

Creating Characters Based on the Portrait Paintings of the Chosun Period and the Death Records of the “Chosun-dynasty Sillok”

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ABSTRACT

This study investigates the portrait paintings of the Chosun period and the Death Records of the Chosun-dynasty Sillok in an effort to find new methods to apply to character design. The basis of this study were 42 figures from a group of portrait paintings from the late Goryeo period to the Chosun dynasty of the 25th King, Chul-Jong. First, Chinese letters illustrating the personalities in the Death Records were classified into five groups based on the Big Five theory, which divides personalities into the Big Five Personality Traits of extraversion, agreeableness, conscientiousness, neuroticism, and openness. Secondly, a representative facial image was created through a morphing technique after extracting the portraits using a method that relied on the high frequency of the appearance of specific Chinese letters related to each personality type.

Keywords: *Character Design, the Portrait Paintings of the Chosun Period, Big 5 Personality Traits, the Death Records of the “Chosun-dynasty Sillok”,*

1. INTRODUCTION

Portraits from the Chosun period are rare in that they attempt to describe their subjects faithfully as who they were. The classical scholars who painted the portraits attempted to portray subjects with realistic expressions because they thought that even if the hair was different, the subject's appearance would not be as it really was. These artists intended to reproduce the figure of the subject as well as expressing the manner of thinking and personality of the subject. Therefore, the facial characteristics of the portraits of the Chosun period can be assumed to reveal the personality of the subject.

Chosun-dynasty Sillok' refers to a book of the Chosun period which contains 28 types of chronicles of 25 successive kings over a span of 472 years, from Tae-Jo to Chul-Jong. These chronicles contain the Death Records and overall estimations of individual lives, from birth to death, of the civil officers in Chosun era. The Death Records are not wholly positive regarding the information they contain about people. Sometimes they contain negative information, such as 'He is mean-spirited.' The Death Records are, however, reliable materials with which to grasp the character of a person.

We may learn more about the relationship between the facial

characteristics and the personality when we concurrently review the portraits of the Chosun period, where the temper of the subject is visually expressed with the written information pertaining to the subject in the Death Records. The results of such a review can be applied to the character design using related cultural content. Therefore, this research purposes to find a new means of creating characters by reviewing the portraits of the Chosun period revealing their personality as visual information and the Death Records as documentary information.

First, to perform such a task, 42 figures from a group of portrait models from the late Goryeo period to the Chosun dynasty of the 25th King, Chul-Jong, were studied. The figures in the portraits are mostly men in their prime or in old age. As the young were considered as impossible to describe as their study, cultivation, experience and knowledge were not yet built. Therefore, the portraits of the Chosun Dynasty portray the major characteristics of the personality of a person. The crucial point of the representation was whether or not they showed the true spirit of that person. This coincides with the purpose of this study, that is, the creating characters which represent the personality, from a fundamental perspective. The research on

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portrait paintings was conducted after gaining authorization to duplicate some of the collections of the Academy of Korean Studies and the National Museum of Korea.

Second, Chinese letters illustrating the personalities in the Death Records were classified into five groups based on the Big Five Theory, which divides personalities into the Big Five Personality Traits of extraversion, agreeableness, conscientiousness, neuroticism, and openness.

Finally, a representative facial image was created through a morphing technique with Abrosoft FantaMorph after extracting the portraits using a method that relied on the high frequency of the appearance of specific Chinese letters related to each personality type.

2. DESCRIPTION OF THE PERSONALITY IN THE DEATH RECORD

Among the portrait models from the late Goryeo period to the Chosun dynasty of the 25th King, Chul-Jong, 42 of the subjects were described in the Death Record. The following is a list of the subjects, their personality description in the Death Record, and the Chinese letters illustrating the personalities in the description.

