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Communication through Typefaces: Affective Selection of English, Myanmar and Japanese Typefaces

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Abstract: Typefaces play an important role in business communication as they are found to shape consumers’ perceptions and impressions towards products. One way typefaces shape perception is by carrying connotative meanings which are often difficult to identify. Since connotative meanings are implicit, incorrect choice of typefaces can ruin the effectiveness of communication. This study tried to build typeface recommendation guidelines for 3 languages - English, Myanmar, and Japanese - through subjective evaluation. Results could pinpoint suitable typefaces for each of the 36 Kansei adjectives, and also find 5 clusters of adjectives and types. Findings that are consistent with prior studies on English and Japanese typefaces are derived for Myanmar language where no such study exists. In addition, points of caution regarding relying on originally specified font-weight, and how using fonts with ‘exciting’ Kansei can impact readability are also noted.

Keywords: Comparison of Typeface Impression, Font selection, SD Scale, Correspondence Analysis, Clustering

1. INTRODUCTION

Typography and typefaces are considered to play an important role in business communication as proved by several studies, which showed that typefaces shape consumers’ perception and the memorability of advertisement claims, and how consumer attitudes are affected by type. Due to the significance played by typography and typefaces, a large number of researches has been done into their impact, with one branch of studies focusing on affective meanings they have. Studies have found that the appearance of typefaces can carry specific connotations or meanings to consumers. Dyole et.al [1] have demonstrated that specific typefaces carry the meaning of ‘dynamism’ and ‘potency’, whereas Rompay et.al [2] have demonstrated how the connotations of ‘luxuriousness’, ‘casualness’, ‘masculinity’ or ‘femininity’ are communicated by a typeface. However, despite the large body of studies already conducted, little guidance can be found on typefaces of some lesser-known natural languages such as Myanmar. By recognizing this need, this study conducted a similar study on typefaces from 3 languages: 1) Myanmar language, where no studies have been conducted yet on the emotional impact of typefaces, 2) English language, and 3) Japanese language. The aim is to build a recommendation system and compare results to see if findings are consistent with previous similar studies and across languages.

2. RELATED WORKS

2.1 On Personality of Typefaces

A large number of researches has been done into the personality of typefaces for major languages used in the world. One such literature is Shaikh [3] which studied onscreen typefaces based on respondents’ feelings towards the personality of 40 typefaces using 15 Semantic Differential Scales. Results pointed out to 3 factors – namely, Potency, Evaluative and Activity – that explain the personality of the fonts selected. Henderson et. al [4] also studied the personalities of typefaces and evaluated them against 12 impression variables. The number of typefaces studied by Henderson et. al was 210, comprising of various designs. This study found 6 underlying design dimensions, and potential tradeoffs among impressions were also discussed. Based on the impressions found by these works of literature, and also based on practical typeface selection guidelines, suitable Kansei adjectives were selected in this study.
2.2 On Multilingual Typeface Selection

Among papers related to typeface selection in multilingual settings, Qiu et al. [5] is a study done on the combined usage of Japanese and Latin typefaces. The authors of this study used the Affective Engineering approach to quantify the affective meanings of Japanese and Latin typefaces, and based on their findings, they recommended a typeface selection method when the two different languages are to be used together. As a result of this study, the authors found out that it is more effective to use Latin and Japanese typefaces that are found to have similar impressions through the statistical analyses, compared to using the original Latin letters found in the Japanese typeface packages. However, the application of Qiu et al. is a recommendation for juxtaposition (combined usage) of fonts, whereas the current study is aimed at the recommendation for individual (non-combined) usage.

3. CHOICE OF TYPEFACES AND EVALUATION ITEMS

3.1 Selection of Typefaces

For each language, 10 typefaces were selected by producing Orthogonal Arrays using 3 same variables: Category, Weight, and Height. Variable ‘Category’ includes Serif, San-serif, Monospaced, and Others for English; Mincho, Gothic and Others for Japanese; San-serif and Others for Myanmar. Variable ‘Weight’ includes Regular, Bold, Light, and Others; whereas variable ‘Height’ includes Longer and Shorter. The use of similar variables and an Orthogonal Array allows comparison of results in the analysis section, and also ensures that fonts with varying styles are selected. The 30 typefaces selected are as shown in Table 1.

