Comparative Analysis of Sizzle Words on the Internet

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Background

Many people can post tasty words easily on the Internet.

- Users post their real impressions of foods on microblogs.
- Many original recipes are posted easily on user-generated recipes sites.
- Advertisements of foods are on Web sites of companies and restaurants.

Many tasty words are used on the Internet.
Background

- For example
  - "Wow, the steak is very juicy!" on Twitter.
  - The recipe named "Spicy Curry with Many Vegetables" is posted on user-generated recipes site.
  - A Company Web site "The cheese cake is seasonal".

These tasty words apparently differ among Internet media.
Propose

Tasty words are such as ‘juicy’, ‘spicy’, and ‘seasonal’

Propose

Ohashi clustered three types of sizzle word.

- **Taste-type**: Feeling in sense of taste and smell
  - e.g. Spicy, Sweet, Creamy...

- **Texture-type**: Feeling in sense of touch and hearing
  - e.g. Thick, Crispy, Moist...

- **Information-type**: Understanding as knowledge
  - e.g. In season, Premium, Healthy...

They analyzed 220 Sizzle Words using questionnaire research methods.

We use 90 Sizzle Words in this research.
Propose

We compare and analyze three Internet media such as Twitter, user-generated recipes site, and ordinary web pages by using Sizzle Words.

- **Twitter**
  -> Many eating experiences are posted.

- **Ordinary Web pages**
  -> There are much advertisement.

- **Recipe sites**
  -> Many Sizzle Words are used for being highlighted.

We compare and analyze feature of these three Internet media
Analysis three media

We extracted 90 words from their proposed Sizzle Words and the 1,025 food names.

We analyze by using the Dice coefficient.

\[ D = 2 \times \frac{|X \cap Y|}{|X| + |Y|} \]

• \( X \) stands for the number of Tweets/recipe/Web page included in food names.

• \( Y \) denotes the number of Tweets/recipe/Web page that include Sizzle Words.
We analyze Sizzle Words on Tweets, we use the following two queries and two scales.
To analyze:

- Sizzle word scale:
  Ranking of Sizzle Words and food names that co-occur with the Sizzle Words.
- Food name scale:
  Ranking of food names and Sizzle Words that co-occur with the food names.

Following the query:

**Query**

- Sizzle Words
- Food Names

**Scale**

- Sizzle word scale
- Food name scale
- Sizzle word scale
- Food name scale
How to analyze of Sizzle Words in Tweets

We analyze Tweets because users can post their food impressions in Tweets easily in real time.

1. We extract 90 (Sizzle Words) × 1,000 (Tweets) = 90,000 (Tweets) by searching Tweets using 90 Sizzle Words.

2. We also randomly extract 90,000 Tweets that do not include Sizzle Words.

3. We calculate relation of sizzle words and food name by using Dice coefficient based on ‘Sizzle word scale’ and ‘Food name scale’.
Result of Tweets (Query: Sizzle Word)

When users Tweet actual impressions, they usually use taste-type and texture-type Sizzle Words.

Information-type sizzle words appear to be used sometimes for advertisement. But there are few Tweet for advertisement.

Users of Twitter can post only 140 letters.

Many Tweets are actual impressions of users of real-time.
The relations of Sizzle Words and food names differ between Twitter and ordinary web pages.

Because a user’s real impressions of foods are posted on Twitter. We analyze Sizzle Words in ordinary web pages.

1. We used the same Sizzle Words (90 words) and food name (1,025).

2. We use the top 100 results of Google to analyze them by using the following two types of query: food name and Sizzle Words.

3. We divide each query according to viewpoints such as Sizzle word scale, Food name scale.
## Result of Ordinary Web Pages (Query: Sizzle Word)

<table>
<thead>
<tr>
<th>Sizzle Word</th>
<th>1-a Sizzle word scale</th>
<th>1-b Food name scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshly Deep-Fried</td>
<td>Tempura: 0.374, Potato: 0.246, Potato crisps: 0.230</td>
<td>Juicy: 0.012, Hukkura: 0.010, Plain aftertaste: 0.010</td>
</tr>
<tr>
<td>Melt</td>
<td>Cheese: 0.291, Cream: 0.158, Fresh cream: 0.113</td>
<td>Donut: Freshly cooked: 0.006, Creamy: 0.006</td>
</tr>
<tr>
<td>Thick</td>
<td>Cream: 0.020, Cheese: 0.018, Ramen: 0.018</td>
<td>Shrimp: Puripuri: 0.010, Juwa: 0.006, Freshly Deep-Fried: 0.006</td>
</tr>
</tbody>
</table>

- When query is a sizzle word, almost food names are general.
- There are few Information-type Sizzle Words when query is a Sizzle Word.

