

PRETEND PLAY AND DIVERGENT THINKING OF PRESCHOOL CHILDREN

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Abstract

The primary purpose of this study is to examine pretend play and divergent thinking of preschool children. The sample consists of 60 preschool children (26 males and 34 females) from Sagaing District and Pyin Oo Lwin District. The preschool children were randomly selected. Descriptive research design and survey method were used in this study. Affect in Play Scale – Preschool version was used to measure pretend play of preschool children. The Multidimensional Stimulus Fluency Measure was used to measure divergent thinking of preschool children. The data were analyzed by calculating descriptive statistics, independent sample *t* test and Pearson-Product Moment Correlation. According to results, there were significant differences in dimensions of pretend play by age. Then, female preschoolers were higher than male in pretend play, imagination, elaboration and positive affect. Then, females express fewer themes of negative affect in their pretend play than males. There were no significant differences in fluency and novelty scores of divergent thinking by gender. There was a significant difference in divergent thinking fluency score by age. Finally, there was significant positive correlation between pretend play and divergent thinking.

Keywords: *Pretend Play, Divergent Thinking, Fluency, Novelty*

Introduction

Early childhood is the most important part of human life. Only good early childhood education provided by teachers and parents will bring to become all round development in children. Moreover, play is one type of educational practice in childhood. Children can get many beneficial skills for their future life through playing. Play has its unique roles and benefits. The benefits of play are imperative in shaping one's life. In early childhood, children learn to develop their skills in physical, cognitive, emotional and social domains through play. Play is the main factor for child development.

The value of play in the child's development and learning has been expressed throughout history. Plato maintained that "enforced learning will not stay in the mind ... let your children lessons take the form of play" (cited in Hoffmann, 2014). Vygotsky (1978) suggested that in play, children create their zone of proximal development and may develop self-regulation (cited in Hoffmann, 2014). Piaget (1962) theorized that play provides a context in which interact with their environment and can create their own knowledge about the world (cited in Hoffmann, 2014).

Play can be rule-based, social, solitary, or competitive actions in nature. Play is a multidimensional construct and varies in meaning depending on the context (Cohen, 2006, cited in Hoffmann, 2014). Children engage in many different types of play such as puzzles, board games and outdoor activities. Among all types of play, pretend play, is generally agreed to be the most influential to the development of cognitive abilities (Mengying Zhang, 2017). According to Fein (1989), symbolism in the context of pretend play can be understood as behaviors in which a child treats one thing as if it were something else. For example, a child might pretend a

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rectangular block is a car. Through pretend play children display cognitive, affective, and interpersonal processes (Russ, 2004).

According to Russ (2004), pretend play involves both cognitive and affective processes which can be observed, such as the organization of a story's plot or the expression of emotion during play. Some aspects in pretend play such as the capacity to use fantasy and the ability engage in "as if" play action should be critical in many domains of creative capacity.

One of the major domains important in creativity is divergent thinking. Guilford (1968) defined divergent thinking is thinking that generates a variety of ideas and associations to a problem. Divergent thinking involves free association, broad scanning ability, and fluidity of thinking. Divergent thinking typically occurs in a spontaneous, free-flowing manner, such that many ideas are generated in an unorganized fashion. Many possible solutions are explored in a short amount of time, and unexpected connections are drawn (cited in Anoiko, 2011).

Singer and Singer (1990) suggested areas of cognitive development that are facilitated by pretend play activities. Pretend play helps the child to (a) expand vocabulary and link objects with actions, (b) develop object constancy, (c) form event schemas and scripts, (d) learn strategies for problem solving, (e) develop divergent thinking ability, and (f) develop a flexibility in shifting between different types of thought (narrative and logical).

In the previous studies of Fisher (1992) and Hoffman and Russ (2012), they explored that pretend play of school-aged children was related to dimensions of creativity such as storytelling and divergent thinking. Divergent thinking is a thought process or method used to generate creative ideas by exploring many possible solutions (Anoiko, 2011). Divergent thinking in particular has related to pretend play in a variety of studies in different research laboratories (Fisher, 1992). Hoffman and Russ (2012) found positive correlations between the cognitive and affective domains of pretend play and children's divergent thinking abilities, independent of verbal intelligence. Greater variety of affect categories expressed in pretend play related to better divergent thinking. Other studies by Russ and Grossman-McKee (1990) and Russ and Schafer (2006) have found that similar relations between both positive and negative affect in pretend play and divergent thinking.

