

Comparative research study about Creative Characteristics among Korea, France and the United States

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The purpose of this study was to investigate the differences in creative home environment, parenting style, self-efficacy, creative personality, and creative achievement in Korea, France and the United States. The data collection period was from March 2020 to May 2020, with 455 Korean, 803 French, and 225 American adults. This study validated the measurement tool for creative characteristics through data collected in Korea, France and the United States, calculated the correlation of measurement tool, and analyzed the difference of creative characteristics of three countries. The results of this study were valid and the reliability was .937. The model fit of the measurement tool was appropriate, and the correlation of each factor showed a significant correlation except for parent-rearing and self-efficacy. Also, the result of comparing the creative characteristics of Korea, France and the United States showed a significant difference. In the creative home environment, France recognized it as more creative environment than Korea, and in the parent-rearing, France recognized it as a stricter parent-rearing style than the United States and Korea. And the self-efficacy, creative personality, and creative personality were higher in France than in Korea, and the United States is higher than in France. This study was able to understand the characteristics of each country through cultural comparison, and the results of this study will be used as necessary data for academic, cultural and social exchanges in the global era.

Keywords: word; Creative Home Environment, Parent Style, Self-efficacy, Personality, Achievement, Cross-Cultural Research

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Introduction

As society is changing into a fourth industry, the change is rapidly progressing. While the pace of social change was fast progressing, covid 19 progressed more and more social change, and in line with the pace of social change that progressed so fast, we became more important in our ability to respond and cope flexibly. In order to adapt and develop in this social change, creativity that can cope flexibly is more important than ever.

Creativity has been actively studied since it was mentioned by Guilford in the 1950s. Creativity can be divided into creative thinking, creative personality, creative environment, and creative output. Creative thinking includes fluency, flexibility, originality, and sophistication. Lubart (2017) saw creativity as a fundamental aspect of human thought, and 7C of creativity refers to all major aspects of Creators (person-centered characteristics), Creating (the creative process), Collaborations (co-creating), Contexts (environmental conditions), Creations (the nature of creative work), Consumption (the adoption of creative products) and Curricula (the development and enhancement of creativity). Creative personality includes adventure, independence, patience, and humor. Creative environments include home environment, school environment, and sociocultural environment. Creative output includes types and intangible output. In this rapidly changing society, creative talents are becoming important, and efforts are underway to cultivate these creative talents. In addition, Corazza (2016) said that creativity should have potential originality and efficiency.

Especially, the creative home environment can start from the first relationship in which children can be influenced by their parents. In creative home environment, Amabile (1989) has physical environment and psychological environment that parents provide to their children, and physical environment means to provide various tools. Lee and Lee (2019) divided the creative home environment into physical environment and psychological environment, developed and validated the tools. The physical environment was defined as providing time

and space, providing various tools, and opportunities to experience creatively. The psychological environment meant that parents actively supported and encouraged their children's creative ideas and behaviors, and that parents were creative modeling. This creative home environment is the first social environment that children experience when they are born, and it has a great influence on creativity.

In addition, the psychological environment of home environment, such as interaction between parents and children, encouragement and support for children, has a positive effect on children's self-efficacy (Lew, 2009). Gardner and Pierce (1998) are self-efficacy, which refers to their own expectations and beliefs about what circumstances an individual can do in an appropriate manner. According to Hwang and Yoo (2014), creative home environment affects creative tendency through self-efficacy. Also, it was found that creative home environment and self-efficacy had a significant effect on creative disposition.

Lee (2012) analyzed that parents' parenting behaviors, that is, active participation, regulation, rational guidance, responsiveness, and intimacy, showed a positive correlation with children's creative tendencies. Parents' rearing attitude is divided into affection and rejection, autonomy and control. Parents' affection and autonomous rearing attitude play a positive role in children's creativity development. However, there is a study that the control parenting attitude among the parenting attitudes of parents similar to this study has a significant positive effect on the identity and curiosity of the sub-factors of children's creativity (Ha & Park, 2013). In other words, the authoritarian parenting attitude of parents promotes the creativity of children rather than democratic parenting attitude. As a result of this study, Cho (1990) said that parents' authoritative and controlive parenting attitude improved their children's creative thinking ability.

