95	12.8	58	14.0	17	8.5	44.8
	29	Sub total	C	9	33.3	95	12.8	58	14.0	20	10.0	45.5
	30	Key words Total		27	100.0	745	100.0	413	100.0	200	100.0	346.3
Blog Total			62		549		284		118		253.3	

Ranking/Product ID	#KNRM001 2625		#KAO103 5250		#KEI001 5250		#SRE002 6300		Average			
Price ( ¥ )	Number of Blog	%	Number of Blog	%	Number of Blog	%	Number of Blog	%	Number of Blog	%		
Skin Type	1: Ordinary Skin	9	12.9	43	7.8	30	12.3	10	6.5	24.0	9.5	
	2: Sensitive Skin	9	14.0	64	11.7	37	13.0	15	11.0	36.8	12.1	
	3: Dry Skin	15	23.2	211	38.4	99	20.3	39	29.7	101.5	33.7	
	4: Mixed Skin	29	46.8	202	36.8	140	49.3	35	26.7	101.5	40.1	
	5: Oily Skin	0	0.0	18	3.3	10	3.5	1	0.8	1.8	2.9	
Age	6: Adult skin	1	1.6	11	2.0	3	1.1	3	2.3	4.5	1.6	
	7: 10-14	0	0.0	0	0.0	0	0.0	118	100.0	255.0	100.0	
	8: 15-19	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	9: 20-24	5	8.1	11	2.0	3	1.1	0	0.0	2.3	0.9	
	10: 25-29	14	22.6	58	10.6	72	25.4	2	1.7	26.9	14.4	
	11: 30-34	13	21.0	184	33.5	107	37.7	16	12.3	60.5	31.8	
	12: 35-39	19	30.6	170	32.6	86	29.0	42	30.6	61.5	29.1	
	13: 40-44	9	14.5	63	11.7	10	3.5	24	20.3	51.5	12.4	
	14: 45 and over	1	1.6	34	6.2	5	1.9	21	17.8	16.9	6.9	
	15: Total	101	160.0	697	129.0	344	126.0	160	121.0	320.0	126.0	
Affected Factors	1: Moist	101	160.0	697	129.0	344	126.0	160	121.0	320.0	126.0	
	2: Pore & Cornus Care	9	4.1	99	18.6	74	11.7	39	13.5	54.5	9.8	
	3: Hair Care	1	0.6	15	2.8	2	0.7	3	1.1	14.5	2.6	
	4: Aging Care	0	0.0	156	28.9	59	9.3	25	25.3	32.0	13.0	
	5: Brain	10	8.8	35	6.5	28	4.1	26	8.7	24.0	4.3	
	6: Whitening	0	0.0	76	13.8	52	8.2	19	5.9	26.0	6.5	
	7: Low Stimulus	25	17.1	236	43.5	129	20.4	29	18.1	104.8	18.9	
	8: Unpleasant Prevention	47	32.2	85	15.5	28	4.1	0	0.0	27.5	5.0	
Elements Measurement	9: Sunblock	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	10: Total	148	100.0	1150	100.0	633	100.0	288	100.0	354.3	100.0	