When query is Information-type Sizzle Word, resulting web pages are not many food pages.
Result of Ordinary Web Pages (Query: Food Name)

<table>
<thead>
<tr>
<th>Food Name</th>
<th>2-a Sizzle word scale</th>
<th>2-b Food name scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshly Deep-Fried</td>
<td>Tempura 0.224</td>
<td>Juicy 0.020</td>
</tr>
<tr>
<td></td>
<td>Kushi-Katsu 0.075</td>
<td>Hukkura 0.013</td>
</tr>
<tr>
<td></td>
<td>Sata Andagi 0.067</td>
<td>Handmade 0.009</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melty</td>
<td>Yudofu 0.048</td>
<td>Donut</td>
</tr>
<tr>
<td></td>
<td>Onion gratin soup 0.040</td>
<td>Handmade 0.015</td>
</tr>
<tr>
<td></td>
<td>Nectar 0.039</td>
<td></td>
</tr>
<tr>
<td>Thick</td>
<td></td>
<td>Shrimp</td>
</tr>
<tr>
<td></td>
<td>Cheddar Cheese 0.362</td>
<td>Puripuri 0.004</td>
</tr>
<tr>
<td></td>
<td>Thomas Juice 0.250</td>
<td>Natural 0.004</td>
</tr>
<tr>
<td></td>
<td>Nectar 0.194</td>
<td>Seasonal 0.004</td>
</tr>
</tbody>
</table>

- When query is food name, there are more specific food names such as ‘Cheddar cheese’ and ‘Onion gratin soup’.
- Many information-type Sizzle Words are used, such as ‘Handmade’, ‘Natural’ and ‘Seasonal’. These Sizzle Words are not user’s experiment impression.

There are many advertisement of food companies and restaurants, and brand names.
How to analyze of Sizzle Words in a Recipe site

Users of a user-generated recipe site are extremely interested in food.

And they might use many Sizzle Words. We analyze ’CookPad’*2.

1. We used the same Sizzle Words (90 words) and food name (1,025).

2. We use each top 100 search results for recipe pages from CookPad using Sizzle Words or food names.

3. We extract the title and a snippet from each.

4. We analyze title and snippet by dividing each query according to viewpoints such as Sizzle word scale, Food name scale.

*2 CookPad is the most popular user-generated recipe site in Japan.
How to analyze of Sizzle Words in a Recipe site

We divide Title or Snippet for analyzing.

Query
- Sizzle Words
- Food Names

Scale
- Sizzle word
- Food name

Title or Snippet
- Title 1-a-1
- Snippet 1-a-2
- Title 1-b-1
- Snippet 1-b-2
- Title 2-a-1
- Snippet 2-a-2
- Title 2-b-1
- Snippet 2-b-2
## Result of a Recipe site