In the study of Choi and Heo (2019), the relationship between creativity and self-efficacy was analyzed. The results of the study showed that the self-efficacy of adults was correlated

with creativity. In addition, self-efficacy has a strong correlation with creative leadership, one of creative personality, and the higher self-efficacy, the higher creative leadership. Stevens and Gist (1997) said that creativity is trial and error through various attempts and is improved through efforts. In this improvement of creativity, self-efficacy plays a role in blocking obstacles to creative activities, which is related to creativity. In addition, Nickerson (1999) said that self-efficacy enables creative activities by recognizing itself in acquiring knowledge, that is, self-efficacy is related to creativity. Tierney and Farmer (2002), who is a adult, said that self-efficacy has a significant effect on the creativity of work activities for employees in charge of manufacturing and sales at the company. Kim (2018) said that creative self-efficacy had a positive effect on creativity and creative behavior of adults.

Gagné (2004) said that creative personality characteristics such as self-efficacy, autonomous attitude, interest, home, and self-esteem are important factors in achieving creative achievement. In addition, Kim (2010) said that creative personality produces creative output through interaction with creative thinking and creative environment. This creative personality was seen as curiosity, sensitivity, humor, independence, task-attachment, and adventure by Lee and Lew (2014). Sternberg (2006) said that creative people who make creative and valuable creative output have very strong motivation in one field and tend to work creatively without following existing customs. They also believe in the value of creative work, try to take risks by insight, diffusive thinking, and have an attitude of being immersed in creative work.

Renzuli, Leppien and Hays (2000) presented creative output, which were presented as abstract output such as speech, essay, experiment, self-efficacy, problem solving ability, and new research method. These creative products were said to be that Woodman and Schoenfeldt (1990) could promote and suppress creative achievement by cognitive ability and personality factors, and that creative products were created by interaction of these factors. Jauk, Benedek and Neubauer (2014) said that creative achievement means achievement in the real life of

science, music, and writing, and it means achievement that has been recognized by others. Lee and Lee (2020) saw creative output as creative achievement intention and external execution to implement inner motivation and creative achievement to achieve creative achievement. As seen in previous studies, creative output is the result of interactions such as creative ability, creative personality, and creative environment, and such creative achievement includes creative behavior and creative problem solving ability.

Through previous studies, we can see that there are various factors in creative characteristics. These creative characteristics include creative ability in cognitive aspect, creative personality in affective ability, self-efficacy, creative environment in environmental aspect, and creative achievement that these factors interact and present as a result. Therefore, this study selects and develops measurement tools that correspond to creative characteristics and validates them to develop creative characteristics tools. In addition, this study aims to conduct cultural comparative research by using measurement tools developed in this study for adults in three countries of Korea, France and the United States. The following research questions were selected in this study because it is necessary to develop creative characteristics and compare the differences in creative characteristics in each country for social, cultural and academic exchanges by country.

The research questions presented in this study are as follows.

Research Question 1. Is the research model appropriate?

Research Question 2. What is the correlation between each variable?

Research Question 3. What is the difference in creative characteristics of the three countries?

Method

Participants

The subjects of this study were 1483 adults in Korea, France and the United States. By gender, Korea had 242 males (53.2%), 213 females (46.8%), France had 79 (9.8%), women 724 (90.2%), the United States had 62 males (27.6%), and women 163 (72.4%). The average age of Korean adults was 23 years old, and the average age of French adults was 39 years old, from 18 to 80 years old. The U.S. showed a distribution of ages of 22 in various age groups from 18 to 62 years old. The analysis of the subjects of this study is as follows.

Table 1. Participants

		Korea(455)	France(803)	The U. S. A.(225)
Gender	Male	242(53.2%)	79(9.8%)	62(27.6%)
	Female	213(46.8%)	724(90.2%)	163(72.4%)
Age	10's	2(0.4%)	11(1.369%)	132(58.666%)
	20's	401(99.2%)	240(29.887%)	61(27.111%)
	30's	2(0.4%)	176(21.917%)	21(9.333%)
	40's		154(19.178%)	6(2.666%)
	50's		153(19.053%)	4(1.777%)
	60's		50(6.226%)	1(0.444%)
	70's		18(2.241%)	
	80's		1(0.124%)	
	M(SD)	23.310(3.199)	39.689(13.928)	22.360(7.783)
	Total		1,483	

Measurement Scales

This study was developed by researchers from Korea, the United States, France, and Croatia. The sub-elements of factors related to creativity were selected and reconstructed according to the research purpose as a tool suitable for them. In this study, the test tools for creative home environment, parenting style, self-efficacy, creative personality, and creative achievement were used.