Table 1. Description of the personality in The Death Record

Subject	Description of the personality in The Death Record	Chinese letters for personality	Summary in English
S. Lee	天資明睿	明 睿	He was smart and wise; his education was thorough and broad. His work was detailed and clear; he was so poised that his words and deeds were calm. He was not worn out by the world; he was pure and generous; his words and deeds were quiet.
	學問精博	精 學 博	
	秉心寬恕	恕 寬	
	處事詳明	詳 明	
	為宰相 務遵成憲 不喜紛更	遵 不紛	
	為文章 操筆即書 辭意精到	到 精 書	
	平生無疾言遽色	無疾 無遽	
	油油然處之不及亂	油 不亂	
M.J. Jung	襟懷灑落	灑	He was a magnanimous and remarkably excellent figure. He had great integrity in his loyalty and filial affection. He was not disturbed in his voice when he dealt with big incidents and judged great issues. His poems were noble, solemn and concise.
	言動從容	從 容	
	天分至高,豪邁絕倫,有忠孝大節	高 豪 絕 忠 節	
	少好學不倦	不 倦	
S.H. Lee	處大事決大疑不動聲色左酬右答咸適其宜	不 動 宜	He was wise and smart. His mind was deep and he had so many tactics that his ability to adapt to different circumstances was extremely skilled, although he seemed to be stupid and dull outwardly.
	所著詩文	豪 潔	

B. Jo	豪放峻潔		He was smart and wise. He was lively and righteous; he was indignant with injustice; he loved giving and performed good deeds.
	聰慧	聰 慧	
	豁達	豁 達	
	正直忼慨	正 直	
H. Whang	事親事君一出於誠所操不可奪	事 誠 操	He was generous, virtuous, calm and serious. He was smart and frugal; he did not show out his joy or indignation.
	自少留心禪法喜施積善	施 善	
	寬厚沈重	寬 厚 沈 重	
	有宰相識度	識 度	
	豐姿魁偉	魁 偉	
	聰明絕人	聰 明	
	治家儉素	儉 素	
S.J. Shin	喜怒不形	不 形	He was generous, virtuous and lively. He was not fastidious or trifling. He was as free as a flowing river when he decided on a just and great cause. He treated all people with favor and gratitude.
	雖細字亦讀之不憚	讀	
	寬厚	寬 厚	
	豁達	豁 達	
	博洽經史	博	
	議論常持大體不為苛細	持 體 不 苛 不 細	
	處大事斷大義如江河之決	決	
S. Son	撫親戚以恩待寮友以誠雖僕隸之賤待之皆有恩義	撫 恩 義 誠 恩	He was simple, honest and careful, and devoted to his parents. He was upright and diligent.
	為人醇謹有吏幹	醇 謹	
	性至孝	孝	
S.B. Joo	皆以清勤稱	清 勤	His mind was generous and mild. He had a pure and extreme devotion to his parents.
	處心寬和	和 寬	
T. Jeng	孝誠純至	至 孝 誠 純	He was obedient, warm and virtuous.
	柔順和厚	柔 順 和 厚	
S.H. Lee	慧悟	慧 悟	He was wise and smart. His mind was deep and he had so many tactics that his ability to adapt to different circumstances was extremely skilled, although he seemed to be stupid and dull outwardly.
	及長深中多數外若癡鈍機權之際變弄如神	數 機	

G. Jo	事繼母至孝	事 孝	His clean reputation and righteous integrity drew the respect of the world.
	其清名直節 爲世所仰	清 直 節	
W.I. Lee	爲人剛正	剛 正	He was upright, righteous and incorruptible.
	律身清苦	清	
G. Yu	有不廉之誚	不廉	He was immoral.
H.B. Lee	豪俠有風度	豪	His appearance was gallant but was unbiased.
	以其不主偏黨	不偏 不黨	
G. Lee	慷慨	慷 慨	He was indignant about injustice. Sometimes he angered and blamed high officials; the king blamed him several times for scolding high officials but he could not correct his behavior.
	或乘忿恚詆詆公卿 累被上訶責	忿 恚	
D.H. Lee	爲人簡而不刻柔而 能正又不好黨	簡 不刻 不黨	He was generous, easy to get along with, and soft but righteous.
S. Y. Kim	重厚謹慎	重 厚 謹 慎	He was dignified, generous and prudent. When he dealt with what must be done, he proceeded with unsparing words, even if they unnerved the king.
	遇事犯顏極言	極	
J.S. Yun	嗜利無恥	嗜 無恥	He was flattered and fawned upon. He was greedy and behaved as he pleased.
	專以阿意順旨爲事	阿	
S.B. Lee	貪污縱恣	貪 污 縱 恣	
	其清白忠慎一節,非 一時在相位諸人之 所及也	清 白 節	He was upright and had loyal fidelity.
M. Huh	博雅好古 文章高簡	博 雅 古 高 簡	His learning was wide and his personality was elegant; he liked antiques and his writing was noble and concise.
S.Y. Song	英毅剛果	英 毅 剛 果	He had excellent talent and strong will, and was upright and decisive. He was
	崇尚氣節	氣 節	
	操履甚確	操 確 勇	