3.2 Selection of Adjectives and Evaluation Items

For the purpose of evaluating the typefaces, 18 pairs of Kansei adjectives were selected based on past literature [4][5][6][7], and practical font selection guidelines such as Tsutawaru Design [8]. They are as shown in Table 2. Respondents were then asked to rate each typeface on these adjectives and evaluation items using 7-point Semantic Differential Scales. Responses obtained from 168 respondents (56 for each language) were then analyzed to derive findings.

4. QUANTIFYING AFFECTIVE RELATIONSHIPS

4.1 Relationship Between Typefaces and Adjectives

| Code | Category | Weight | Height | Typeface Name                  |
|------|----------|--------|--------|--------------------------------|
| en1  | Serif    | Regular| Shorter| Times New Roman               |
| en2  | Monospaced| Regular| Longer | Monofonto                     |
| en3  | Others   | Regular| Shorter| Couserett                      |
| en4  | San-Serif| Regular| Longer | Open Sans                     |
| en5  | Serif    | Bold   | Longer | EB Garamond                    |
| en6  | San-Serif| Others | Shorter| Roboto                         |
| en7  | Others   | Others | Longer | Broadway                       |
| en8  | Serif    | Others | Longer | Superclarendon                  |
| en9  | Others   | Bold   | Shorter| Big Shoulder Display           |
| en10 | Monospaced| Regular| Longer | Courier New                   |
| mm1  | San-serif| Bold   | Longer | Myanmar Black                  |
| mm2  | Others   | Regular| Shorter| Yoeyar-one                     |
| mm3  | Others   | Bold   | Longer | Ayar Nayon                     |
| mm4  | San-serif| Regular| Shorter| Myanmar Sans Pro               |
| mm5  | Others   | Bold   | Shorter| Myanmar Nayone                 |
| mm6  | Others   | Regular| Longer | Ayar Typewriter                |
| mm7  | San-serif| Bold   | Shorter| Ayar Kasone                    |
| mm8  | San-serif| Regular| Longer | Myanmar Sabae                  |
| mm9  | Others   | Bold   | Shorter| Myanmar Phetsot                |
| mm10 | San-serif| Regular| Longer | Zawgyi-one                     |
| jp1  | Gothic   | Bold   | Longer | Noto Sans CJK JP Bold          |
| jp2  | Mincho   | Regular| Longer | IPAexMincho                    |
| jp3  | Gothic   | Regular| Shorter| HGMaruGothicMPRO               |
| jp4  | Other    | Light  | Longer | M+ 2c Light                    |
| jp5  | Other    | Regular| Shorter| azuki-font                     |
| jp6  | Mincho   | Bold   | Shorter| HGPMinchoE                     |
| jp7  | Gothic   | Light  | Shorter| Yu Gothic UI Light             |
| jp8  | Other    | Bold   | Shorter| HGPSoeiKakupoptai              |
| jp9  | Mincho   | Light  | Shorter| UD Digi Kyokasho NP-R           |
| jp10 | Other    | Regular| Shorter| Tanuki Permanent Marker        |

| Left         | Right           |
|--------------|-----------------|
| strong       | weak            |
| light        | heavy           |
| soft         | hard            |
| formal       | casual          |
| plain        | graceful         |
| calm         | exciting         |
| serious      | cheerful         |
| individualst | familiar         |
| reliable     | sportive         |
| strict       | gentle           |
| cute         | elegant          |
| classic      | modern           |
| delicate     | robust           |
| sophisticated| unsophisticated  |
| intellectual | emotional        |
| distinctive  | in-distinct      |
| clear        | unclear          |
| neat         | clumsy           |
To find the relationship between typefaces and 18 pairs of Kansei adjectives, coordinates of the typefaces and adjectives are determined by Correspondence Analysis. Each Kansei adjective is split into two: the left adjective and the right adjective, hence, making a total of 36 adjectives. Using the resulting Correspondence Plot and distances obtained from it, the fonts to be recommended for each adjective is identified based on the shortest distance. The results are summarized in Table 3.