Creative home environment is a tool developed by Lee and Lee (2019) and includes psychological support environment in which parents ask creative questions to their children to develop their children's creativity, encourage and respect their children's creative remarks, and model their parents, and physical support environment that provides free time, space and tools and opportunities for creative experiences. Parental rearing style was developed by Lautrey (1980) and it was composed of presenting a certain life pattern, presenting after-school activities, punishment for certain behavior, and limiting visual media time.

Self-efficacy is a measurement tool developed by Karwowski (2011) that includes confidence that complex problems can be solved, belief in creative ability, and imagination and originality differentiated from others. The creative personality test tool is the creative personality test developed by Lee and Lew (2012). Creative personality consists of curiosity, task-focused ability, sensitivity, independence, humor, adventure, and problem-solving leadership.

Creative achievement test is a test tool developed by Diedrich et al (2018). Creative achievement test is a tool for creative achievement experience and is a test tool for achievement experience in literature, music, art and crafts, culinary arts, sports, visual arts, performing arts, science and engineering. The reliability of the measurement tool to be measured in this study is as follows.

Table 2. Cross-Culture Research Checklist (Korea, France, The U.S.A.)

factor name	item number	Cronbach α (McDonald ω)	Cronbach α (McDonald ω)
Home Environment(HE)	10	.822(824)	
Parenting Styles(PS)	5	.564(584)	.937(938)
Self-efficacy(SE)	6	.852(856)	

Personality(P)	18	.856(865)	
Literature	7	.685(705)	
Music	7	.846(852)	
Arts-and-Crafts	7	.901(903)	
Culinary Arts	7	.864(867)	
Achievement(A)	Sports	.838(846)	.929(929)
	Visual Arts	.789(795)	
	Performing Arts	.737(746)	
	Science & Engineering	.783(797)	

Data Analysis

In this study, the validity of the measurement tool was confirmed through the confirmatory factor analysis, and CFI, IFI, TLI, and RMSEA fit index were used for the confirmatory factor analysis. Also, reliability of validated tools was analyzed and correlation of each factor was calculated. And to compare the creative characteristics of Korea, France and the United States, one-way ANOVA statistical test method was conducted. Also, through SPSS 25.0 program, comparative analysis of creative characteristics of Korea, France and America was conducted through bar graph. The programs conducted in this study were SPSS 25.0, AMOS 18.0, and JAMOVl.

Results

The average and standard deviation were calculated by the items of the collected data, and the degree of distortion and kurtosis were confirmed to verify the normal distribution. In addition, the average and standard deviation were calculated by the factors of the measurement

tool used in this study, and the correlation between each factor was analyzed. The correlation analyzed in this study is as follows.

Table 3. Inter-factor correlations

	Home Environment	Parenting Styles	Self-efficacy	Personality	Achievement
Home Environment	1				
Parenting Styles	.128**	1			
Self-efficacy	.268**	.048	1		
Personality	.251**	.125**	.666**	1	
Achievement	.220**	.093**	.455**	.429**	1
M(SD)	3.266(.752)	1.879(.488)	3.713(.719)	3.694(.520)	1.915(.602)

** $p < .01$

The correlation between the factors used in this study showed that the creative home environment and the parenting style were $r = .128(p < .01)$, the self-efficacy was $r = .268(p < .01)$, the creative personality was $r = .251(p < .01)$, and the creative achievement was $r = .220(p < .01)$. Parental parenting style did not show a significant correlation with self-efficacy, but it showed a significant correlation with creative personality was $r = .125(p < .01)$, and creative achievement was $r = .093(p < .01)$. And self-efficacy showed a significant correlation between creative personality was $r = .666(p < .01)$, creative achievement was $r = .455(p < .01)$, and creative personality showed a significant correlation with creative achievement was $r = .429(p < .01)$.

Confirmatory Factor Analysis

In this study, confirmatory factor analysis was conducted to verify the validity of measurement tools related to creative characteristics of adults in Korea, France and the United

States. The NFI, IFI, CFI, and TLI fit index of the measurement model of this study were *NFI* was .975, *IFI* was .978, *CFI* was .978, *TLI* was .957, and *RMSEA* was .065, which was below the recommended standard .08. Therefore, the model of the measurement tool developed in this study is suitable. The model index of confirmatory factor analysis analyzed in this study is as follows.

Table 4. Cross-Culture Research Checklist Fitness indexes (Korea, France, The U.S.A.)