	力於拘檢 勇於擔負		too strong and strict to have mercy or pity.
	持論峻截 臨事勇往 有足以驚動聳伏人 者	峻 截	
	自處間有太過不近 情 而論者不敢非之		
	過於剛厲 而少坦恒之仁	剛 厲 少坦 少仁	
	役於名目而無體驗 之功	名 無功	
G.M. Nam	性剛介篤實如百鍊 金體寢小而精氣可 透鐵石	剛 介 實 篤 實	He had an upright personality, warm-hearted humanity and fidelity. He did not depend on or flatter others. He was elegant, orderly and disciplined.
	歷事三朝大節卓然 自在臺省以直道名	直 節	
	處地孤寒 而論議仕宦 常出人表 不與人依附	不依 不附 出 表	
	爲人雅整 不妄言笑 興居有節 文辭典麗 筆畫古健	整 雅 不妄 節 典 麗 健 古	
J. Yun	天姿和粹淵厚	和 粹 淵 厚	His nature was mild, pure, profound and virtuous.
	其德性充養, 和順外著, 見者心醉, 雖平日媚嫉者, 自不覺其回心敬服 焉	和 順 敬 服	
	蓋容姿秀偉氣象崇 深坐如泥塑接如陽 春其稟於天者既特 秀而以誠敬涵養盡 者然也	深 崇 誠 敬 偉 秀 陽	
U.H. Kim	蓋素性醇厚 持論亦和緩 不務矯激故也	厚 醇 緩 和	His nature was simple, honest and virtuous.
U.H. Lee	喜文學 清儉自持	清 儉 文 學	He loved literature; he was upright and frugal.
J. Lee	稟性清粹 少以詞章名 既立朝 標望冠一世	清 粹 冠	His nature was clear and pure; he was highly respected when he became a

	近世諸儒皆以緯爲宗匠焉	宗 匠	member of the Royal court.
H.M. Jo	居家清儉	清 儉	He was upright and frugal. He was proper when he presented a memorial to the throne and he spoke what others dared not say; when he dealt with personnel affairs, people dared not make a personal request to him.
	疏奏剴直言人所難言秉銓六年人不敢干以私	不私 直 剴	However, he liked to boast and was prone to frivolousness; he was stubborn while he was deceived by others and sometimes he behaved badly after having done something wrong in a fit of anger;
	但喜夸大易浮動或受人欺而硬執之發於忿懣而遂其非世以是疵之然不可蔽其賢也	夸 動 浮 執 忿 硬 懣 賢	although people were aware of these shortcomings, they could not challenge his virtue.
	爲人忠厚持論和平	忠 厚 和 平	He was loyal, virtuous and peaceful.
M.S. Park	然筵席之間時或滑稽有麤粗之病	滑 麤 粗	He never failed to make jokes whenever the king and court officials gathered for study and discussions; the jokes were wild and coarse.
C. B. Lee	而清介安詳	清 介 安	He was upright, incorruptible and calm.
G. Yun	人或言議太峻爲言然嚴於忠逆義理有所秉執	峻 秉 執 嚴	Some people said that his words were too strict; however, he had integrity and was unwavering about loyalty, treason and fidelity.
C. B. Lee	居官謹潔 及旣卒斂無一衣士大夫皆稱其廉	廉 謹	He was discreet, pure and upright. He was eager for fame.
	而急於功名	功	
Y.Y.	爲人坦夷純實	坦 夷 純	He was calm, pure