**(Query: Sizzle Word)**

<table>
<thead>
<tr>
<th>1-a-1 Sizzle word scale in title</th>
<th>Spring Rolls</th>
<th>0.095</th>
<th>Melty</th>
<th>Cheese</th>
<th>0.133</th>
<th>Thick</th>
<th>Chocolate</th>
<th>0.187</th>
<th>Gateau Chocolat</th>
<th>0.088</th>
<th>Cream</th>
<th>0.076</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshly Deep-Fried</td>
<td>Croquette</td>
<td>0.092</td>
<td></td>
<td>Chocolate</td>
<td>0.065</td>
<td></td>
<td>Toast</td>
<td>0.041</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Donut</td>
<td>0.071</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1-a-2 Sizzle word scale in snippet</th>
<th>Croquette</th>
<th>0.058</th>
<th>Melty</th>
<th>Chocolate</th>
<th>0.187</th>
<th>Thick</th>
<th>Cheese</th>
<th>0.052</th>
<th>Caramel</th>
<th>0.038</th>
<th>Fresh Caramel</th>
<th>0.034</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshly Deep-Fried</td>
<td>Spring Rolls</td>
<td>0.047</td>
<td></td>
<td>Gateau Chocolat</td>
<td>0.088</td>
<td>Truffle</td>
<td>0.077</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese</td>
<td>0.388</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1-b-1 Food name scale in title</th>
<th>Juicy</th>
<th>0.135</th>
<th>Donut</th>
<th>Freshly Deep-Fried</th>
<th>0.071</th>
<th>Shrimp</th>
<th>Puripuri</th>
<th>0.290</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamburg steak</td>
<td>Hukkura</td>
<td>0.116</td>
<td></td>
<td>Mochimochi</td>
<td>0.057</td>
<td></td>
<td>Crisp and Fried</td>
<td>0.024</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Juwa</td>
<td>0.073</td>
<td></td>
<td>Glutinous</td>
<td>0.044</td>
<td></td>
<td>Full-fledged</td>
<td>0.022</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Glutinous</td>
<td>0.029</td>
<td></td>
<td>Full-fledged</td>
<td>0.017</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- There are many general foods.
- Cooking is easy and popular for users of a recipe site.
- Information-type sizzle words are not used a lot.
- Recipes are unrelated to Information-type Sizzle Word such as ‘Natural’.
There are more sizzle words in the title than the snippet. Users want their recipe to be read by more and more people. Their title is interested in reading users.

Information-type sizzle words are not used a lot.

Recipes are unrelated to Information-type Sizzle Word.
Comparison of three media

We generate the 6 following hypotheses.

1. Information-type Sizzle Words are used for advertisement. Taste-type and texture-type Sizzle Words describe a user’s eating experience.

2. Among these three media, Twitter has the most sentences (Tweets) that include Sizzle Words.

3. Tweets are more related to users’ eating experiences than statements of the other two media.

4. Of the three media, user-generated recipe sites have the most appealing Sizzle Words.

5. Of the three media, user-generated recipe sites have the best pairs of food names and Sizzle Words.

6. Twitter and user-generated recipe sites have few advertisements in, but many advertisements are used on ordinary web sites.
Hypotheses 1

Information-type Sizzle Words are used for advertisement. Taste-type and texture-type Sizzle Words describe a user’s eating experience.

TRUE

User Impression

‘This shop’s cheese cake is melted, and I will want to eat again.’

Advertisement

‘We sell seasonal food’
Among these three media, Twitter has the most sentences (Tweets) that include Sizzle Words.

**FALSE**

The Tweets that include Sizzle Words are fewer than 1% of Tweets.

Users of Twitter do not Tweet for only about foods.
Hypotheses 3

Tweets are more related to a user’s eating experiences than statements of the other two media.

**TRUE**

Twitter users Tweet their eating experiences.

Taste-type and Texture-type Sizzle Words are more included than Information-type them in eating experiences.

| ‘This shop’s cheese cake is *melted*, and I will want to eat again.’ |
| ‘Wow, the steak is very *juicy*!’ |
Hypotheses 4

In the three media, user-generated recipe sites have the most appealing Sizzle Words.

TRUE

There are many attractive Sizzle Words from which we can imagine delicious foods easily.

| ‘Soft and melted cheese Hamburg steak’ |
| ‘Light and fluffy homemade pancakes’ |

Users of a recipe site use many Sizzle Words.

They want to be their recipe read by more and more people.
Hypotheses 5

In the three media, user-generated recipe sites have the best pairs of food names and Sizzle Words.

TRUE

Users of a recipe site want their recipe pages to present delicious food.

They want their recipe popular.
Hypotheses 6

Twitter and user-generated recipe sites have few advertisements in, but many advertisements are used on ordinary web sites.

TRUE

Taste-type and texture-type Sizzle Words describe a user’s eating experience.

Information-type Sizzle Words are used for advertisement.

An ordinary web page has many information-type Sizzle Words.

| ‘Today’s special is seasonal salad’ |
| ‘Handmade Hamburg steak’ |

They are clearly advertisement sentences
Conclusion & Future Work

Conclusion

- We compared Sizzle Words use among Twitter, ordinary web pages, and user-generated recipe sites.

- The Sizzle Word characteristics were found to differ among media.

Future Work

- We will analyze Twitter based on time and season.
  - Tweets are impression of users of real time.

- We will have a questionnaire to support objective analysis of people.
  - In this paper, we analyze subjective.

- We will develop a food personalization system or food search system that can search for foods using Sizzle Words.