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ProductEffect of Children's Kindergarten Adaptation on Peer Interaction Centered Around OO City of Gyeongsangnam-do

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Abstract
The purpose of this study was to examine the effect of kindergarten adaptation on peer interaction. For this study, 300 teachers in charge of kindergartens within OO city of Gyeongsangnam-do were surveyed about children from May 1th 2015 to May 15th 2015. . The statistical analysis was conducted by using SPSS Win 18.0 program in terms of frequency, correlation, and multiple regressions, and then verified at the significance level of 5%. The study results indicated that first, the kindergarten adaptation rates according to a child's general characteristics showed to be higher in female children; and showed no difference in age or birth rank. Second, peer interaction rates according to a child's general characteristics showed to be higher in female children; and showed no difference in age or birth rank. Third, it was shown that higher social behavior, kindergarten schedule adjustment, positive mindset, and peer competence and lower ego strength were matched with higher peer interaction. The implications of this study are expected to become basic data, which will contribute to measures in order come up with measures and program development for children's kindergarten adjustment and peer interaction.

Keywords: General characteristics of children, Kindergarten adaptation, Peer interaction

1. Introduction

1.1 Necessity of Study

In the recent decades, the family structure system rapidly changed from a large family system to a nuclear family system. In accordance to this, policy systems for early childhood educations have gone through changes also; such as expansion of double-income families, and strengthening the support for free-education system. Thus, the numbers of children from infants to kindergarteners entering children's education institutes have rose, while the entrance age has increasingly been lowered. Consequently, the children are entering kindergartens which is a new environment away from their parents and they are being exposed to maladjustment.
Actually, children's education institutes play an important role in directly/indirectly affecting a child's holistic development. In this regard, children adapting successfully to new peers, teachers, and environment in a kindergarten is their priority and they are important indicators of future success in social adaptation psychologically and socially after growing. Adapting to kindergarten's schedule means maintaining harmony between individual and environment; therefore, the children have to adapt to kindergarten's environment [1].
Since problems in social maladjustment of children could negatively affect their school life, academic achievement, and adulthood, it is very important for kindergartens to aid the children in their adaptation. Therefore, there has been many ongoing studies on problems of peer interaction and adaptation of children[2]. Accordingly, this study contemplated the previous studies on children's adaptation and peer interaction.In the study for the awareness of teachers and mothers on children's adaptation, problem behaviors, and happiness showed that popular children adapted better to kindergartens. Moreover, popular children showed less problem behaviors. In other words, it was shown that popular children showed higher levels of happiness[3]. In the analysis of the self-control variables, it was shown that the sub-factors of adaptation, behavioral self-control, and self-control showed significant correlation.However, the level of correlation was shown to be from average to very low. On the other hand, it was shown that adaptation could be predicted by emotional control, self-control, and self-assertiveness and it was shown that self-control had the biggest impact on children's adaptation. Especially, it was shown that emotional control and self-assertiveness had a negative effect on adaptation[4]. In the study on the relationship between peer interaction, social technique, and social play behaviors of 7-year old children showed that the sub-factors of social technique and social play behavior had a significant correlation with sub-factors of social play behaviors. On the other hand, it was shown in the relationship between social technique and social play behavior had a positive correlation and verbal assertiveness had a negative effect. Also, in the relationship between peer interaction and social play behavior, play severance was a positive prediction of solitary play and play interruption was a negative prediction of academic behavior[5]. In the study of adjustment effect of conflicting relationship between teachers and children in the relationship of peer interaction in negative emotionality and play showed that although there are minor differences between the sub-factors of the sex and peer interaction, conflicting relationship between teacher-children moderates the effect of negative emotionality on peer interaction[6]. In the study of relationship between mother's role, creative household environment, and peer interaction, it was shown that there was a correlation among them. Also, it was shown that higher emotional sympathy led to higher positive peer interaction and higher family pressure led to lower positive peer interaction. On the other hand, it was shown that perfectionist tendencies and high family pressure led to higher negative peer interaction[7]. Although studies on awareness of teachers and parents and the self-control of children are important, there is

a necessity on the study of the influence of kindergarten adaptation on peer interaction.
Therefore, this study analyzes previous studies on kindergarten adjustment and peer interactions of children to further analyze the effects of kindergarten adjustments of children who are adjusting to children's educational institutes on peer interactions.

1.2 **Problem Statements**
The specific problems of this study are as follows.
Study Problem 1.
Find out the difference in kindergarten adjustment according to the general characteristics of children.

Study Problem 2.
Find out the difference in peer interactions according to the general characteristics of children.

Study Problem 3.
Find out how kindergarten adjustments of children affects peer interactions.