	1: Recommended via Word of Mouth	10	5.3	170	10.8	76	9.5	31	8.3	71.8	9.8	
	2: Advertisement	0	0.0	2	0.1	0	0.0	0	0.0	1.0	0.1	
	3: Product Quality	28	19.0	227	14.4	90	11.8	75	20.0	106.3	14.4	
	4: Potential Effects	6	2.7	66	4.3	26	3.3	4	1.1	24.9	3.3	
	5: Feeding	81	55.1	419	26.5	243	30.5	112	29.9	130.5	17.5	
	6: Comparison	15	8.0	90	5.7	41	5.1	22	6.0	42.0	5.7	
	7: Favorite Manufacturer	0	0.0	14	0.9	4	0.5	7	1.9	6.3	0.8	
	8: Sample	0	0.0	172	10.9	66	8.2	30	8.0	67.8	9.2	
Repeated Uses	9: 2	1	0.7	16	1.0	6	0.8	0	0.0	10.5	1.4	
	10: Small	37	19.8	133	8.4	48	6.0	29	7.7	61.8	8.4	
	11: Design	11	5.9	11	0.7	10	1.2	9	2.4	10.3	1.4	
	12: Price	15	8.0	142	9.0	110	13.9	50	13.1	72.9	10.0	
	Total	187	100.0	1578	100.0	804	100.0	375	100.0	735.0	100.0	
	Year	62	100.0	549	100.0	284	100.0	118	100.0	253.3	100.0	
	No	59	95.2	423	77.0	190	68.0	99	83.9	194.3	100.0	
	Total	62	100.0	549	100.0	284	100.0	118	100.0	253.3	100.0	
	Desire to Repeat	C: Not Interested	11	65.1	111	19.9	43	15.3	19	16.1	50.0	15.3
		I: No	1	1.6	45	8.2	34	12.0	10	8.5	22.5	6.9
C: Yes		50	80.3	393	71.9	207	73.8	89	75.4	203.0	73.8	
Total		62	100.0	549	100.0	284	100.0	118	100.0	253.3	100.0	
N		1	1.6	19	3.4	31	10.2	10	8.5	30.8	10.1	
Overall Impression	1P	56	90.3	373	67.9	201	70.8	80	67.8	177.5	70.1	
	2P	6	9.7	86	15.6	81	28.8	38	32.2	85.8	33.2	
	3P	0	0.0	0	0.0	2	0.7	0	0.0	2.0	0.8	
	4P	0	0.0	0	0.0	1	0.4	1	0.8	3.3	1.3	
	5P	1	1.6	25	4.6	9	3.2	2	1.7	9.3	3.7	
	6P	1	1.6	33	6.0	36	12.7	12	10.2	26.5	10.1	
	Total	64	100.0	549	100.0	284	100.0	118	100.0	253.3	100.0	
Score	1	17	27.4	126	23.0	84	22.5	27	22.9	58.5	23.1	
	2	22	35.8	112	20.4	87	23.6	34	28.8	63.8	23.2	
	3	7	11.3	33	6.0	26	9.2	12	10.2	24.5	9.7	
	4	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	5	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	6	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	
	Total	62	100.0	549	100.0	284	100.0	118	100.0	253.3	100.0	