	χ^2	CMIN/DF	NFI	IFI	CFI	TLI	RMSEA
Research Model	36.412	7.282	.975	.978	.978	.957	.065
recommended standard			>.9	>.9	>.9	>.9	<.8

The standardization coefficient and non-standardization coefficient of the research model are as follows. The standardized coefficient and unstandardized coefficient is shown in Figure 1 and Figure 2.

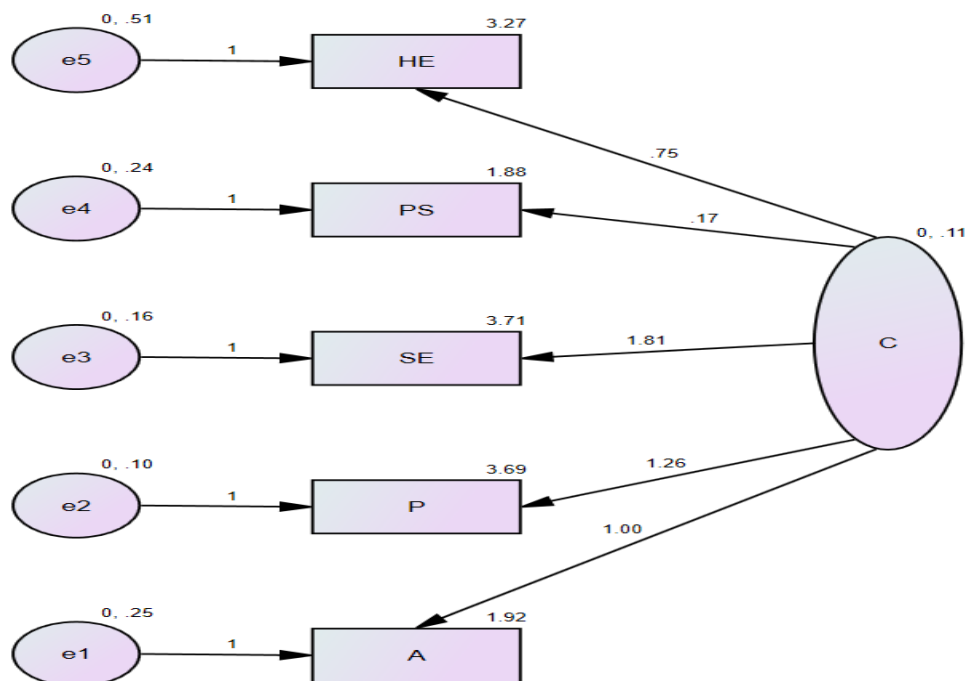


Figure 1. Unstandardized Coefficient

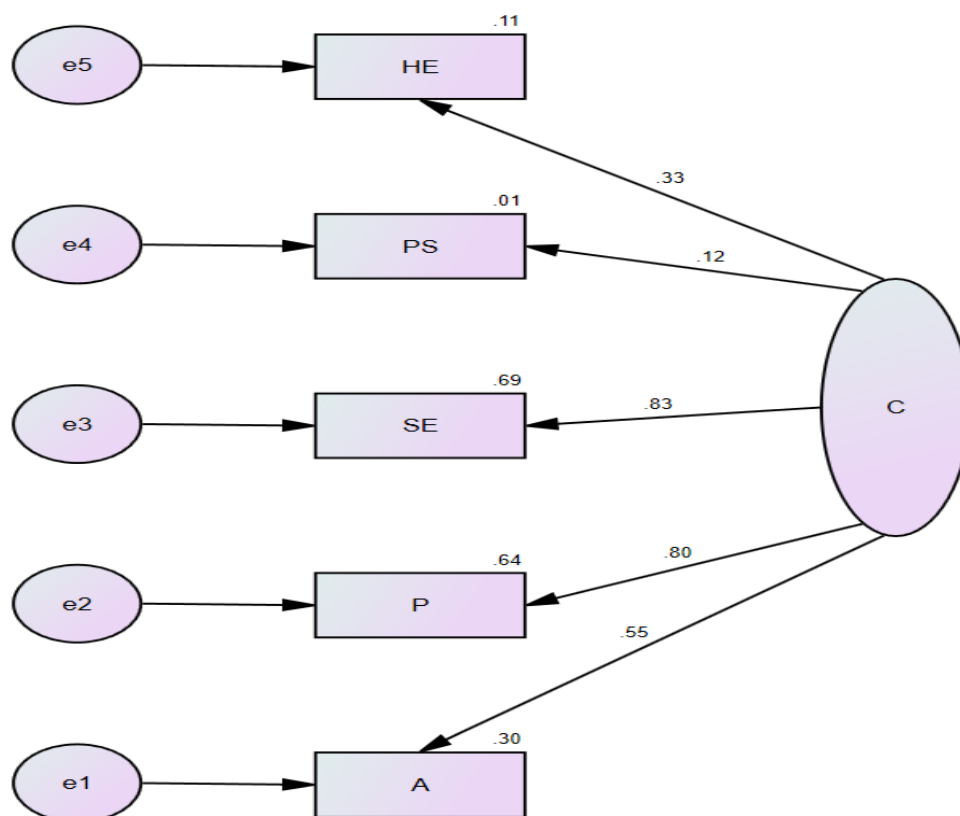


Figure 2. Standardized Coefficient

HE(Home Environment), PS(Parenting Styles), SE(Self-efficacy), P(Personality), A(Achievement)

As seen in the picture, the influence of creative characteristics was shown as creative home environment ($=.329$, $p<.001$), parent style ($=.116$, $p<.001$), self-efficacy ($=.829$, $p<.001$), creative personality ($=.800$, $p<.001$), and creative achievement ($=.548$, $p<.001$).

This study aims to verify the validity of the tool for creative characteristics of adults in Korea, France and the United States through confirmatory factor analysis. The parameter estimation of the measurement tool developed and validated in this study is as follows.

Table 5. Fitness Indices for Creative Home Environment Test

Domain	Factors	<i>B</i>	β	<i>S.E.</i>	<i>CR</i>	<i>C.R.</i>	<i>AVE</i>
Creativity	HE	.751	.329	.071	10.634***	.921	.748
	PS	.173	.116	.043	4.018***		

SE	1.808	.829	.096	18.928***
P	1.263	.800	.066	19.079***
A	1	.548		

*** $p < .001$

Construct Reliability (C.R.) to verify the validity of the measurement tool on creative characteristics of Korea, France and the United States and average variance extracted (AVE) were calculated. C.R. was .921, which met the recommended standard value of .7 or higher, and AVE was .748, which was more than the recommended standard of .5.

Differences in Creative Characteristics in Korea, France and the United States

The purpose of this study was to examine the differences in creative characteristics of three countries in Korea, France and the United States through the measurement tools of creative characteristics used in this study.