Many parents and teachers in Myanmar also did not recognize the importance of pretend play, and other academic classes replaced the time for pretend play. To turn this situation around, it is necessary for adults to change their attitudes towards pretend play and increase their awareness on the benefits of pretend play, as the development in cognitive abilities are necessary for children's learning and improvement in one's whole life.

In Myanmar, educational researchers need to do more researches to explore the benefits of play, especially pretend play. Therefore, this current study aimed to examine the role of pretend play in divergent thinking of preschool children.

Aims of the Study

The main aim of this study is to examine pretend play and divergent thinking of preschool children. The specific objectives are as follow:

1. To explore pretend play of preschool children by gender
2. To compare pretend play of preschool children by age
3. To investigate divergent thinking of preschool children by gender

4. To examine divergent thinking of preschool children by age
5. To find out the relationship between pretend play and divergent thinking of preschool children

Research Questions

1. Are there any statistically significant differences in pretend play of preschool children by gender?
2. Are there any statistically significant differences in pretend play of preschool children by age?
3. Are there any statistically significant differences in divergent thinking of preschool children by gender?
4. Are there any statistically significant differences in divergent thinking of preschool children by age?
5. Is there any significant relationship between pretend play and divergent thinking of preschool children?

Scope of the Study

In this research, preschool children from Sagaing District and Pyin Oo Lwin District were selected as participants.

Definitions of Key Terms

Pretend Play - Pretend play is defined as play that includes the use of fantasy and make-believe and the use of symbolism (Russ, 2004).

Divergent Thinking - Divergent thinking refers to children's ability to generate a variety of Ideas / solutions (Fisher, 1992).

Fluency - Fluency is the sum of acceptable/reasonable responses the child gives to each Item (Fisher, 1988).

Novelty - Novelty is the sum of acceptable/reasonable responses given by less than 5% of the Sample (Fisher, 1988).

Method

Sampling

The sample consists of 60 preschool children from two selected private preschools in Sagaing District and Pyin Oo Lwin District. The preschool children were randomly selected.

Method

Descriptive research design and survey method were used in this study.

Instrumentation

Affect in Play Scale – Preschool version was used to measure pretend play of preschool children. It was previously adapted by Kaugars and Russ in 2009 from original version of Affect in Play Scale which was developed and validated by Russ (1999) for children six to ten years old. The instrument used in this study, Affect in Play Scale – Preschool Version, is a five-minute standardized play task. The target population for Affect in Play Scale – Preschool Version is four to six year old. Affect in Play Scale – Preschool Version is sensitive to individual differences in

children's play at this younger age. Video recording was used to collect the required data for pretend play.

In Affect in Play Scale – Preschool Version, the appropriate materials and instructions for younger age groups were used. In the original version of Affect in Play Scale, puppets were used to explore pretend play. However, according to the assumption of Russ and Kaugars (2009), puppets might be more difficult for young children to manipulate. Based on this assumption, they used toys that would be easy to play with for younger children and that could elicit pretend play in their new version of Affect in Play Scale – Preschool Version. Thus, the materials/toys in this Affect in Play Scale – Preschool Version are as follow: five soft, stuffed animals (elephant, bear, shark, dog and bunny), four small plastic animals (giraffe, cheetah, hippo and camel), a plastic car, three plastic cups and a ball.

In Affect in Play Scale – Preschool Version, the instructions contained three parts. First, a warm-up task is used to introduce materials/toys. In this warm-up task, the examiner establishes some rapport with children. The children are asked to name the different toys and some of their characteristics like the color and number of materials/toys. In the second part, the more explicit directions are given to children to “make up a story” with the toys by providing with several examples of what they can have the toys do. Finally, the children are not given a 1-minute warning near the end of their play time. Instead, they are just told when to start and stop.

The standard prompts for instances of play are given if preschool children do not play, do not talk and stop play early. At the end of play time, the examiner gives the final instruction to stop play activities. The guideline of stopping after 2 minutes if a child is unable to play is used with younger children.

In this Affect in Play Scale – Preschool Version, there are seven primary scores: frequency of affect expression, variety of affect expressions, quality of fantasy, comfort, no play episodes, functional play episodes, and pretend play episodes.