2. Study Methods

2.1 Study Subjects
For this study, a questionnaire was given to 300 teachers in charge of kindergarteners who were using kindergartens within OO city of Gyeongsangnam-do, from May 1th to May 15th of 2015; excluding 33 people, who did not either sincerely answer the questionnaire or fail to return the survey, 267 people were selected as subjects. According to the Cohen's sampling equation and using G*Power 3.1, the significance level, statistical power, and effect size were set at 5%, 95%, and and interim index of 0.15, respectively. As a result, the minimum sample size was calculated as 138; thus, 267 people were selected as subjects in this study.

2.2 Study Methods
Prior to conducting the survey, a detailed explanation was given to the subjects with regards to the purpose and response method of the questionnaire, after which they self-recorded to complete the survey.

2.3 Study Tools
Research tools consisted of a total of 58 questions; 3 questions for the general characteristic factors of children, 28 questions for kindergarten adjustments of children, and 27 questions for peer interaction.

2.3.1 Children's Kindergarten Adjustments
The criterion for children's kindergarten adjustments used 'Measuring Device for Children's Educational Institute Adaptation Levels' that Won-shin Lim (2006) had adapted[8]. This criterion was consisted of a total of 28 questions; with 5 different sub factors. For the measurement, 1 to 5 points were given.

2.3.2 Peer Interactions
The criterion for peer interactions used what Eun-naUhm (2006) had revised and adapted[9]. This criterion was consisted of a total of 27 questions; with 2 different sub factors. For the measurement, 1 to 5 points were given.

2.3.3 Data Processing and Analysis Method
The data was verified at the significance level of 5%, and statistical analysis was conducted using SPSS Win 18.0 program. The credibility of children's kindergarten adaptation and peer interactions was determined by Cronbach's alpha factor. A T-Test and an One-Way ANOVA was conducted in order to find out the difference between peer interactions and children's kindergarten adaptation according to the general characteristics of children; and a significant difference was found in $p<.05$ through Scheffe's multiple range test. Correlation analysis and multiple regression analysis were conducted, in order to investigate the correlation of children's kindergarten adaptation and peer interactions.

3. Study Result and Analysis

3.1 Children's General Characteristics
[Chart 1] shows the result of examining the general characteristics of children.
Sex was composed of 52.1% male and 47.9% female; age composed of 26.2% 3-year olds, 25.1% 4-year olds, 48.7% 5-year olds. Order of birth was in the order of 61.0% 'first', 35.2% 'second', 3.7% 'after third'

[Chart 1] Children's General Characteristics

Category		Frequency(N)	Percentage(%)
Sex	남아	139	52.1
	여아	128	47.9
Age	3	70	26.2
	4	67	25.1
	5	130	48.7
Order of Birth	First	163	61.0
	Second	94	35.2
	After third	10	3.7
Total		267	100.0

3.2 Kindergarten Adaptation
[Chart 2] shows the result of examining the kindergarten adaptation of children.
The overall average of kindergarten adaptation was 3.82 and adaptation was related in the order of 'positive mindset'(M=4.07), 'schedule adaptation'(M=4.02), 'social behavior'(M=3.86), 'peer interaction'(M=3.77), 'ego strength'(M=3.44).

[Chart 2] Children's Kindergarten Adaptation

Category	Sub-factors	N	Minimum Value	Maximum Value	Average	Standard Deviation
Kindergarten Adaptation	Social Behavior	267	1.60	5.00	3.86	.71
	Positive Mindset	267	2.25	5.00	4.07	.58
	Peer Competence	267	1.50	5.00	3.77	.60
	Ego Strength	267	1.33	5.00	3.44	.84
	Schedule Adaptation	267	1.14	5.00	4.02	.70
Kindergarten Adaptation		267	2.14	4.96	3.82	.55

3.3 Peer Interaction

[Chart 3] shows the result of examining peer interaction.

The overall average of peer interaction 3.84 and peer interaction was higher in the order of 'non-verbal interactive behavior'(M=3.85), 'verbal interactive behavior'(M=3.83).

[Chart 3] Peer Interaction

Category	Sub-factors	N	Minimum Value	Maximum Value	Average	Standard Deviation
Peer Interaction	Verbal Interactive Behavior	267	2.31	5.00	3.83	.56
	Non-verbal Interactive Behavior	267	2.27	4.91	3.85	.59
Peer Interaction		267	2.48	4.93	3.84	.54

3.4 Hypothesis Verification

3.4.1 Study Issue 1. Examine the differences in kindergarten adaptation following general characteristics.

[Chart 4] shows the result of examining the differences in kindergarten adaptation following the general characteristics of children.

Although differences in adaptation based on sex were significant, age and order of birth were not significant at the significance level of 5%.

