International Journal of Engineering & Technology, 7 (4.28) (2018) 431 -435

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

The Emotional Meaning behind *Typefaces*: Developing *Typefaces Bank* (TB) for Business and Brand Construction

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Abstract

Typefaces are considered as tiny element yet uncategorized as the primary element in a verbal message. Even though, numerous researches have shown opposite results regarding typefaces. Typefaces are revealed as the element that effects human perception and decision making, especially in business and consumer behavioral circumstances. Typefaces exist as the element that could affect human emotion, the most prominent variable in deciding human behavior. Based on many empirical pieces of evidence, in this study, author gathered approximately 2108 typefaces from three primary sources and evaluated the emotional meaning behind each typeface. Author named these typefaces collection as Typefaces Bank (TB). TB can be valuable for many brand developers and entrepreneurs to construct their brand in public and also deliver impression in business relationships. As an attempt to give emotional meaning to TB, the author applied circumplex model of affect developed by James Russell in 1980, which categorized emotion in two primary aspects, namely valence, and arousal. Self-Assessment Manikin (SAM) is applied to measure valence and arousal degree in each typeface. Result showed that each typeface is categorized in four quadrants produced by the combination between valence and arousal poles.

Keywords: *Typefaces, valence, arousal, emotion, SAM.*

1. Introduction

Human as complex creature communicates with each other through language which consists of verbal message. Verbal message is the main element of human being to understand humanity as the social creature. The existence of verbal message is fundamental for a human to deliver meaning and explanation related to various social objects. Verbal message functions not only as a primary instrument for human communication but also the tool to understand a complex situation and the world. Herbert Blumer [2], well-spoken American sociologist mentioned two types of human interaction, namely *symbolic interaction* and non-symbolic interaction. *Symbolic interaction* requires verbal message, often called as language as the key element for human interaction, whereas non-symbolic interaction requires gesture and non-verbal message used by a human. Both of those interactions will produce meaning to clearly understand the complexity of this world [6].

Meaning is a fundamental element in every part of human activities, including in marketing and advertising issues. Both of these issues definitely have one primary element, the attention from consumers. How consumers perceive brand or product is the main indicator of success in business or marketing. All of the efforts to convince consumers to follow our direction rises on the meaning of the message. Type of font, or identified as typefaces in verbal message can be one of the elements that affect consumer's perception towards brand or product [10,15]. Sometimes, in a practical context, maybe the selection of typefaces for business or marketing only based on emotional feeling. In this context, empirical approach towards typefaces can be the alternative to enhance the impact of verbal message. Various empirical studies have shown the importance of typefaces selection in affecting human perception towards the brand. Typefaces became the small-detailed element that needs to be considered carefully when constructing verbal messages for business and marketing purposes, such as marketing communication [27], impression management [17], appropriateness with brand [10], advertising effectiveness [24] and also affecting human emotion [15]. All of these studies have shown the importance of typefaces as the tiny element that can be useful to convey meaning.

An experimental study conducted by Doyle and Bottomley [10] has shown the appropriate typefaces could clearly describe the characteristic of the brand. Appropriate typeface is a typeface where the design could reflect the characteristic of the brand. The application of this typeface will lead participants to investigate and finally purchase the specific brand. This experimental study showed that participants could perceive what kind of typefaces that reflect the character of the brand without considering its name and the meaning behind the name. For example, in selecting an ice cream brand, participants preferred to select a brand with *Snowdrift* than *Arial*. *Snowdrift* font clearly reflects cold; snow and ice. In opposite, participants were preferred to select *Arial* font in describing life insurance brand. This study has shown the empirical evidence for many brand developers to consider the tiny element namely typefaces that will affect consumer's perception. In consumer behavioral issue, perception is fundamental due to its role to affect human decision making [13], in this context, buying decision.

Various studies have shown the importance of typefaces in affecting human perception and decision. However, there is no typefaces collection that can be used as standard guidance for the brand developer in order to construct an effective brand. As an attempt to address this challenge, this study will focus on collecting numerous typefaces and evaluate the emotional meaning behind each typeface. Author named this collection as *Typefaces Bank* (TB). In psychology, emotion is considered as a marker that predicts various human behaviors [21,22]. Emotion is considered a dynamic psychological condition (state) that existed after human perceive emotional objects. Even though emotion existed in two primary categories, positive and negative, there is no rigid formula to define a general emotional object that causes positive or negative emotion. Among scientists, emotion classification is widely debated until now. Two main theories of emotion have existed; *discrete* or basic emotion [11] and emotion as dimensions or defined as *core affect* [22,23]. In consumer behavioral context, emotion always fruitful subject to discuss due to its effectiveness to predict intention and brand exploration [20]; advertorial perception [25] and also decision making [16].