Affect in the child's play is coded as a frequency count. It is important to note that the affect within the child's story narrative is counted in affect scoring. The child's actual affect is not considered as the affect to measure. Both verbal and nonverbal affect expressions are recorded and scored. Frequency of affect expression is scored as the frequency count of instances in which the child expresses affect in any of the twelve possible categories. The variety of affect expressions is the number of different affect categories that are represented in each child's 5-minute play session. The possible categories included in Affect in Play Scale – Preschool Version are five positive affect (nurturance/affection, happiness/pleasure, competition, oral, sexual), six negative affect (aggressive, anxiety/ fear, sadness/hurt, frustration/disappointment, oral aggression, anal) and undefined affect expression. The Undefined Affect score is a count of affect that does not clearly fall into the positive or negative affect category. The undefined affect expression category includes sound effects and comments that are not understandable but seem to include affect (i.e., *roar*, *beep beep*, and *vroom*).

Imagination is the rating of the child's ability to engage in pretend play and the uniqueness of their play events. Organization is the rating of the quality of the plot and coherence of the narrative. Elaboration is the rating of the complexity and embellishment in the themes, uses of sound effects, and characters. Comfort is the rating of the child's enjoyment and involvement in the play task. In this study, the rating for three components of quality of fantasy

and comfort are adapted based on the scoring scheme of Affect in Play Scale – Preschool Version.

No play is the absence of any interaction with toys. If the child name an object or describe its actual properties (for example, count the number of cups) or he is absently moving a toy in a repetitive fashion but attending to another activities, these are also coded in this category (e.g., short motor movements rolling ball while talking to examiner about unrelated topic).

Functional play is defined as simple repetitive muscle movements with objects. For example, a child may throw the ball up and down, push the car back and forth without making any sounds, stack the cups, or line up the animals.

Pretend play includes using one object to represent another or attributing activities to inanimate objects (i.e., pretending the cup is a bathtub, having the animals talk to one another). The examples or characteristics of pretend play are as follow:

- inanimate objects may be treated as animate (e.g., the stuffed bear may talk),
- one object or gesture may be substituted for another (e.g., the cup may be a bathtub),
- the child may perform an activity usually done by someone or something else (e.g., pretend to be a dog),
- speech may be substituted for action (e.g., “Let’s pretend we’re going to bed”) and
- language may be used to describe a situation (e.g., “Let’s pretend this is the swimming pool”).

In scoring three types of play, the child’s predominant activity in each 20-second interval is scored (i.e., occurs for greater than or equal to 10 seconds within each 20-second interval).

The inter-rater reliability was determined by calculating an intraclass correlation coefficient (ICC). The pilot results for Affect in Play Scale – Preschool Version (APS-P) are as shown in Table 1.

Table 1 Pilot Results for Affect in Play Scale – Preschool Version (APS-P)

Scores in APS-P	Intraclass Correlation Coefficient (ICC)	95%CI
Variety of Affect	0.823	0.663-0.912
Positive Affect		0.715-0.927
Negative Affect	0.852	0.740-0.934
Undefined Affect	0.866	
Frequency Of Affect (Total)	0.877	0.712-0.944
	0.879	0.763-0.940
Imagination		0.701-0.924
Organization	0.846	
Elaboration	0.874	0.754-0.938
	0.898	0.797-0.950
Comfort	0.822	0.663-0.911
No Play	0.850	0.709-0.925
Functional Play	0.837	0.685-0.919
Pretend Play	0.908	0.813-0.955

According to the guideline for reporting intraclass correlation coefficient (ICC) of Koo and Li (2016), the pre-determined ranges of inter-rater reliability outcomes are identified as poor (<0.5), fair (0.50-0.75), good (0.75-0.90) and excellent (0.9-1). Based on this guideline, the ICCs in scores of Play Scale – Preschool Version (APS-P) were interpreted and converted into reliability outcomes. Thus, the pilot results indicated that seven scores in Play Scale – Preschool Version (APS-P) have good and excellent inter-rater reliability.