Table 6. The Differences in Creative Characteristics of Korea, America and France (ANOVA)

Factor	Country	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Scheffé</i>
HE	France	804	3.325	.737	9.273	2	4.636		
	U.S.A	226	3.295	.529					
					830.788	1480	.561	8.259***	1>3
	Korea	453	3.148	.855					
	Total	1483	3.266	.752	840.061	1482			
PS	France	804	2.0219	.501	36.619	2	18.309		
	U.S.A	226	1.7646	.383				85.325***	1>2,3
					317.584	1480	.215		
	Korea	453	1.6839	.428					

				354.203	1482			
	Total	1483	1.8794	.488				
	France	804	3.7100	.655	46.286	2	23.143	
	U.S.A	226	4.0878	.687				
SE				721.509	1480	.488	47.472***	2>1>3
	Korea	453	3.5338	.773				
	Total	1483	3.7138	.719	767.795	1482		
	France	804	3.7398	.429	27.273	2	13.636	
	U.S.A	226	3.8970	.548				
P				374.707	1480	.253	53.861***	2>1>3
	Korea	453	3.5044	.592				
	Total	1483	3.6918	.520	401.980	1482		
	France	804	2.0162	.524	156.667	2	78.333	
	U.S.A	226	2.4375	.616				
A				381.126	1480	.258	304.186***	2>1>3
	Korea	453	1.4774	.406				
	Total	1483	1.9158	.602	537.793	1482		

*p<.05, **p<.01, ***p<.001

The factors of measurement tools used in this study were creative home environment, parenting style, self-efficacy, creative personality, and creative achievement. In the post-test of the difference analysis of creative home environment, France was recognized as more

creative home environment than Korea. In the parenting style, France was perceived to have more permissive parenting style than the United States and Korea.

And in terms of self-efficacy, France has higher self-efficacy than Korea and the United States has higher self-efficacy than France. In terms of creative personality, France is perceived as a higher creative personality than Korea and the United States as a higher creative personality than France. And in creative achievement, the United States recognized that creative achievement was higher than Korea, France, and France. The creative characteristics of each country according to the measurement tools of this study were shown in pictures. The characteristics of the three countries are as follows.