Female children(M=3.91) showed higher adaptation than male children(M=3.73)(t=-2.646, p<.01).

[Chart 4]Differences in kindergarten adaptation following general characteristics.

Category		N	Average	Standard Deviation	t/F	p	Scheffe
Sex	Male	139	3.73	.57	-2.646**	.009	-
	Female	128	3.91	.52			
Age	3	70	3.92	.54	2.221	.111	-
	4	67	3.72	.40			
	5	130	3.82	.61			
Order of Birth	First	163	3.81	.57	-.237	.813	-
	Over second	104	3.83	.53			

** p<.01

3.4.2 Study Issue 2. Examine the differences in peer interaction following children's general characteristics.

The result of examining the peer interaction following general characteristics is shown in [Chart 5].

Although the differences in peer interaction following sex were significant, there were no differences following age and order of birth.

Female children(M=3.94) showed higher peer adaptation than male children(M=3.74) (t=-3.035, p<.01).

[Chart 5] Differences in peer interaction following children's general characteristics

Category		N	Average	Standard Deviation	t/F	p	Scheffe
Sex	Male	139	3.74	.53	-3.035**	.003	-
	Female	128	3.94	.52			
Age	3	70	3.86	.61	1.470	.232	-
	4	67	3.74	.41			
	5	130	3.87	.55			
Order of Birth	First	163	3.85	.55	.487	.626	-
	After Second	104	3.82	.51			

** p<.01

3.4.3 Study Issue 3. Examine the effect of adaptation on peer interaction.

[Chart 6] shows the result of examining the correlation between adaptation and peer interaction.

The peer interaction of children were positively correlated in the order to social behavior(r=.770, p<.001), schedule adaptation (r=.709, p<.001), positive mindset (r=.656, p<.001), peer competence(r=.542, p<.001), ego strength(r=.301, p<.001); it was shown that verbal interactive behavior and non-verbal interactive behavior had significant positive correlation to adaptation.

[Chart 6] Correlation between adaptation and peer interaction

Category		Kindergarten adaptation						Peer interaction		
		Social	Positive	Competence	Ego strength	Schedule adaptation	Overall	Verbal	Non-verbal	Overall
Kindergarten Adaptation	Social behavior	1								
	Positive mindset	.669***	1							
	Peer competence	.530***	.523***	1						
	Ego strength	.402***	.364***	.535***	1					
	Schedule adaptation	.757***	.641***	.541***	.458***	1				
Kindergarten Adaptation		.824***	.748***	.780***	.744***	.862***	1			
Interaction	Verbal interactive behavior	.742***	.646***	.570***	.374***	.679***	.737***	1		
	Non-verbal interactive behavior	.684***	.565***	.415***	.151*	.636***	.589***	.730***	1	
Peer Interaction		.770***	.656***	.542***	.301***	.709***	.724***	.951***	.905***	1

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

[Chart 7] shows the result of examining the effect of adaptation on peer interaction.

The result of conducting multiple regression analysis to examine the effect of adaptation on peer interaction shows R^2 =0.670, explaining the regression model at 67.0% of overall change. In order to examine the multicollinearity, the variable inflation factor and tolerance were examined and over 10 of variable inflation factor and tolerance level of less than 0.1 shows problems in multicollinearity. In this analysis, the VIF variables of all factors were below 10 and the tolerance limit was larger than 0.1, indicating that they will not be any problems. Conducting variance analysis for the model showed that the model was significant(F=105.865, p<.001) and that peer interaction is affected in the order of social behavior(β =.446, p<.001), schedule adaptation (β =.236, p<.001), positive mindset (β=.172, p<.01), peer competence(β=.159, p<.01), ego strength(β=-.134, p<.01).Accordingly, it was shown that peer interaction was higher for higher social behavior, schedule adaptation, positive mindset, and peer competence and lower ego strength.

[Chart 7] Effect of children's kindergarten adaptation on peer interaction

Category		Dependent Variable : Peer Interaction					
		B	Standard Deviation	β	t	P	VIF
(Constant)		.912	.148		6.183***	.000	
Kindergarten Adaptation	Social Behavior	.338	.045	.446	7.555***	.000	2.754
	Positive Mindset	.159	.047	.172	3.385**	.001	2.051
	Peer Competence	.142	.042	.159	3.344**	.001	1.797

	Ego Strength	-.085	.028	-.134	-3.101**	.002	1.484
	Kindergarten Schedule Adaptation	.182	.045	.236	4.023***	.000	2.716
R^2= .670, adj R^2= .663, F = 105.865***							

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

[Chart 8] shows the effect of kindergarten adaptation on the sub-factors of peer interaction.

