

Statistical Hierarchical Analysis of Children Emotional Intelligence's Effects on Mural Preference, Emotion Cultivation, and Community Connection

Kang Il Lee¹ and Young Chun Ko^{2†}

Abstract

To explore effects on each the emotional awareness, emotional expression, emotional empathy, and emotional regulation, of the sub-factors of the child's emotional intelligence, to mural preference, emotion cultivation, and community connection, the hierarchical multiple regression analyses are performed(as in Table 1, 2, and 3). As the results, we found the following facts. Children's mural preference, emotion cultivation, and community connection were expressed by the following equations in order, respectively. Mural Preference = $.170 \times [\text{Emotional Awareness}](t=2.118, p=.036^*) - .025 \times [\text{Emotional Expression}](t=-.275, p=.783) + .088 \times [\text{Emotional Empathy}](t=.938, p=.350) + .139 \times [\text{Emotional Regulation}](t=1.529, p=.128)$. Mural Emotion Cultivation = $-.021 \times [\text{Emotional Awareness}](t=-.294, p=.769) - .205 \times [\text{Emotional Expression}](t=-2.573, p=.011^*) + .265 \times [\text{Emotional Empathy}](t=3.156, p=.002^*) + .192 \times [\text{Emotional Regulation}](t=2.361, p=.019^*)$. Mural Community Connection = $-.001 \times [\text{Emotional Awareness}](t=-.007, p=.995) - .132 \times [\text{Emotional Expression}](t=-1.478, p=.141) + .172 \times [\text{Emotional Empathy}](t=1.732, p=.027^*) + .098 \times [\text{Emotional Regulation}](t=1.072, p=.285)$.

Key words: Emotional Intelligence, Hierarchical Analysis, Mural Preference, Mural Emotion Cultivation, Mural Community Connection

1. Introduction

The studies of dependent variables according to the difference of emotional intelligence have been conducted in the following various studies. Children with higher emotional intelligence as well as higher scores of intrapersonal, interpersonal, and stress management scales found more effective and flexible in coping in the dental setting^[1]. Among physical education teachers, emotional intelligence was positively related to self-efficacy. And scores of the teachers' efficacy scale were predicted by the sociability factor of emotional intelligence^[2]. Emotional intelligence had a significant effects on nurses' well-being and perceived job-stress. Nurses with higher emotional intelligence felt a higher sense of happiness and lower of job-stress experience^[3]. The effects of organizational commitment due to differences

in early childhood teachers' emotional intelligence were studied. Normative commitment in organizational commitment was influenced by emotion recognition^[4]. Emotional intelligence is ability to evaluate and express own and others' emotions. And it is ability to regulation effectively one's emotions and to design and achieve one's life^[5]. Emotional intelligence affected directly academic achievement, and children's perceived emotional intelligence influenced by partially parameter between parental rearing and academic achievement^[6]. Emotional intelligence functioned significantly as independent variables in making task performance and adaptive performance^[7]. The higher meta-cognition and the smaller meta-mood for students with the level of negative emotion, the more increased internet addiction^[8]. This meta-cognition is awareness of own thought process^[9]. Meta-mood is a cognitive process to monitor, evaluate, and control at the level of reflective about their feelings. And it is the ability to take advantage of information processing for emotions on individual behavior^[10]. Emotional intelligence played an important role in performing job duties, forming a harmonious relationship, and accomplishing academic achievement^[11].

¹Department of Arts Culture, Sehan University, Chonnam 526-702, Korea
²Graduate School of Education, Sehan University, Chonnam 526-702, Korea

[†]Corresponding author : ycko@sehan.ac.kr

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Of the sub-factors of emotional intelligence, emotional awareness, emotional expression, emotional empathy and emotional regulation will affect preference, emotion cultivation, and community connection of mural. In this paper, by identifying precisely that emotional intelligence affects mural preference, emotion cultivation, and community connection, sub-variables of emotional intelligence that affects mural preference, emotion cultivation, and community connection will be able to find. That is, any sub-variables of emotional intelligence will show if you need to adapt to a certain environment, to foster effective emotion, and to enhance love for own hometown. Therefore, in this paper, to know how emotional awareness, emotional expression, emotional empathy and emotional regulation in sub-variables of emotional intelligence affect each mural preference, emotion cultivation, and community connection for H-targeting elementary school children, the method of statistical hierarchical analysis is used. And so, in this study the following questions are set.

