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Personal computer wallpaper user segmentation based on Sasang typology



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ABSTRACT

Background: As human-computer interaction (HCI) is becoming a significant part of all human life, the user's emotional satisfaction is an important factor to consider. These changes have been pointed out by several researchers who claim that a user's personality may become the most important factor in the design. The objective of this study is to examine Sasang typology as a user segmentation method in the area of HCI design. To test HCI usage patterns in terms of the user's personality and temperament, this study focuses on personal computer (PC) or lap-top wallpaper settings.

Methods: One hundred and four Facebook friends completed a QSCC II survey assessing Sasang typology type and sent a captured image of their personal PC or lap-top wallpaper. To classify the computer usage pattern, folder organization and wallpaper setting were investigated.

Results: The research showed that So-Yang type organized folders and icons in an orderly manner, whereas So-Eum type did not organize folders and icons at all. With regard to wallpaper settings, So-Yang type used the default wallpaper provided by the PC but So-Eum type used landscape images. Because So-Yang type was reported to be emotionally stable and extrovert, they tended to be highly concerned with online privacy compared with So-Eum type. So-Eum type use a lot of images of landscapes as the background image, which demonstrates So-Eum's low emotional stability, anxiety, and the desire to obtain analogy throughout the computer screen. Also, So-Yang's wallpapers display family or peripheral figures and this is due to the sociability that extrovert So-Yang types possess.

Conclusion: By proposing the Sasang typology as a factor in influencing an HCI usage pattern in this study, it can be used to predict the user's HCI experience, or suggest a native design methodology that can actively cope with the user's psychological environment.

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1. Introduction

English psychologist Donna Dawson claims that an individual's personality can be judged by the wallpaper and

organization of icons of that individual's computer background. According to Dawson, all elements of an individual's surroundings allow interpretation of that individual's personality, and similarly, unconscious patterns of computer usage

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shed light on the nature of the user.¹ This may explain variations in aspects of human-centered design that are present in theories of human-computer interaction (HCI), which have dealt with users as information processing systems and cognitive psychology since the information age.²

In the information age, there are three main ways of categorizing computer users: (1) users may be categorized according to their skill in the use of computers to access information regarding the demography and socio-cultural status of others; (2) user behavior modeling may be used to analyze the degree to which users seek benefits, innovation, and acceptance; and (3) users may be categorized according to types of cognitive activity, such as using information in context. Shin and Kim³ claim that these methods of categorization are designed to assess types of use that are relevant for the purposes of marketing. Because these methods of categorization were developed from the perspective of marketing products, current approaches to HCI design, which are focused on the individual characteristics of the user's perception and action, the limits are occurred within this situation.

Recently, to overcome these limitations, research focusing on media usage has proposed that media usage patterns and behaviors need to be understood within the context of individual psychological characteristics such as personality. Additionally, in the field of HCI research, user personality has begun to attract attention as a major influence on design. In North America and Europe, traits such as those described by the five factor model (FFM) have been widely used to explain the relationship between media usage behavior and personality factors. Research based on this model has focused on areas including internet usage,⁴⁻⁶ consumer generated media (CGM),⁷ mobile usage,⁸ mouse and keyboard usage,⁹ and character and avatar design.^{10,11} The FFM has recently begun to be incorporated into research methodology in Korea.

Research methodology designed to examine media usage and behavior for the purposes of user-centered design is constantly changing; nevertheless the methods mentioned above are focused on Western users, and do not sufficiently address each culture's unique tendencies and characteristics. Yoon and Park¹² emphasize the importance of design that is native to a given country, and based on that country's characteristic traits and tendencies. Previous research focusing on Korean design characteristics has aimed to formulate principles of visual design based on intangible Korean social and spiritual values.¹³⁻¹⁶

This may seem to suggest that the overall aim of this study is to establish a native design methodology influenced by Korean *Sasang* constitution theory. This study not only proposes *Sasang* typology as a design methodology reflecting Korean idea/thought theory, but also proposes *Sasang* typology is able to supplant other approaches to typology due to its ability to give more consistent and reproducible results.¹⁷ By combining *Sasang* typology's approach to user temperament and personality with the HCI-focused approach to user segmentation given in this study, it may be possible to present a Korean design methodology that can actively manage the psychological environment of the user.

Due to the lack of previous studies examining the relationship between *Sasang* constitution's personality factors

and psychologically dependent patterns of computer use, the relationship between *Sasang* personality factors and Western concepts of personality, and the relationship between personality factors and social media usage, have been used. From this relation, one is able to establish and test hypotheses regarding the relationship between *Sasang* personality factors and Korean media usage.

2. Literature review

2.1. User personality traits and usage patterns

Personality is defined as an individual's characteristic psychological state that affects his or her reaction to his or her surroundings. Methods of describing personality are generally type- or trait-based. Typological approaches to personality are descended from Jung's typological methods of classifying psychological types. These approaches generally distinguish between a number of personality types based on commonalities between individuals possessing that type, and are focused on understanding the differences between types. The Meyers-Briggs type indicator (MBTI) is characteristic of typological approaches to personality. Historically, it has been criticized as unscientific and nonsystematic. However, with the current increased acceptance of experience and observational data as components of valid scientific methodology, the MBTI has been adopted by many new studies.

Allport¹⁸ considered personality trait theory in an aim to explain behavioral consistency in terms of the integration of responses to various stimuli. In other words, whereas typological personality characteristics are generally considered to be clearly distinguishable noncontiguous categories, people are commonly assumed to differ from each other according to continuous variables or dimensions. Research focusing on personality traits has long aimed to discover the minimum elements necessary to describe personality. McCrae¹⁹ is a good example of this approach as it applies to the five-factor model (FFM).

The FFM is composed of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. The FFM is often used in connection with education and consumer behavior analysis, primarily because of its ability to predict attitudes, cognitions, and behavior. Recently, various fields of HCI research have used the FFM to predict the main task of users based on the relative strength of factors among users (Table 1).

The research cited above provides a large amount of evidence that levels of extroversion and neuroticism affect HCI usage. Extroverted user's behavior on social media is as follows: (1) users with low extraversion have lower self-esteem, and tend to express their identity online. Alternatively, extroverted people prefer to express themselves in offline environments,^{4,24,27} (2) extroverted people use social media as much as or less than offline interactions to maintain friendships;²⁵ and (3) extroverted people tend to post photos of friends rather than photos taken alone, attending to show his/her relationships.²³

Neuroticism describes, among other things, an individual's degree of sensitivity to anxiety. Neuroticism's characteristic

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