Nam	於世淡然矣	實 淡	and genuine; he had no desire for worldly affairs and he was clear.
B.S. Min	少英秀 風儀爽拔	英 爽 拔	Since his youth, he was smart and handsome; his appearance and behavior were cool and outstanding.
B.H. Hong	而小器暴貴狠復自用	自 狠 復	As an underdog who gained nobility, he yielded a cruel and fastidious temper.
C.I. Kim	綜密剛果 諳練國家典故	綜 密 剛 果 諳 練	His nature was scrupulous and resolute. He liked to believe that he was always right, although he was ignorant of broad pictures regarding his work.
	喜自用 未達大體	自	
N.S. Hong	性和易不伎	和	His nature was so mild and peaceful that he did not hurt anyone. He was simple, honest and frugal.
	生長綺紈鍾鼎之家 樸素如布衣	樸 素	
B.W. Lee	清慎恬靜有守	清 慎 靜 恬 守	He was upright, genuine and stable; he had fidelity. His words and deeds were well-mannered, grave, mild and virtuous; he did not try to be florid.
	爲文章,主理致典重溫厚 不事驚眩	典 重 厚 溫 不 眩	
E. Lee	風儀凝碩 自少稱宰輔器而吃少文立朝循默	凝 碩 器 少 文 吃 默	His appearance and behavior were upright; he was inarticulate and remained silent when he became a member of the Royal court.
S.W. Lee	剛核綜明	剛 核 綜 明	His nature was upright and strict, and he was smart.
J.H. Kim	聰明強記博洽群書	聰 明 記 博 洽 書	He was smart and he had a very good memory. Sometimes he behaved unreservedly, but people could not criticize him.
	時或行其所無事而人不得以雌黃	無 事	
J.O.	宗玉致位隆顯,	厚 謹	He was careful and

Seo	別無毀譽， 而上每以謹厚稱之		virtuous.
B.J. Yun	少好學，明敏強記	學明敏 記	He liked to study; he was smart and agile; he had an excellent memory.

3. BIG FIVE PERSONALITY TRAIT

Big Five Personality Trait is a theory of personality that has gained in popularity through studies which were done in the past ten to twenty years. The basic concept of this model is that the human personality is determined by the following five factors: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Extraversion is characterized by positive emotions, surgency, and the tendency to seek out stimulation and the company of others. Other synonyms for surgency include dominance, self-confidence, competitiveness, outgoingness, decisiveness, and talkativeness. Agreeableness is a tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. Conscientiousness is a tendency to show self-discipline, act dutifully, and aim for achievement. Neuroticism is the tendency to experience negative emotions, such as anger, anxiety, or depression. Openness is a general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience.

3.1 Revised Interpersonal Adjective Scales to BIG 5

The Interpersonal Adjectives Scales-Revised is a taxonomy of 64 adjectives, each descriptive of an interpersonal trait (e.g., "crafty"; "cheerful"; "iron-hearted")[1]. Generally used as a self-report measure, these adjectives are rated for how accurately they describe a subject, on a 1 (Very Inaccurate) to 8 (Very Accurate) scale. They are then combined to form eight scales that equidistantly span the circumference of the interpersonal circle, ordered around the dimensions of control and affiliation.

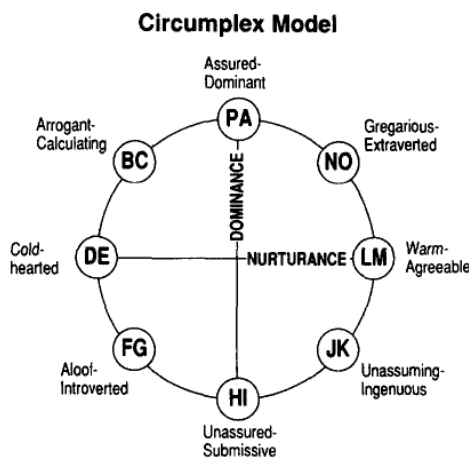


Fig. 1. Circumplex Model of Interpersonal Behavior

The five-factor and circumplex models of personality were developed in different research contexts and have been used by different groups of investigators. The five-factor model was developed in the factor-analytic tradition of Cattell and Eysenck and has been implemented mainly by psychometricians and personality psychologists working within that tradition. The circumplex model was developed in a clinical context, within an explicit neo-Freudian framework, and its applications have mainly focused on clinical problems[2], although not exclusively so [3].