Table 4.2 Middle Price Products

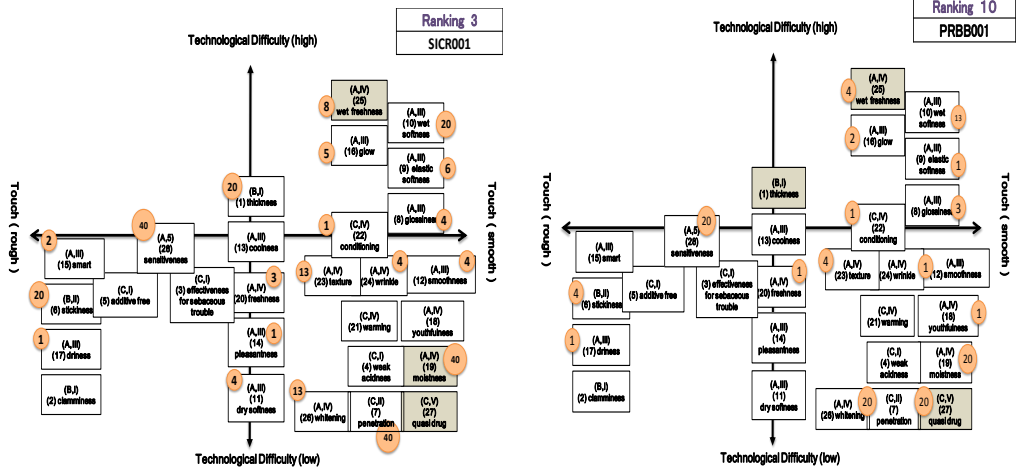


Figure 4.3 High Price Products

Ranking/Product ID		Type	3/SICR001		10/PRBB001		Average		
NO	Price ( ¥ )		11025	21000	Number of Blog	%	Number of Blog	%	
I	1	thickiness	B	24	8.1	0	0.0	12	6.1
	2	clamminess	B	0	0.0	0	0.0	0	0.0
	3	effectiveness for sebaceous trouble	C	0	0.0	0	0.0	0	0.0
	4	weak acidness	C	0	0.0	0	0.0	0	0.0
	5	additive-free	C	0	0.0	0	0.0	0	0.0
	Sub total		24	8.1	0	0.0	12	6.1	
II	6	stickiness	B	21	7.1	4	2.6	12.5	6.3
		Sub total		76	25.8	41	27.0	58.5	29.6
III	8	glossiness	A	4	1.4	3	2.0	3.5	1.8
	9	elastic softness	A	6	2.0	1	0.7	3.5	1.8
	10	wet softness	A	26	8.8	13	8.6	19.5	9.9
	11	dry softness	A	4	1.4	0	0.0	2	1.0
	12	smoothness	A	4	1.4	0	0.0	2	1.0
	13	coolness	A	0	0.0	0	0.0	0	0.0
	14	pleasantness	A	1	0.3	0	0.0	0.5	0.3
	15	smart	A	2	0.7	0	0.0	1	0.5
	16	glow	A	5	1.7	2	1.3	3.5	1.8
	17	driness	A	1	0.3	1	0.7	1	0.5
	Sub total		53	18.0	20	13.2	36.5	18.5	
IV	18	youthfulness	A	0	0.0	1	0.7	0.5	0.3
	19	moistness	A	55	18.6	20	13.2	37.5	19.0
	20	freshness	A	3	1.0	1	0.7	2	1.0
	21	warming	C	0	0.0	0	0.0	0	0.0
	22	conditioning	C	1	0.3	1	0.7	1	0.5
	23	texture	A	13	4.4	4	2.6	8.5	4.3
	24	wrinkle	A	4	1.4	1	0.7	2.5	1.3
	25	wet freshness	A	8	2.7	4	2.6	6	3.0
	26	whitening	A	13	4.4	34	22.4	23.5	11.9
		Sub total		97	32.9	66	43.4	81.5	41.3
V	27	quasi drug	C	2	0.7	0	0.0	1	0.5
	28	sensitiveness	A	43	14.6	25	16.4	34	17.2
		Sub total		45	15.3	25	16.4	35	17.7
	Key words Total		295	100.0	152	100.0	197.5	100.0	
	Blog Total		230		90		160		