This study was conducted with two primary steps. First step was related to typefaces collection and second step was related to the evaluation of emotional meaning by applying valence and arousal framework. Various typefaces were collected from two internet sources, http://dafont.com and http://fontsquirrel.com and one offline source, typefaces collection in *Microsoft 2010*. Author completed our collection with approximately 2108 typefaces. After the collection process finished, author conducted the second step. In order to explore emotional meaning behind each typeface, author applied Russell's framework of emotion, namely *circumplex model of affect* or *core affect* [CA; 21,22], which based on two dimensions, valence and arousal. Valence refers to dynamic psychological state; whereas arousal refers to physical state which simultaneously exists along with valence. Both of these aspects will appear after the emotional object has been perceived by a human. *Self-Assessment Manikin* [SAM; 4] was applied to measure valence and arousal in TB. SAM is a well-established psychological instrument and has been used for measuring emotional response towards English words [ANEW; 5]; images [19]; and also sounds [3]. In the end, each typeface would have valence and arousal score that emerged from rater's evaluation.

2. Valence and Arousal Inside Typefaces

In this study, author applied CA [21,22,23] as our theoretical guideline. Two main aspects of CA, valence and arousal are applied to enrich the meaning of each typeface in TB. Valence and arousal can be combined into circular model to explain the degree of emotion in object. Valence is represented with positive and negative poles, whereas arousal is represented with calm and arousal poles. The combination of these two is producing 16 core emotions namely *core affect* [22]. These affect labels are located in four quadrants based on the combination between valence and arousal line. Figure1 describes the form of CA which has four quadrants inside it. Emotion labels which located in opposite direction are negatively correlated with each other. In this study, CA framework was applied through SAM which consists of interval range with the illustration of human *manikin* represented in Figure 2. As an attempt to measure valence and arousal, various manikins with a different type of emotional expression are provided by SAM. Each collected typeface would be measured through valence and arousal SAM. In this study, typefaces became the emotional object.

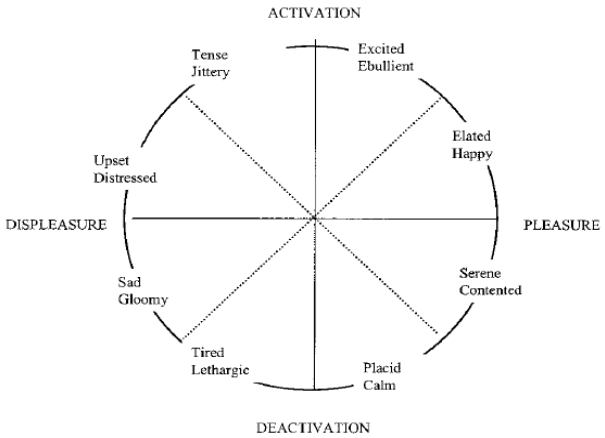

Fig 1: Circumplex Model of Affect and Core Affect [22]

3. Method

3.1. Typefaces Collection

Numerous typefaces collection in this study was collected through random sampling from three sources. Two sources were available in online medium (*http://www.dafont.com* and *https://fontsquirrel.com*), whereas one source was originated from offline source (*Microsoft Word collection*). These two online sources provided numerous typefaces that could be downloaded for free. In this process, author was helped by one enumerator to randomly collected typefaces from these two online sources. After the selection has been completed, author conducted filtering process towards all of the collected typefaces from three sources. Filtering was a process where author eliminated the same typefaces collected in three sources. Finally, author was able to collect 2108 typefaces in various categories, such as *serif*; *sans-serif* and *display*.

3.2. Participants and Materials

Valence and arousal evaluation was conducted by involving students an *introduction to psychological measurement* class (PDU-110) in an undergraduate degree program, Faculty of Psychology, Universitas Katolik Indonesia Atma Jaya as participants. Total participants involved in this study were 40 students. By applying the *inter-rater method* to evaluate valence and arousal, each typeface was rated by five different students. Participants who involved in the evaluation process has been studied and passed basic psychology subject (PDU-101) which focusing on human emotion as one of the learning materials. Based on this background, the empirical assumption was all participants have known what is emotion. None of the participants reported having any reading disabilities and other mental disabilities related to the emotional response which could affect the result.