Wiggins and Trapnell suggested that although the five-factor and circumplex models originated in different research traditions, were directed toward different substantive issues, and were guided by different structural models, they should be regarded as complementary rather than competing models of personality[4].

The Extension of the Interpersonal Adjective Scales was developed to include the Big Five Dimensions of Personality that additionally measured the three dimensions of the Big Five factors of personality unaccounted for by the Interpersonal Circle: neuroticism, openness to experience and conscientiousness.

The five-factor model provides a larger framework in which to orient and interpret the interpersonal adjectives, and the interpersonal adjectives provide a useful elaboration on the aspects of the B5 personality traits.

Table 2. The summary results of the Principal-Components Analysis of IASR-B5 Items.

B5 Personality Trait	Interpersonal Adjectives
Surgency/extraversion	Dominant Assertive Domineering Forceful Self-confident Self-assured Firm Persistent
Agreeableness	Tender-hearted Gentle-hearted Soft-hearted Kind Tender Charitable Sympathetic Accommodating
Conscientiousness	Organized Orderly Tidy Neat Efficient Planful Systematic Thorough Self-disciplined Reliable
Neuroticism	Worrying Tense

	Anxious Nervous Fretful Hypersensitive Guilt-prone Self-conscious High-strung Overexcitable
Openness to experience	Philosophical Abstract-thinking Imaginative Inquisitive Reflective Literary Questioning Individualistic Unconventional Broad-minded

3.2 Classification of Chinese Letters in the Death Record

Based on these studies, Chinese letters illustrating the personalities in the Death Records were classified into five groups. Within the five groups, the level of similarity among the Chinese letters in terms of meaning was assessed.

The meaning of each adjective was found in the ‘Dong-A Prime Korean-English Dictionary,’ and the synonyms for those meanings were found in the ‘The Standard Korean Language Dictionary’ developed by the National Institute of the Korean Language. These search results were compared with the representative meanings for the Chinese letters which appeared in the death records.

The following is a list of Chinese letters with a meaning similar to each adjective.

	Sympathetic	施 撫
	Accommodating	滑
	Uncharitable	不情 少仁
	Unsympathetic	少怛
Conscientiousness	Orderly	遵 典 宜 持 淡 忠 不私 不偏 不黨 體
	Neat	正 凝 整 不亂 不紛
	Efficient	剴 英
	Thorough	詳 精 到 密 慎 確
	Self-disciplined	謹 儉 勤 不倦 廉
	Reliable	實 不附 白 灑 潔 清 雅 不眩 少文
Unreliable	嗜 貪 浮 不廉 污	
Neuroticism	Fretful	忿 恚 懷 驚 慨 狠
	Hypersensitive	愾 動
	Unmoody	不苛
	Stable	無遽 無疾 恬
	Unagitated	不妄 不動 不形 重
	Calm	沈
At ease	坦 夷 安 平	
Openness to experience	Philosophical	悟 出 表 絕 偉 拔 秀 博 高 冠 魁 宗
	Inquisitive	學 記 書 練 聰 睿 慧 明 敏
	Reflective	識 諳
	Literary	讀 文 匠
	Unconventional	機 數 滑
	Broad-minded	淵 深 器 洽 碩
Conventional	古	
Uninquisitive	無功	

Table 3. Interpersonal Adjectives and Chinese letters

Personality Trait	Interpersonal Adjectives	Chinese letters
Extraversion	Dominant	峻 厲 嚴 核 聳 伏
	Assertive	剛 忼 慷 勇 極 果
	Domineering	縱 恣 自 夸 名
	Forceful	豪 綜 簡 爽 放 豁 達
	Self-Assured	節 氣 決 義 不依 直 無恥 不細 執
Firm	硬 介 毅 健 操 守 秉	
Agreeableness	Tender-hearted	善 孝
	Gentle-hearted	和 溫 陽 油 截 敬 誠 至 事 賢
	Soft-hearted	順 不刻 粹 純 麗 樸 醇 素 澹
	Tender	柔
	Charitable	恩 寬 緩 篤 度 恕 厚

4. REPRESENTATIVE FACIAL IMAGES

4.1 Representative Subjects

The number of Chinese letters for each subject was counted for each personality type to determine the personality of each subject.