Study problem I. How do the emotional awareness, emotional expression, emotional empathy, and emotional regulation affect mural preference?

Study problem II. How do the emotional awareness, emotional expression, emotional empathy, and emotional regulation affect mural emotion cultivation?

Study problem III. How do the emotional awareness, emotional expression, emotional empathy, and emotional regulation affect mural community connection?

Definition of Terms^[12]

Emotional awareness. It is ability to quickly recognize and notice of own and others' feelings.

Emotional expression. It is which various emotions that occur in the human heart etc. reveal in the shape of a language or gestures.

Emotional empathy. It is the ability to feel as own and others feelings are fully understood.

Emotional regulation. It is ability to control the situation properly as objective and reasonable manner of emotions in own and other people's feel.

2. Experimental Section

Subjects. Subjects in the study were 165 students

(male: 75, female: 90) in H-elementary school during the spring semester of 2013.

Measures. In the seventh week of class, students completed an instrument that included emotional awareness, emotional expression, emotional empathy, and emotional regulation in sub-variables of emotional intelligence made by Go^[12], Moon and Kwak^[13], and an instrument that designed to measure preference, emotion cultivation, and community connection of mural made by this researchers, Lee and Ko^[14]. The mural inventory, modified that made by Lee and Ko^[14], consists of 16 items measured on a 5-point Likert scale<APPENDIX 1>. Lee and Ko report that a three-factor structure representing mural preference, emotion cultivation, and community connection resulted from an orthogonal principal-axis factor analysis<APPENDIX 2>. We also report reliability coefficients of .78, .76, and .81 by Cronbach alpha values for mural preference, emotion cultivation, and community connection scales, respectively, over a 2-day period. The emotional intelligence consists of 22 items measured on a 5-point Likert scale. We also measured reliability of .81, .76, .79 and .78 for emotional awareness, emotional expression, emotional empathy, and emotional regulation scales, respectively, over a 2-days period. In this paper children emotional intelligence's effects on mural preference, emotion cultivation, and community connection are studied by using SPSS 12.0 for statistical hierarchical analysis.

3. Results and Discussion

Study problem I. How do the emotional awareness, emotional expression, emotional empathy, and emotional regulation affect mural preference?

To explore effects on each the emotional awareness, emotional expression, emotional empathy, and emotional regulation, of the sub-factors of the child's emotional intelligence, to mural preference, the hierarchical multiple regression analysis is performed (as in Table 1). That is, as the four variables, the emotional awareness, emotional expression, emotional empathy, and emotional regulation, are employed by adding one variable at a time, total four models in hierarchical regression analysis are made. In the first, a variable input for regression analysis model is emotional awareness. In the second, third, and fourth, which is emotional aware-

Table 1. Hierarchical Analysis of Children Emotional Intelligence's Effects on Mural Preference

Independent var.	model 1			model 2			model 3			model 4			Tolerance
	SE	β	t (Sig.)	SE	β	t (Sig.)	SE	β	t (Sig.)	SE	β	t (Sig.)	
Const.	.432	-	5.326* (.000)	.598	-	4.900* (.000)	.702	-	3.338* (.001)	.771	-	2.389* (.018)	
Awareness	.123	.235	3.083* (.002)	.126	.205	2.6119* (.010)	.129	.175	2.167* (.032)	.129	.170	2.118* (.036)	.881
Expression				.114	-.119	-1.517 (.131)	.125	-.062	-.724 (.470)	.129	-.025	-.275 (.783)	.714
Empathy							.097	.140	1.589 (.114)	.103	.088	.938 (.350)	.644
Regulation										.115	.139	1.529 (.128)	.683
Statistic	R ² =.355, adjusted R ² =.355, F=9.506, p=.002*			R ² =.369, adjusted R ² =.357, F=5.942, p=.003*			R ² =.383, adjusted R ² =.366, F=4.840, p=.003*			R ² =.396, adjusted R ² =.374, F=4.245, p=.003*, Durbin-Watson=1.768			

*p<0.05

ness+emotional expression, emotional awareness+emotional expression+emotional empathy, and emotional awareness+emotional expression+emotional empathy+emotional regulation in order, respectively. When analyzing Table 1, R² value on Hierarchical regression analysis of the emotional awareness to mural preference is 35.5%, which represents the explanatory power of 35% for the model 1 (F=9.506, p=.002) and has a significant value statistically. As above mentioned and in Table 1, whenever the variable is added, increases of R² values means changes in the values of the explanatory power for the models. Seeing the change in R² value, which is increased 1.4% (model 2), 1.4% (model 3), and 1.3% (model 4) by adding emotional expression, emotional empathy, and emotion regulation in order, respectively (as in Table 1).