Multidimensional Stimulus Fluency Measure (MSFM) by Moran, Milgram, Sawyers and Fu (1983) was used for measuring divergent thinking of preschool children in the current study. This instrument is widely accepted as a measure of divergent thinking for preschoolers as it assesses ideational fluency, the best single measure of divergent thinking, and is a predictor of creative capacity. The two main scores are Fluency and Novelty. Fluency is the sum of acceptable/reasonable responses the child gives to each item. Novelty is the sum of acceptable/reasonable responses given by less than 5% of the sample. MSFM consists of six items. The interrater reliability was determined by calculating an intraclass correlation coefficient (ICC). The pilot results for Multidimensional Stimulus Fluency Measure (MSFM) are as shown in Table 2.

Table 2 Pilot Results for Multidimensional Stimulus Fluency Measure (MSFM)

Scores in MSFM	Intraclass Correlation Coefficient (ICC)	95%CI
Fluency	0.945	0.889-0.973
Novelty	0.801	0.557-0.908

As shown in Table 2, the fluency score has excellent inter-rater reliability with intraclass correlation coefficient of .945 and the novelty score has good inter-rater reliability with intraclass correlation coefficient of .801. The pilot results for the MSFM indicated that it is a reliable measure with good and excellent interrater reliability.

Data Analysis

The data was analyzed by using SPSS software. By descriptive analysis, the mean, standard deviation, maximum and minimum scores for preschool children's scores in APS-P and MSFM were calculated. Independent samples *t* test analysis was used to investigate whether there were significant differences in pretend play and divergent thinking of preschool children by gender and age. Finally, Pearson-Product Moment Correlation was carried out to find out if there were any significant correlations between pretend play and divergent thinking.

Findings

Descriptive Statistics for Dimensions of Pretend Play in Preschool Children

To investigate the dimensions of pretend play of preschool children, the descriptive statistics was carried out and the results were shown in Table 3.

Table 3 Descriptive Statistics for Dimensions of Pretend Play in Preschool Children

Variable	<i>N</i>	Minimum	Maximum	Mean	<i>SD</i>
No Play	60	0	14	3.05	3.132
Functional Play	60	0	11	2.72	2.630

Variable	N	Minimum	Maximum	Mean	SD
Pretend Play	60	0	15	9.22	4.038
Imagination	60	1	5	3.08	1.266
Organization	60	1	5	3.10	1.020
Elaboration	60	1	5	2.97	1.390
Comfort	60	1	5	3.62	0.804
Variety of Affect	60	1	7	4.00	1.315
Positive Affect	60	0	14	5.27	3.102
Negative Affect	60	0	14	3.35	3.804
Undefined Affect	60	0	6	1.62	1.678
Frequency of Affect	60	2	25	10.23	4.862

As shown in Table 3, pretend play had the highest mean score (9.22) with standard deviation (4.038) in three types of play. Moreover, the mean scores and standard deviations in four cognitive components of pretend play were 3.08 and 1.266 for imagination, 3.10 and 1.020 for organization, 2.97 and 1.390 for elaboration and 3.62 and 0.804 for comfort respectively. According to the results, the mean score in positive affect was higher than that of negative affect. Moreover, undefined affect had the lowest mean score (1.62) and standard deviation (1.678). Thus, this result revealed that most of preschool children displayed more segments of pretend play in their five minutes play session and more expressed the positive affect category.

Comparison of Dimensions of Pretend Play in Preschool Children by Gender

To find the differences in dimensions of pretend play between male and female preschool children, descriptive analysis and independent sample *t* test were calculated and the results were described in Table 4.

Table 4 Results of Independent Samples *t* test on Dimensions of Pretend Play in Preschool Children by Gender

Variable	Gender	N	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>
No Play	Male	26	3.54	3.922	.992	58	.327
	Female	34	2.68	2.358			
Functional Play	Male	26	3.50	3.076	2.073*	58	.043
	Female	34	2.12	2.086			
Pretend Play	Male	26	7.96	4.779	-2.054*	58	.046
	Female	34	10.18	3.109			
Imagination	Male	26	2.65	1.355	-2.387*	58	.020
	Female	34	3.41	1.104			

Variable	Gender	N	Mean	SD	t	df	p
Organization	Male	26	2.81	1.059	-1.989	58	.051
	Female	34	3.32	.945			
Elaboration	Male	26	2.50	1.503	-2.361*	58	.022
	Female	34	3.32	1.199			
Comfort	Male	26	3.50	1.068	-.904	58	.373
	Female	34	3.71	.524			
Variety of Affect	Male	26	4.04	1.399	.197	58	.845
	Female	34	3.97	1.267			
Positive Affect	Male	26	3.77	2.582	-3.58**	58	.001
	Female	34	6.41	3.006			
Negative Affect	Male	26	5.50	4.760	3.917**	58	.001
	Female	34	1.71	1.508			
Undefined Affect	Male	26	2.04	1.777	1.699	58	.089
	Female	34	1.29	1.548			
Frequency of Affect	Male	26	11.31	6.392	1.513	58	.136
	Female	34	9.41	3.115			

Note: *The mean difference is significant at 0.05 level.