Table 4. Representative Subjects

Personality Trait	Chinese letters	Subject
Extraversion	峻 厲 剛 果 勇 名	Song, S. Y.
	剛 果 自 綜	Kim, C. I.
	核 剛 綜	Lee, S. W.
Agreeableness	和 敬 誠 陽 粹 順 厚	Yun, J.
	孝 和 至 誠 純 厚	Joo, S. B.
	誠 寬 厚 恩	Shin, S. J.
	素 寬 厚 度	Whang, H.
	和 順 柔 厚	Jeng, T.
	和 醇 厚 緩	Kim, U. H.






Conscientiousness	遵 不紛 不亂 精 詳 到	Lee, S.
	忠 宜 不倦	Jung, M. J.
	不私 剴 儉	Jo, H. M.
Neuroticism	忿 懷 動	Jo, H. M.
	忿 恚	Lee, G.
	狠 悞	Hong, B. H.
Openness to experience	偉 魁 聰 明 識 讀	Whang, H.
	博 聰 明 記 書	Kim, J. H.
	博 明 睿 學	Lee, S.
	學 明 敏 記	Yun, B.J.

In terms of extraversion, S.Y. Song, S.W. Lee, and C.I. Kim had the greatest number of Chinese letters expressing traits from 'dominant' to 'forceful'. For agreeableness, J. Yun, S.B. Joo, S. J. Shin, H. Whang, T. Jeng, and U.H. Kim had the greatest number of Chinese letters expressing traits from 'tender-hearted' to 'sympathetic'. For conscientiousness, S. Lee, M.J. Jung, and H.M. Jo had the greatest number of Chinese letters expressing traits from 'orderly' to 'self-disciplined'. For neuroticism, H.M. Jo, G. Lee, and B.H. Hong had the greatest number of Chinese letters expressing traits from 'fretful' to 'hypersensitive'. As for openness, H. Whang, J.H. Kim, S. Lee, and B.J. Yun had the greatest number of Chinese letters expressing traits from 'philosophical' to 'literary'.










4.2 Representative Facial Image

Five representative facial images was created through a morphing technique with the portraits of representative subjects(table 4).




For the representative facial image of extraversion, the portraits of S.Y. Song, S. W. Lee, and C. I. Kim were morphed together.

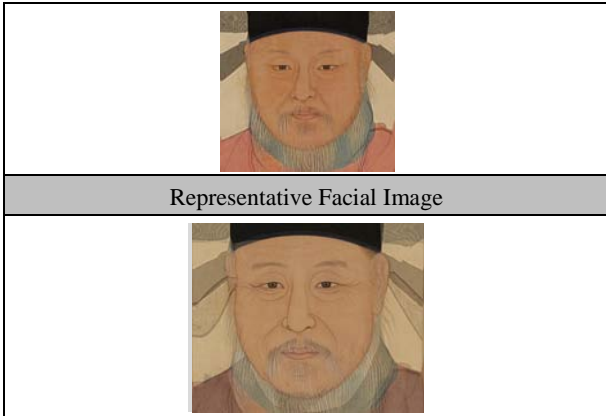
Extraversion		
Portraits		
		
Song, S. Y.	Lee, S. W.	Kim, C. I.
Morphing with FantaMorph		
		
Representative Facial Image		
		

For the representative facial image of agreeableness, the portraits of S. B. Joo, T. Jeng, U. H. Kim, H. Whang, S. J. Shin and J. Yun were morphed together.