4.2. Groups of Adjectives and Fonts using Non-hierarchical Clustering by K-means

To help with grouping, non-hierarchical clustering using K-means method was done in this section. Since K-means clustering allows determining the number of clusters, 3 clustering trials were attempted with 4, 5 and 6 clusters. While clustering with the number of clusters = 4 resulted in very big clusters that do not seem natural, clustering with the number of clusters = 6 resulted in one cluster with only adjectives and no font. Therefore, the final analysis was done with the number of clusters = 5. The results are as shown in Table 4.

5. FINDINGS AND DISCUSSIONS

5.1 Building Typeface Recommendation Guidelines

In the case that fonts have to be recommended when a specific Kansei adjective is provided, results from Correspondence Analysis using the shortest distance (Table 3) are useful. And by cross-checking with the actual font images, relations between font design aspects and Kansei adjectives can be pointed out. For example, fonts recommended for ‘formal’ are regular weighted serif font en1 Times New Roman; bolded Mincho font jp6 HGPMinchoE, and regular weighted san-serif font mm10 Zawgyi-One. This finding aligns with the results of prior studies where serif/Mincho are considered formal; for Zawgyi-one, it is the only Myanmar font with a totally rounded appearance without any additional typographic styles and it was the dominant font used in Myanmar before Unicode transformation, hence these factors might have contributed to it being recommended for ‘formal’. Recommended fonts for ‘cute’ include regular weighted calligraphic font en3 Courget; regular weighted Gothic font jp3 HGMRuGothicMPro; and regular weighted calligraphic font mm2 Yoeyar-One which resembles ornate scripts than other cleaner Myanmar fonts. And fonts recommended for ‘clumsy’ are non-regular weighted display font en7 Broadway; bolded display font jp8 HGPSoeiKakuoptai which is intended for POP.

Table 3: Recommended Fonts for Each Adjective

| Adjective | EN | Distance | MM | Distance | JP | Distance |
|-----------|----|----------|----|----------|----|----------|
| strong    | en02 | 0.100 | mm07 | 0.072 | jp06 | 0.505 |
| weak      | en03 | 0.303 | mm02 | 0.182 | jp07 | 0.151 |
| light     | en06 | 0.300 | mm02 | 0.437 |.jp04 | 0.133 |
| heavy     | en02 | 0.117 | mm07 | 0.236 |jp08 | 0.567 |
| soft      | en06 | 0.284 | mm02 | 0.387 |jp04 | 0.098 |
| hard      | en02 | 0.092 | mm07 | 0.191 |jp06 | 0.601 |
| formal    | en01 | 0.048 | mm10 | 0.224 |jp06 | 0.215 |
| casual    | en03 | 0.401 | mm03 | 0.209 |jp10 | 0.291 |
| plain     | en03 | 0.213 | mm04 | 0.232 |jp02 | 0.285 |
| graceful  | en04 | 0.095 | mm04 | 0.098 |jp09 | 0.197 |
| calm      | en10 | 0.272 | mm10 | 0.128 |jp09 | 0.066 |
| exciting  | en07 | 0.310 | mm03 | 0.122 |jp08 | 0.077 |
| serious   | en01 | 0.174 | mm01 | 0.160 |jp06 | 0.157 |
| cheerful  | en03 | 0.481 | mm06 | 0.123 |jp05 | 0.254 |
| individual| en03 | 0.347 | mm03 | 0.224 |jp10 | 0.330 |
| familiar  | en10 | 0.115 | mm04 | 0.086 |jp02 | 0.020 |
| reliable  | en01 | 0.105 | mm10 | 0.087 |jp02 | 0.132 |
| sportive  | en03 | 0.563 | mm03 | 0.197 |jp10 | 0.213 |
| strict    | en05 | 0.146 | mm05 | 0.125 |jp06 | 0.345 |
| gentle    | en03 | 0.246 | mm02 | 0.145 |jp07 | 0.096 |
| cute      | en03 | 0.239 | mm02 | 0.078 |jp03 | 0.129 |
| elegant   | en10 | 0.099 | mm01 | 0.216 |jp02 | 0.194 |
| classic   | en10 | 0.098 | mm10 | 0.224 |jp02 | 0.175 |
| modern    | en03 | 0.327 | mm06 | 0.185 |jp03 | 0.294 |
| delicate  | en06 | 0.132 | mm04 | 0.370 |jp04 | 0.084 |
| robust    | en09 | 0.085 | mm07 | 0.258 |jp08 | 0.503 |
| sophisticated | en10 | 0.126 | mm04 | 0.051 |jp02 | 0.054 |
| unsophisticated | en09 | 0.321 | mm03 | 0.229 |jp08 | 0.240 |
| intellectual | en01 | 0.079 | mm10 | 0.110 |jp02 | 0.180 |
| emotional | en03 | 0.495 | mm03 | 0.130 |jp10 | 0.195 |
| distinct  | en08 | 0.055 | mm09 | 0.045 |jp02 | 0.447 |
| in-distinct | en03 | 0.179 | mm02 | 0.129 |jp07 | 0.040 |
| clear     | en10 | 0.039 | mm10 | 0.153 |jp02 | 0.079 |
| unclear   | en07 | 0.412 | mm03 | 0.065 |jp10 | 0.162 |
| neat      | en10 | 0.105 | mm03 | 0.085 |jp02 | 0.039 |
| clumsy    | en07 | 0.302 | mm03 | 0.147 |jp08 | 0.077 |