When seeing through the standardized regression coefficients, children's mural preference was expressed by the following equation (1).

$$\text{Mural Preference} = .170 \times [\text{Emotional Awareness}] (t=2.118, p=.036^*) - .025 \times [\text{Emotional Expression}] (t=-.275, p=.783) + .088 \times [\text{Emotional Empathy}] (t=.938, p=.350) + .139 \times [\text{Emotional Regulation}] (t=1.529, p=.128) \quad (1)$$

Investigating the results of hierarchical regression model by Table 1 and (1), effects on the emotional awareness in the sub-factors of the child's emotional

intelligence to mural preference can be seen that under the influence at statistically significant level, t=2.118 (p=.036). Therefore to increase the mural preference of children, it is found that you need to raise their emotional awareness. In other words, in order to increase preference on a specific curriculum of them, it may be what you need to raise emotional awareness in their emotional intelligence.

Study problem II. How do the emotional awareness, emotional expression, emotional empathy, and emotional regulation affect mural emotion cultivation?

To explore effects on each the emotional awareness, emotional expression, emotional empathy, and emotional regulation, of the sub-factors of the child's emotional intelligence, to mural emotion cultivation, the hierarchical multiple regression analysis is performed (as in Table 2) in the same way as hierarchical analysis of children emotional intelligence's effects on mural preference. That is, when analyzing Table 2, R² value on hierarchical regression analysis of the emotional awareness to mural emotion cultivation is 12.5%, which represents the explanatory power of 12.5% for the model 1 (F=4.175, p=.043) and has a significant value statistically. Seeing the change in R² value, which is increased 34.5% (model 2), 8.4% (model 3), and 0.7% (model 4) by adding emotional expression, emotional empathy, and emotion regulation in order, respectively (as in Table 2).

Table 2. Hierarchical Analysis of Children Emotional Intelligence's Effects on Mural Emotion Cultivation

Independent var.	model 1			model 2			model 3			model 4			Tolerance
	SE	β	t (Sig.)	SE	β	t (Sig.)	SE	β	t (Sig.)	SE	β	t (Sig.)	
Const.	.473	-	5.449* (.000)	.609	-	7.925* (.000)	.682	-	4.832* (.000)	.743	-	3.438* (.001)	
Awareness	.134	.159	2.043* (.043)	.128	.059	.794 (.429)	.126	-.015	-.205 (.838)	.124	-.021	-.294 (.769)	.881
Expression				.116	-.394	-5.311* (.000)	.121	-.257	-3.311* (.001)	.124	-.205	-2.573* (.011)	.714
Empathy							.094	.336	4.235* (.000)	.100	.265	3.156* (.002)	.644
Regulation										.110	.192	2.361* (.019)	.683
Statistic	R ² =.125, adjusted R ² =.119, F=4.175, p=.043*			R ² =.470, adjusted R ² =.460, F=16.539, p=.000*			R ² =.554, adjusted R ² =.524, F=18.163, p=.000*			R ² =.579, adjusted R ² =.561, F=15.404, p=.000*, Durbin-Watson=1.604			

*p<0.05

When seeing through the standardized regression coefficients, children's mural emotion cultivation was expressed by the following equation (2).

$$\text{Mural Emotion Cultivation} = -.021 \times [\text{Emotional Awareness}](t = -.294, p = .769) - .205 \times [\text{Emotional Expression}](t = -2.573, p = .011) + .265 \times [\text{Emotional Empathy}](t = 3.156, p = .002) + .192 \times [\text{Emotional Regulation}](t = 2.361, p = .019) \quad (2)$$

Investigating the results of hierarchical regression model by Table 2 and (2), effects on the emotional expression, emotional empathy, and emotional regulation in the sub-factors of the child's emotional intelligence to mural emotion cultivation can be seen that under the influence at statistically significant level, $t = -2.573$ ($p = .011$), $t = 3.156$ ($p = .002$), $t = 2.361$ ($p = .019$), respectively. Therefore to increase the mural emotion cultivation of children, it is found that you need to raise their emotional empathy, emotional expression, and emotional regulation in order. In other words, in order to increase their the mural emotion cultivation, it may be what, first of all, you need to raise their emotional empathy.