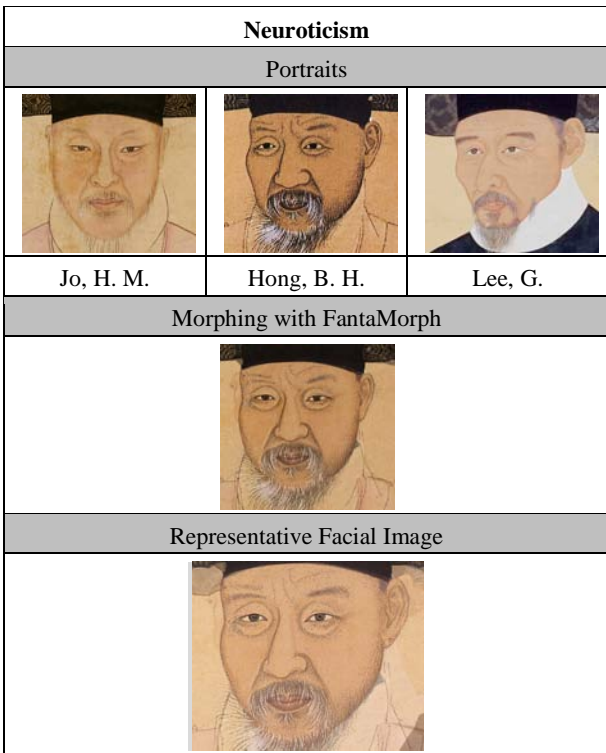
Agreeableness		
Portraits		
		
Joo, S. B.	Jeng, T.	Kim, U. H.
		
Whang, H.	Shin, S. J.	Yun, J.
Morphing with FantaMorph		
		
		
Representative Facial Image		
		

For the representative facial image of conscientiousness, the portraits of S. Lee, H. M. Jo and M. J. Jung were morphed together.

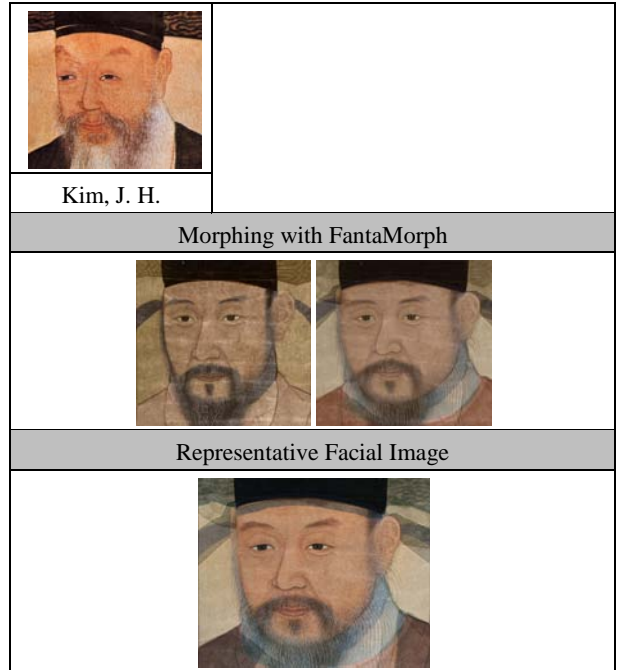
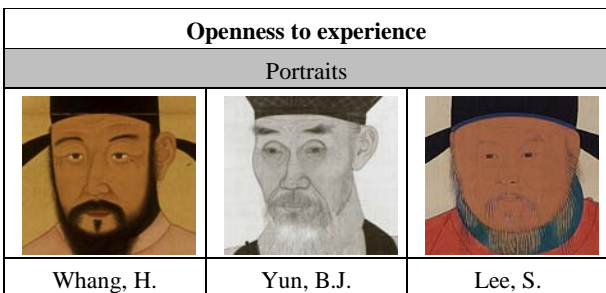
Conscientiousness		
Portraits		
		
Lee, S.	Jo, H. M.	Jung, M. J.
Morphing with FantaMorph		



For the representative facial image of neuroticism, the portraits of H. M. Jo, B. H. Hong and G. Lee were morphed together.