3.3. Valence and Arousal Evaluation towards Typefaces

As an attempt to control the quality of valence and arousal evaluation, author used SAM as the primary instrument to examine valence and arousal for each typeface. SAM is the psychological instrument used to evaluate valence and arousal towards various emotional objects. Different from another attitudinal scale, SAM is using manikin illustration to represent each value (1 to 5). The application of manikin is applicable for individual or group from various backgrounds, including people with mental disability [4]. In this study, the application of manikin is also used as the control technique to overcome different knowledge of emotion. The range of scale provided by SAM is 1 to 5, both for valence and arousal. Valence is represented with positive (*positif*) and negative

(*negatif*) poles, whether arousal is represented with calm (*tenang*) and excited (*bersemangat*).

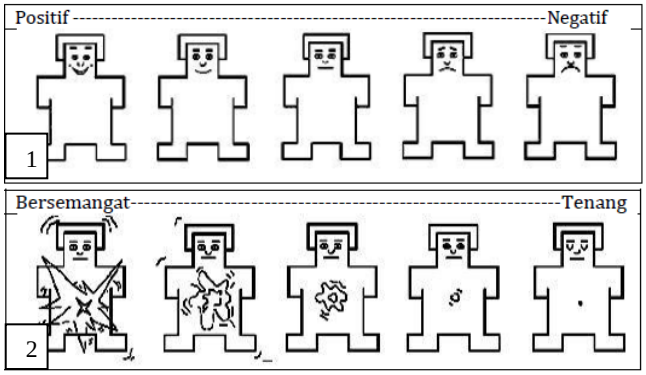

Fig 2: SAM as the primary instrument to measure valence (1) and arousal (2) on typefaces

In order to maintain the quality of valence and arousal evaluation conducted by undergraduate students, author conducted three control techniques. A first technique related to controlling the meaning of words. Author arranged letter with different typefaces that created meaningless words. By this technique, author hoped the evaluation of valence and arousal were not contaminated by the meaning of word. A second technique related to size of typefaces. All typefaces are displayed with the same size (14) in Microsoft Word. Last technique was related to theoretical guidance. In instrument package, author also added theoretical guidance related to valence and arousal as CA [22]. Before the evaluation started, author requested participants to read carefully and comprehensively on the guidance given in the instrument. Figure 3 shows the example of valence and arousal evaluation instrument used in this study. The left column is representing the variance of typefaces and the right side is the manikin applied to evaluate emotion towards typefaces (valence and arousal).

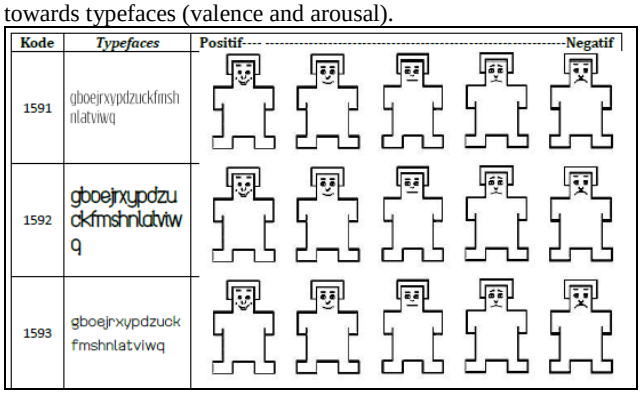

Fig 3: Valence and Arousal Evaluation Instrument on Typefaces

3.4. The degree of Agreement among Participants

It is necessities to calculate the degree of agreement among raters in research involving more than one independent rater. In quantitative psychological instrument, degree among raters also known as *inter-rater reliability* which defined as consistency of evaluation between raters [7,8]. Consistency between raters is primary elements which reflect how typefaces are perceived by participants. *Inter-rater consensus* (IRC) is used in this study to identify the degree of agreement among raters who involved in this study. The basic concept of IRC is a correlation between scores (valence and arousal) among raters who involved in the rating process. For example, if there are 3 raters, it will produce three correlations. IRC method has been applied by Gosling, Ko, Mannarelli and Morris [14] in their study to measure the consensus among raters who rated human personality from bedroom and workspace. Reliability coefficient in IRC is measured from the mean of the correlation coefficient between two raters. In this study with five raters who rated each typeface, reliability is derived from 10 correlation coefficients.