Study problem II. How do the emotional awareness, emotional expression, emotional empathy, and emotional regulation affect mural community connection?

To explore effects on each the emotional awareness, emotional expression, emotional empathy, and emo-

tional regulation, of the sub-factors of the child's emotional intelligence, to mural community connection, the hierarchical multiple regression analysis is performed (as in Table 3) in the same way as hierarchical analysis of children emotional intelligence's effects on mural emotion cultivation.

When analyzing Table 3, R² value on hierarchical regression analysis of the emotional awareness to mural community connection is 41.1%, which represents the explanatory power of 41.1% for the model 1 ($F = 5.592$, $p = .005$) and has a significant value statistically. Seeing the change in R² value, which is increased 5.4% (model 2), 2.9% (model 3), and 0.6% (model 4) by adding emotional expression, emotional empathy, and emotion regulation in order, respectively (as in Table 3).

When seeing through the standardized regression coefficients, children's mural community connection was expressed by the following equation (3).

$$\text{Mural Community Connection} = -.001 \times [\text{Emotional Awareness}](t = -.007, p = .995) - .132 \times [\text{Emotional Expression}](t = -1.478, p = .141) + .172 \times [\text{Emotional Empathy}](t = 1.732, p = .027) + .098 \times [\text{Emotional Regulation}](t = 1.072, p = .285) \quad (3)$$

4. Conclusion

Investigating the results of hierarchical regression

Table 3. Hierarchical Analysis of Children Emotional Intelligence's Effects on Mural Community Connection

Independent var.	model 1			model 2			model 3			model 4			Tolerance
	SE	β	t (Sig.)	SE	β	t (Sig.)	SE	β	t (Sig.)	SE	β	t (Sig.)	
Const.	.409	-	6.669* (.000)	.555	-	7.023* (.000)	.645	-	4.837* (.000)	.712	-	3.929* (.000)	
Awareness	.116	.107	1.364 (.174)	.117	.046	.586 (.558)	.119	.003	.033 (.974)	.119	-.001	-.007 (.995)	.881
Expression				.106	-.239	-3.032* (.003)	.115	-.158	-1.846 (.067)	.119	-.132	-1.478 (.141)	.714
Empathy							.089	.198	2.269* (.025)	.096	.172	1.732* (.027)	.744
Regulation										.106	.098	1.072 (.285)	.683
Statistic	R ² =.411, adjusted R ² =.365, F=5.592, p=.005*			R ² =.465, adjusted R ² =.453, F=5.574, p=.005*			R ² =.494, adjusted R ² =.477, F=5.528, p=.001*			R ² =.500, adjusted R ² =.478, F=4.437, p=.002*, Durbin-Watson=2.106			

*p<0.05

model by Table 3 and (3), effects on the emotional empathy in the sub-factors of the child's emotional intelligence to mural community connection can be seen that under the influence at statistically significant level, $t=1.732$ ($p=.027$). Therefore to increase enhance the mural community connection of children, it is found that you need to raise their emotional empathy. In other words, in order to enhance love for their hometown, it may be what, first of all, you need to raise their emotional empathy.

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APPENDIX 1.

Mural Preference Scales.

1. I think murals on the exterior wall of the school are good
2. I think that murals painted on our school buildings are good.
3. I usually have an interest in the school mural painting.
4. I have tried to speak to others about our school murals.

Mural Emotion Cultivation Scales.

1. I have lots of imaginative power through the school mural.
2. The school murals gives my heart^oÆs pleasure.
3. My heart gets cozy with murals.
4. I can feel familiarity with the school murals.

Mural Community Connection Scales.

1. I hope Hampyeong town murals are like my school ones.
2. I hope the school murals should be helpful to promote our region.
3. I hope other school buildings in Hampyeong town should be associated with butterfly mural.
4. I think that the butterfly is my regional pride.

APPENDIX 2. Rotated Component Matrix

	Component		
	1	2	3
Emotion 1	.861	.153	.099
Emotion 2	.773	.103	.096
Emotion 3	.658	.070	.121
Emotion 4	.602	.187	.167
Preference 1	.056	.803	.166
Preference 2	.281	.744	.195
Preference 3	.281	.663	-.055
Preference 4	.059	.428	.172
Community 1	.079	.125	.779
Community 2	.325	.013	.630
Community 3	.065	.099	.543
Community 4	.108	.178	.519

Rotation Method: Varimax with Kaiser Normalization.