Ranking/Product ID		3/SICR001		10/PRBB001		Average	
Price ( ¥ )		11025		21000		21000	
		Number of Blog	%	Number of Blog	%	Number of Blog	%
Skin Type	1: Ordinary Skin	22	9.6	8	8.9	15.0	9.4
	2: Sensitive Skin	37	16.1	20	22.2	28.5	17.8
	3: Dry Skin	90	39.1	30	33.3	60.0	37.5
	4: Mixed Skin	71	30.9	31	34.4	51.0	31.9
	5: Oily Skin	3	1.3	0	0.0	1.5	0.9
	6: Atopi skin	7	3.0	1	1.1	4.0	2.5
	Total	230	100.0	90	100.0	160.0	100.0
Age	10-14	0	0.0	0	0.0	0.0	0.0
	15-19	1	0.4	0	0.0	0.5	0.3
	20-24	18	7.8	6	6.7	12.0	7.5
	25-29	51	22.2	20	22.2	35.5	22.2
	30-34	80	34.8	37	41.1	58.5	36.6
	35-39	41	17.8	18	20.0	29.5	18.4
	40-44	27	11.7	9	10.0	18.0	11.3
	45 and over	12	5.2	0	0.0	6.0	3.8
	Total	230	100.0	90	100.0	160.0	100.0
Attracted Factors	1: Moist	198	86.1	84	93.3	141.0	88.1
	2: Pore & Comedone Care	68	29.6	32	35.6	50.0	31.3
	3: Acne Care	14	6.1	7	7.8	10.5	6.6
	4: Aging Care	116	50.4	66	73.3	91.0	56.9
	5: Strain	30	13.0	15	16.7	22.5	14.1
	6: Whitening	68	29.6	23	25.6	35.5	22.2
	7: Low Stimulus	62	27.0	30	33.3	46.0	28.8
	8: Unevenness Prevention	8	3.5	3	3.3	4.5	2.8
	9: Sunblock	0	0.0	0	0.0	0.0	0.0
	Total	564	245.2	260	288.9	412.0	257.2
Elements Mentioned	1: Recommended via Word of Mouth	15	6.5	6	6.7	10.5	6.6
	2: Advertisement	3	1.3	0	0.0	2.5	1.6
	3: Product Quality	88	38.3	51	56.7	69.5	43.4
	4: Potential Effects	15	6.5	3	3.3	9.0	5.6
	5: Feeling	209	90.9	83	92.2	146.0	91.3
	6: Comparison	41	17.8	9	10.0	25.0	15.6
	7: Favorite Manufacturer	10	4.3	2	2.2	6.0	3.8
	8: Sample	71	30.9	29	32.2	50.0	31.3
	9: Service	1	0.4	4	4.4	2.5	1.6
	10: Smell	36	15.7	31	34.4	33.5	20.9
	11: Design	6	2.6	2	2.2	4.0	2.5
	12: Price	127	55.2	66	73.3	96.5	60.3
	Total	622	270.4	288	320.0	455.0	284.0
Repeated Use	Yes	76	33.0	16	17.8	47.0	29.4
	No	154	67.0	72	80.0	113.0	70.6
	Total	230	100.0	90	100.0	160.0	100.0
Desire to Repeat	0: Not Mentioning	172	74.8	68	75.6	120.0	75.0
	1: No	18	7.8	6	6.7	12.0	7.5
	2: Yes	40	17.4	16	17.8	28.0	17.5
	Total	230	100.0	90	100.0	160.0	100.0
Overall Impression	M	35	15.2	11	12.2	23.0	14.4
	N	27	11.7	9	10.0	18.0	11.3
	P	168	73.0	70	77.8	119.0	74.4
	Total	230	100.0	90	100.0	160.0	100.0
	O	0	0.0	3	3.3	1.5	0.9
Score	1	5	2.2	2	2.2	3.5	2.2
	2	11	4.8	4	4.4	7.5	4.7
	3	19	8.3	3	3.3	11.0	6.9
	4	34	14.8	15	16.7	24.5	15.3
	5	45	19.6	12	13.3	28.5	17.8
	6	54	23.5	26	28.9	40.0	25.0
	7	36	15.7	19	21.1	27.5	17.2
	N	26	11.3	6	6.7	16.0	10.0
	Total	230	100.0	90	100.0	160.0	100.0

Table 4.3 High Price Products

The following observations can be made.

- 1) In general, the intents of development engineers are not well communicated to consumers, as can be seen from Figures 4.1 through 4.3 where the shaded boxes largely contain only small numbers.
- 2) One exception for 1) is the key word “penetration (C, II)” of KAO103 for which 24% of the bloggers who wrote about the product KAO103 made reference to the key word. Noting that the popularity ranking of KAO103 is No.1, this suggests that it would be important to make the intents of development engineers conveyed to consumers with more efforts in e-marketing.
- 3) Low Price Products are developed more or less with emphasis on one factor, which is technologically easy to realize, with one exception of YHMK001. In contrast, Middle Price Products and High Price Products tend to be developed with broader objectives involving higher technological difficulties.
- 4) Low Price Products attract substantially more bloggers with 460 per product than Middle Price Products with 253 per product and High Price Products with 160 per product.
- 5) The bloggers reacting to either Low Price Products or High Price Products are mostly concerned with the overall feeling of the product, while those writing about Middle Price Products appreciate the feeling after several seconds of use.
- 6) The skin type of 46 % of the bloggers for Low Price Products is largely Mixed Skin. For Middle Price Products, the situation is similar with 47 %. The skin type of the bloggers for High Price Products is split between Mixed Skin with 31 % and Dry Skin with 39 %.
- 7) Regarding age, the seniority of the bloggers increases from Low Price Products toward High Price Products as depicted in Figure 4.4. Here the bloggers writing about Low Price Products are centered around late 10`s and 20`s, while the majority of the bloggers for Middle Price Products is in late 20`s and 30`s. Those caring for High Price Products are definitely senior with age 40 or above accounting for 17 %.