4. Result and Discussion

4.1. The density of valence and arousal in Typefaces Bank

In order to describe the distribution of valence and arousal score, author identified the degree of normality by applying bar-charts. Figure 4 describes the distribution of score for valence (1) and arousal (2). In this study, author applied *Shapiro Wilk* test, statistical significance test to identify normality in a score distribution [12]. Result has shown that both of valence (p>.05) and arousal (p>.05) distribution are skewed. Result for valence score distribution is consistent with the distribution of words collection from *Twitter* [26] and also the study by Dodds et. al [9] which reveal that human language positively biased.

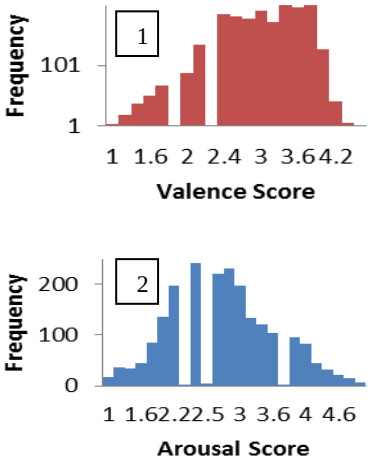

Fig 4: The density of (1) valence and (2) arousal scores from TB

4.2. The degree of agreement and overview of Typefaces Bank

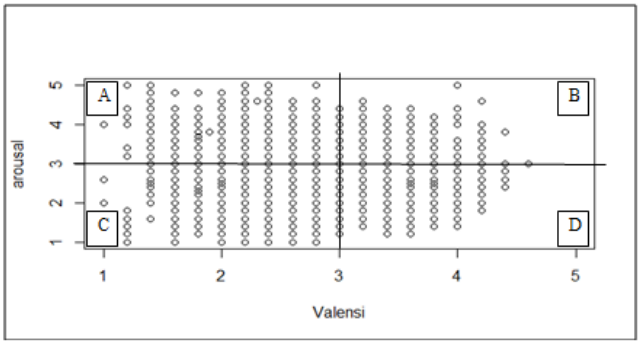

Fig 5: Valence and arousal scores distribution

Correlation between rater is applied to identify inter-rater consensus as reliability coefficient. Result showed there was empirical pattern when raters evaluate each typeface in valence and arousal aspects. Mean from 10 correlation coefficient has shown the significant result, both for valence (r =.32; p<.01) and arousal (r =.32; p<.01). This result became a statistical cue where participants have the same pattern in emotional response towards typefaces. As an attempt to look more comprehensive on this pattern, author also examines the distribution of valence and arousal score according to Russell's framework of emotion [22]. The framework is focusing on a combination between valence and arousal poles to produce four different quadrants in Figure 5. The X-axis represents valence poles, ranging from 1 (negative/*negatif*) to 5 (positive/*positif*) and Y-axis represents arousal poles, ranging from 1 (calm/*tenang*) to 5 (excited/*bersemangat*). In the distribution, author also identified typefaces with extreme score for valence and arousal, which is also described in Table 2.

The distribution in Figure 5 has shown a similar result with the distribution of *Algoritma Kata* [AK; 26], which reveals rectangle

distribution where most of analysis units were gathered in the middle (3) both for valence and arousal. AK is Indonesian words collection gathered from top words in twitter with valence and arousal score in each word. The distribution reveals four different quadrants which emerge from the combination between valence and arousal poles. In order to test the validity of scores distribution, author conducted a correlation test between valence and arousal in each quadrant with *Pearson Product Moment* [PPM;12]. PPM is a statistical instrument to identify the relationship between two variables with interval or ratio scale. Correlation between valence and arousal score in all boxes also produced a negative correlation with a low score. This result also consistent with Russell's theory of CA [22], where valence and arousal are dynamic variables emerged due to complex emotional objects.

Table 1: Correlational Test between Valence and Arousal between TB and AK in each box

Quadrants	A	B	C	D	All boxes
TB AK	-.251* -.114*	-.051 .340**	.181* .024	.038- -.05	-.159** .169**

**p<.05, two-tailed*
***p<.001, two-tailed*

4.3. Typefaces and Emotional Response

Valence and arousal scores distribution in Figure 5 told us the exact location of each typeface in CA quadrant. By applying CA framework developed by Russell [21,22], the exact position of valence and arousal which belong to each typeface is a psychological cue to identify and predict what kind of behavioral response will emerge after the appearance of each typeface. Based on Russell's theory of human emotion, emotion is existed as a marker for human behavior, even though it cannot explain the exact behavior, the existence of emotion is crucial to understand basic human response in various aspects. Table 2 will comprehensively explain various typefaces with extreme score in both valence and arousal poles. The minimum score for typefaces in valence aspects reached 1 and the maximum score reached 4,6, whereas ,in arousal aspect, minimum score reached 0,5 and 5 for the maximum score.