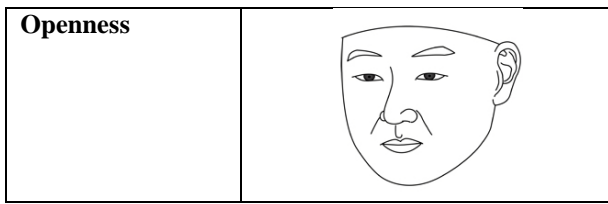
For the representative facial image of openness, the portraits of H. Whang, B.J. Yun, S. Lee, and J. H. Kim were morphed together.



4.3 Characterization

The characterized images were created by intact morphing without any weight on a given portrait despite the major variations in the representative facial image (Figure 4.2 above), and the results were expressed substantially with lines.

Personality Trait	Characterized Image
Extraversion	
Agreeableness	
Conscientiousness	
Neuroticism	












5. CONCLUSION

This study began from the idea that a survey of the portrait paintings in the Chosun period could uncover representative facial images, as the portrait paintings in the Chosun period were based on a realistic trend that attempted to describe the spirit of the figure in the portraits. Therefore, the author analyzed personality descriptions of figures described in the death records of the 'Chosun-dynasty-sillok' on the basis of the Big 5 theory in an effort to determine the actual personalities of the figures in the portrait paintings.

The results of this study can be divided into two major areas: representative facial images and characterizations of these. First, regarding the representative facial images, the figures selected to represent the personality trait of agreeableness were too different from one another. In contrast, the extraversion personality trait was a somewhat homogeneous facial image in the selected figures. Therefore, it was difficult to convert these results into a certain facial image according to personality traits with concrete data. In other words, it was not proper to conclude knowledge of factors such as what the eyes were like or how long the nose was. However, this study gained some new insight into character design, in that the personality can cause variations in facial images. That is to say, an agreeable facial image could be more diverse than an extraverted facial image. We expect that further study may verify this by reviewing the variations of the personality traits through facial images of real people.

In terms of characterization, the facial images of each trait had clearly different shapes, it was not easy to explain the distinctive peculiarity in those images. In other words, except the extraversion character and the neuroticism character, the characters of agreeableness, conscientiousness and openness had little difference in their shapes. However, among the figures selected for each personality trait, S. Lee belonged to two different categories simultaneously, specifically conscientiousness and openness; H. M. Jo was in the conscientiousness and neuroticism categories, while H. Whang was in the agreeableness and openness categories. This example illustrates that the human personality does not consist of one exclusive personality trait but all five personality traits, which mingle to different degrees. The comparison of how the facial images of three individuals changed for each different personality trait made the difference in each personality trait more conspicuous. Therefore, the result of this study can be a method and a reference for character creation, so as to give a character a personality rather than as a final work of character design.

Table 5. A Character Comparison according to Each Personality Trait

Trait 1	Subject	Trait 2
Conscientiousness	Lee, S.	Openness
		
Conscientiousness	Jo, H.M.	Neuroticism
		
Agreeableness	Whang, H.	Openness
		

Two major questions arise when using the results of this study. First, the range of the materials is limited because only civil officials in the Chosun Dynasty had privilege to be recorded in portraits or the Death Records. However, this study is based on the contention that people of all personality types co-exist in one group irrespective of class, even if there is a difference in the number and distribution of personality types within each class.

Second, the number of subjects in this study is relatively small to obtain a general result. When we create a character, we usually take two approaches. One of them depends on the designer's inspiration and talent. The other depends on the researcher's standard, which was established by investigating multiple samples. However, this study does not take any of these approaches. This study tries to look at the materials in a different way and make connection between them to get insights. Thus, the process of this study alone makes its own contribution to the character design process.

Considering the range of practical and cultural utilization, the representative facial image, which is one of the research results can be applied for planning and developing animation characters and avatars and can be useful materials for casting actors fitting the personality of roles in movies or soap operas. Moreover, it is anticipated that the results can contribute to the encouragement of further studies of research fields that need various attempts, including digitalization of Korean historical and cultural contents, and open opportunities for people to have interests in and affection toward traditional topics.

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