Table 4: Results of Clustering (K=5)

| No. | Size | Adj | Contents |
|-----|------|-----|----------|
| C1  | 16   | Adj | weak, light, soft, gentle, cute, delicate, in-distinct |
|     |      | Font | mm08, jp03, jp04, jp07, en03, en04, en06 |
| C2  | 10   | Adj | strong, heavy, hard, robust, distinct |
|     |      | Font | mm07, mm09, en02, en08, en09 |
| C3  | 8    | Adj | formal, serious, strict |
|     |      | Font | mm01, mm05, jp06, en01, en05 |
| C4  | 16   | Adj | casual, exciting, cheerful, individual, sportive, modern, unsophisticated, emotional, unclear, clumsy |
|     |      | Font | mm03, mm06, jp05, en08, jp10, en07 |
| C5  | 16   | Adj | plain, graceful, calm, familiar, reliable, elegant, classic, sophisticated, intellectual, clear, neat |
|     |      | Font | mm04, mm10, jp02, jp09, en10 |
users to only identify the Kansei, such as ‘cute’, and the results will identify the best fonts suited for this purpose. This study manages to provide recommendations for three languages, including Myanmar language for the first time, and provide a comparison by keeping the features of fonts and adjectives the same. Findings can also be useful for managers who are tasked with communication in an international context using text as a medium.

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REFERENCES
[1] Doyle, J. R., & Bottomley, P. A. Font Appropriateness and Brand Choice. Journal of Business Research 57, pp.873-880,2004.
[2] Rompay, T. J., & Pruyn, A. T. When Visual Product Features Speak the Same Language: Effects of Shape-Typeface Congruence on Brand Perception and Price Expectation. Journal of Product Innovation Management, pp.599-610,2011.
[3]Shaikkh, A. Psychology of Onscreen Type: Investigations Regarding Typeface Personality, Appropriateness, and Impact on Document Perception. Graduate School of Wichita State University, 2007.
[4] Henderson, P. W., Giese, J. T., & Cote, J. A. Impression Management Using Typeface Design. Journal of Marketing, pp.60-72, 2004.
[5] Qiu, Q., Watanabe, S., & Omura, K. Affective Font Selection: The Hybrid of Japanese and Latin Typefaces. International Journal of Affective Engineering, Vol. 17, No. 2, pp.89-98, 2018.
[6] Grohmann, B., Geise, J., & Parkman, I. Using Type Font Characteristics to Communicate Brand Personality of New Brands. Journal of Brand Management, pp.384-403, 2013
[7] Skarzenski, E. Type & Layout: How Typography And Design Can Get Your Message Across-Or Get In The Way. Technical Communication, Vol. 43, No. 4, pp.424, 1996.
[8] Tsutawaru Design. Basic Design Creation. Retrieved from Tsutawaru Design, 2019.
[9] McCarthy, M. S., & Mothersbaugh, D. L. Effects of Typographic Factors in Advertising-Based Persuasion: A General Model and Initial Empirical Tests. Psychology & Marketing, Vol. 19 (7-8), pp.663-691, 2002.