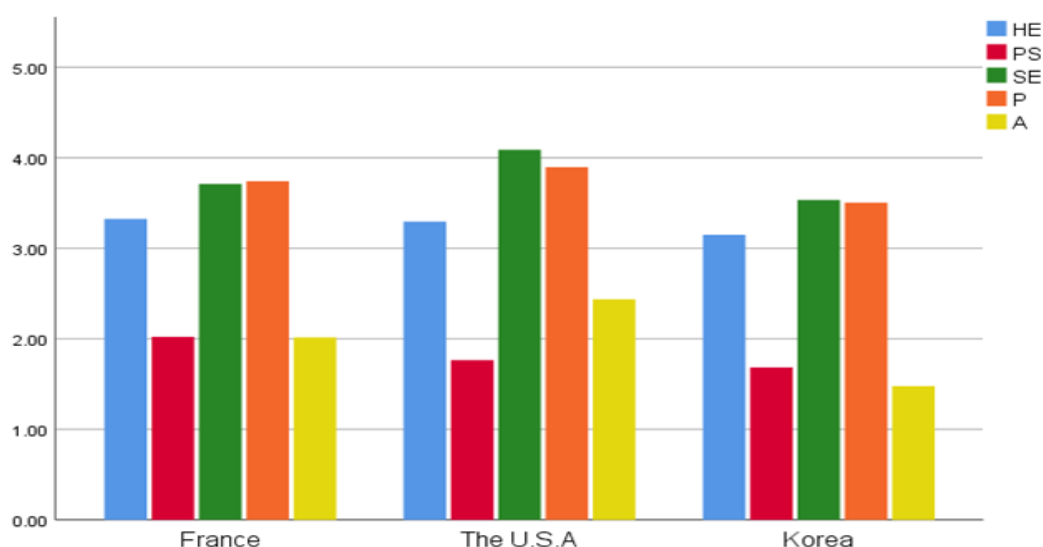


Figure 3. creative characteristics by country

Discussion and Conclusion

This study was conducted because it is necessary to know and compare the characteristics of each country for academic, social and cultural exchanges in a globalized society. This study was conducted to validate the measurement tools for creative characteristics of adults in Korea,

France and the United States and to compare the creative characteristics of the three countries with validated tools. The measurement tools used in this study are creative home environment, parenting style, self-efficacy, creative personality, and creative achievement.

In this study, researchers from Korea, USA, France, and Croatia developed a new creative characteristic measurement tool through the existing creativity measurement tool. The measurement tools developed in this study were validated through confirmatory factor analysis, reliability was .822 for creative home environment, .564 for parent style, .852 for self-efficacy, .856 for creative personality, .929 for creative achievement, and .937 for reliability of the whole tool.

Also, as a result of examining the correlation of the measurement tools developed in this study, creative home environment had a significant positive correlation with parent style, self-efficacy, creative personality, and creative achievement, and parent style had a significant positive correlation with creative personality and creative achievement. Also, self-efficacy had a positive correlation with creative personality and creative achievement, and creative personality had a significant positive correlation with creative achievement. However, it was found that the parent style did not have a significant correlation with self-efficacy.

The results of comparing the creative characteristics of Korea, France and the United States through the measurement tools developed in this study showed significant differences in the creative home environment, parent style, self-efficacy, creative personality, and creative achievement of the measurement tools. In the creative home environment, France recognized it as a more creative home environment than Korea, and France recognized it as a more strict parent-rearing style than the United States and Korea.

And the self-efficacy was found to be higher in France than in Korea and in the United States than in France. The creative personality was found to be more creative in France than in Korea and in the United States than in France. And in creative achievement, France and the

United States have achieved more creative achievement than Korea and France. Dunn, Zhang, & Ripple (1988) compared the creative thinking ability of the East and the West, and the spread thinking ability was dominated by the West and the convergent thinking ability was dominated by the Chinese. In addition, Sung and Han (2011) said that Korean university students perceive that creativity is not more expressed than American college students in a study on creativity expression and inhibition factors of Korean and American college students. Also, in order to express creativity, Korean and American college students thought personality characteristics were the most important. In addition, both college students said that the home environment is important for creativity to be expressed.

The measurement tool developed in this study is expected to be useful when measuring creative characteristics for adults in various countries. Through the measurement tool of this study, it will be helpful to develop creativity in each country through the analysis of the differences in each country through the study of cultural comparison.

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