- 8) For Low Price Products, the bloggers are attracted by Low Stimulus with 23 % and Strain with 14 %. The bloggers for Middle Price Products similarly care about Low Stimulus with 19 % but Aging Care comes into consideration with 13 %. The bloggers for High Price Products are attracted by more factors with Aging Care accounting for 22 % , followed by Low Stimulus with 11 % as well as Whitening with 11 %.
- 9) All the bloggers are concerned with both Feeling and Price and Product Quality. In addition, the bloggers for High Price Products also consider it important to experience Sample.
- 10) About 25~33 % of all the bloggers are repeaters. However, the percentage for expressing desire to repeat is much less with 21 % for Middle Price Products and 18 % for High Price Products, except with 28 % for Low Price Products.
- 11) Most of the bloggers are in favor of the product they write about, with 70 % or more of them providing Positive Comments.
- 12) In parallel with 11), Score is also rather high with the averages of 4.61, 4.29 and 4.53 for Low Price Products, Middle Price Products and High Price Products respectively.

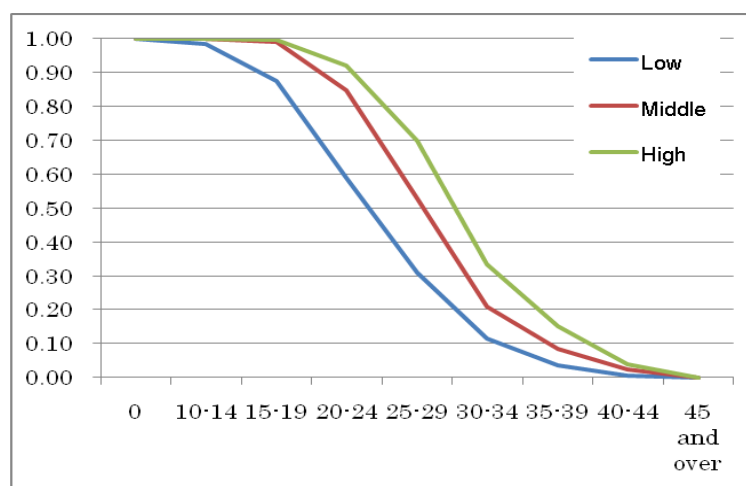


Figure 4.4 Survival Function of Ages of Bloggers

Score	Low	Middle	High
0	0.00	0.00	0.00
1	4.02	2.07	2.19
2	9.24	7.30	9.38
3	30.49	30.20	20.63
4	81.30	67.51	61.25
5	154.08	115.48	89.06
6	113.80	139.16	150.00
7	68.48	67.71	120.31
Total	461.41	429.43	452.81
Average	4.61	4.29	4.53

Table 4.4 Score of Ten Products

## 5. Conclusion

In this paper, a methodological approach is proposed to understand the potential importance of e-WOM in e-Marketing. Focusing on the cosmetic product market in Japan, a social network named @COSME is chosen for the study. More specifically, actual blogs concerning skin lotions are collected from @COSME in the period between November 1, 2007 and October 31, 2008. By identifying key words which are used by either manufactures for promoting skin lotions on the Internet or consumers in their blogs, our analysis is examine how such key words would overlap each other, thereby providing a basis to establish effective e-marketing strategies in e-WOM communications.

The data set to be employed throughout the paper is first introduced. The basic analysis of the data set is also provided. Then, key words used by either manufactures for promoting skin lotions on the Internet or consumers in their blogs are identified. These key words are categorized in terms of development intention, the content of the key words, engineering difficulty and touch (sense of feel). The collected blog data are examined through text-mining in order to see how the key words overlap between the product descriptions and the blog data. Some implications of the analysis are also discussed.

This study is still in its infancy. Deeper analyses would be needed to understand the power of e-WOM in e-Marketing better. It is also desirable to collect more blog data. This research is in progress and will be reported elsewhere.



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