Table 2: Example of Typefaces with the Highest and Lowest Scores in Valence and Arousal

Valence			Arousal		
Typefaces	Score	Design	Typefaces	Score	Design
Portculion	1	Abcdefg	Six Caps	1	ABCDEFG
Yellow magician	1		Simple Print	1	Abcdefg
Aaaaargh	4,6	Abcdefg	Emmanuelle	5	Abcdefg
Rounds Black	4,4	ABCDEFG	Hominis	5	ABCDEFG

Result in Table 2 shows one empirical pattern on valence and arousal score. Typefaces with thick design mostly could evoke positive emotion and a high degree of arousal level (excited). Explanation to describe this result came from the study conducted by Gump [15], the readability of typefaces. The appearance of thick design created by each typeface will affect the readability of the participants so that it would create subsequent positive emotions. In opposite, typefaces with séance design often evoked negative valence and low degree of arousal (calm). Another explanation for séance design typefaces is the application of symbols replacing few letters. For example, the *yellow magician* that contains three symbols in order to replace a few letters, *magician*; *flower* and *sword*. The appearance of these three objects in replacing some of the letters would affect the readability which would produce negative valence and low degree of arousal level.

5. Discussion

A study conducted by Kastl and Child [18] has shown that typefaces will affect judgment on emotional meaning towards participants. This study found that typefaces with various shapes produced different emotional responses in participants, such as curved typeface would evoke the feeling of sprightly, sparkling and dreamy. Due to a significant increase in typefaces design over time, this study was conducted as an advanced replication from it. This study was involving approximately 2108 typefaces that randomly selected from two online sources that usually used by brand designers in constructing brand. Basically, TB is contained updated typefaces collection that can be used for brand construction. Numerous researches have shown that the effect of typefaces in influencing human perception. In consumer behavioral context, typeface is the primary element that creates brand reflecting products. Even though this study has covered various emotional responses towards typefaces, the effect of typefaces in influencing human emotion in a brand needs further experimental study.

6. Managerial Implication

Basically, a small detailed element like typefaces is not considered as the element that evokes emotion. The activity to construct, create and maintain brand is only focusing on the meaning behind its word. However, this study is an insight for managers, especially people who focus on brand development and monitoring the effectiveness of brand towards consumer perception. This study has shown that typefaces must be considered empirically before developers launch the brand to the public. In focus, typefaces could convey emotional meaning, which is a psychological variable that should be considered significant to influence consumers as the biggest element in business.

7. Conclusion

Valence and arousal response in various typefaces is empirical evidence which showed there is a similar pattern in human affection in responding to one emotional object. This argument is also strongly supported by the result of the degree of agreement conducted with statistical correlation. Both valence (r =.32, p<.01) and arousal (r =.32, p<.01) produce significant *intra-class correlation among raters.* Even though the correlation is not high, both of valence and arousal evaluation is positively significant in a 99% confidence interval (p<.01). This result showed the existence of a similar pattern among raters in evaluating valence and arousal.

In a marketing context, it is true that typefaces are significantly useful for brand construction and development; however, the purposes are not limited to marketing context. Valence and arousal score contained in each typeface in TB is a psychological cue in predicting a behavioral response. According to Russell's CA, valence and arousal are markers to predict post-behavioral response. There are two logical consequences after human feel emotion, attach and avoid. In marketing and consumer behavioral context, a possible explanation for the term attach are remember the brand; investigating the brand and finally can lead to buying the brand, whereas the term avoids means dislike the brand; not interested and finally decided to choose another brand. Even though we need a further experimental study to identify the role of typefaces in producing an emotional response in the real brand, the establishment of TB is a first and primary step to explore other ideas related to the role of tiny element namely typefaces.

Acknowledgement

This research was conducted by the full support from Freespective Lab & Consulting. I thank to Freespective CEO, Sugiya Oki on his effort to fund this research and also his tremendous input to make this researc possible to publish.

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