The result of conducting multiple regression analysis to examine the effect of adaptation on verbal interactive behavior shows R^2=0.628, explaining the regression model at 62.8% of overall change. The model showed that the model was significant(F=87.993, p<.001) and that peer interaction is affected in the order of social behavior (β=.441, p<.001), peer competence (β=.2185, p<.001), positive mindset (β =.178, p<.01), schedule adaptation (β =.167, p<.01) to indicate higher verbal interactive behavior for higher social behavior, peer competence, positive mindset, and schedule adaptation.

The result of conducting multiple regression analysis to examine the effect of adaptation on non-verbal interactive behavior shows R^2=0.554, explaining the regression model at55.4% of overall change. The model showed that the model was significant(F=64.796, p<.001) and that peer interaction is affected in the order of social behavior (β=.442, p<.001), schedule adjustment (β=.293, p<.001), ego strength (β =.178, p<.01), positive mindset (β=.293, p<.01), ego strength to indicate higher verbal interactive behavior for higher social behavior, schedule adaptation, positive mindset and lower ego strength led to higher non-verbal interactive behavior.

[Chart 8] Effect of kindergarten adaptation on peer interaction sub-factors

Category		Dependent Variable : Verbal Interactive Behavior			Dependent Variable : Non-Verbal Interactive Behavior		
		B	β	t	B	β	t
(Constant)		.740		4.502***	1.163		6.122***
Kindergarten Adaptation	Social Behavior	.328	.411	6.563***	.354	.422	6.144***
	Positive Mindset	.172	.178	3.299**	.139	.136	2.300*
	Peer Competence	.173	.185	3.656***	.097	.098	1.775
	Ego Strength	-.085	-.031	-.679	-.180	-.255	-5.058***
	Kindergarten Schedule Adaptation	.182	.167	2.680**	.251	.293	4.297***
		R^2= .628, adj R^2= .621, F = 87.993***			R^2= .554, adj R^2= .545, F = 64.796***		

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

4.Discussions and Conclusion

This study examined the influence of kindergarten adaptation on peer interaction. The discussion about the analysis results are as the following.

First, as a result of looking into the difference in kindergarten adaptation according to a child's general characteristics, sex of children was found to be significant by proving that female children had higher kindergarten adjustment rates than male children; while age and birth rank both showed to be insignificant[10]. This result semantically matches the result of a sub factor that shows that the scores of female children in kindergarten lifestyle adjustments were significantly higher than that of male children[11].

Second, as a result of looking into the difference in peer interactions according to a child's general characteristics, sex of children was found to be significant by proving that female children had higher peer interaction rates than male children; while age and birth rank both showed no difference. Although this result shows that child self-control factors have a direct effect on children's peer interactions and also semantically matches the result that shows that a mother's maternal efficiency has an indirect effect on children's peer interaction using child self-control as its parameter[5], the difference in sex was shown in this study result[10]. This shows that this result has an academic significance[12].

Third, as a result of looking into the correlation of children's kindergarten adjustment and peer interaction, 'prosocial activities'(r=.770, p<.001), 'adaptability to school circumstances'(r=.709, p<.001), 'positive mindset'(r=.656, p<.001), 'peer compatibility'(r=.542, p<.001), 'ego strength'(r=.301, p<.001), was the order of highest significance shown for children's peer interactions; while in detail, 'verbal interactive activities' and 'non-verbal interactive activities' both showed a significance in correlation with children's kindergarten adjustments[10]. This result shows that there is a significant positive or negative correlation between the child self-esteem factor and peer interaction factors, and partially matches with the result that shows that there is a significant positive or negative correlation between the amusement factors and peer interaction factors[13].

The following recommendations can be made based on the above results.

First, it was shown that female children adapted better to kindergartens and there are no differences according to order

of birth. Thus children's educational institutions should prepare a comfortable adjustment measure for children through various program suggestions in relation to kindergarten adjustments of children.

Second, it was shown that female children had higher peer interaction and there were no differences according to age and order of birth. In this light, it could be judged that sex is an important factor in peer interaction. Thus children's educational institutions are required to come up with measures that will allow a more active peer interaction of children through various observations on children's peer interactions.

Third, in the influence of kindergarten adaptation on peer interaction, it was shown that higher social behavior, kindergarten schedule adaptation, positive mindset, and peer competence and lower ego strength led to higher peer interaction. In this light, it can be seen that children's kindergarten adaptation and peer interaction are closely related. Thus children's educational institutes will have to come up with measures to help children have a more relaxing and stable life in the institutions by introducing an observation system and various program developments for better peer interactions and kindergarten adjustments for children.

More psychological studies shall be conducted in the future for children's kindergarten adjustment and peer interaction.

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