**The mean difference is significant at 0.01 level.

According to the above table, female children were significantly higher than male in pretend play, imagination, elaboration and positive affect. The results showed that there were the significant differences in functional play and negative affect by gender and the mean score of male were greater in functional play and negative affect than that of female. Thus, this finding was in agreement with the results of the studies of Fehr and Russ (2013).

Comparison of Dimensions of Pretend Play in Preschool Children by Age

In order to investigate whether there were significant differences in dimensions of pretend play of preschool children by age, descriptive statistics and independent sample *t* test were conducted. Preschool children's age was categorized into two groups (4 years and below and over 4 years). The results were shown in Table 5.

Table 5 The Results of Independent Samples *t* test for Dimensions of Pretend Play in Preschool Children by Age

Variable	Age	N	Mean	SD	t	df	p
No Play	4 years and below	32	4.25	3.637	3.615**	58	.001
	Over 4 years	28	1.68	1.611			

Variable	Age	N	Mean	SD	t	df	p
Functional Play	4 years and below	32	3.63	3.024	3.175**	58	.003
	Over 4 years	28	1.68	1.588			
Pretend Play	4 years and below	32	7.09	4.098	-5.437***	58	.000
	Over 4 years	28	11.64	2.215			
Imagination	4 years and below	32	2.50	1.191	-4.358***	58	.000
	Over 4 years	28	3.75	1.005			
Organization	4 years and below	32	2.63	1.008	-4.420***	58	.000
	Over 4 years	28	3.64	.731			
Elaboration	4 years and below	32	2.47	1.319	-3.189**	58	.002
	Over 4 years	28	3.54	1.261			
Comfort	4 years and below	32	3.38	.976	-2.732**	58	.009
	Over 4 years	28	3.89	.416			
Variety of Affect	4 years and below	32	3.69	1.306	-2.019*	58	.048
	Over 4 years	28	4.36	1.254			
Positive Affect	4 years and below	32	4.81	3.267	-1.217	58	.228
	Over 4 years	28	5.79	2.872			
Negative Affect	4 years and below	32	2.28	2.568	-2.336*	58	.024
	Over 4 years	28	4.57	4.598			
Undefined Affect	4 years and below	32	1.53	1.524	-.418	58	.677
	Over 4 years	28	1.71	1.863			
Frequency of Affect	4 years and below	32	8.63	3.635	-2.832**	58	.007
	Over 4 years	28	12.07	5.470			

Note: *The mean difference is significant at 0.05 level.

**The mean difference is significant at 0.01 level.

***The mean difference is significant at 0.001 level.

The results of *t* test from Table 5 showed that there were significant differences by age ($t=-5.437, p<0.001$) in pretend play and it revealed that over 4 years aged preschool children tend to display more in pretend play episodes than 4 years and below. However, 4 years and below aged preschool children in the current study were significantly more participated in no play and functional play. Moreover, over 4 years preschool children were significantly higher than 4 years and below in all cognitive components of pretend play. In the scores of affective process of pretend play, there were significant differences in variety of affect, negative affect and frequency of affect between 4 years and below and over 4 years. The result showed that the mean scores of over 4 years aged children in variety of affect, negative affect and frequency of affect were higher than those of 4 years and below. This was similar to the findings of Fehr (2010).

Descriptive Statistics for Dimensions of Divergent Thinking of Preschool Children

To investigate divergent thinking of preschool children, the descriptive statistics was calculated and the results were presented in Table 6.

Table 6 Descriptive Statistics for Dimensions of Divergent Thinking of Preschool Children

Variable	N	Minimum	Maximum	Mean	SD
Fluency	60	4	32	17.48	6.756
Novelty	60	0	9	2.350	1.830

According to Table 6, the maximum score of preschool children in fluency was 32 and the mean score was 17.48 ($SD= 6.756$). The mean score and standard deviation for novelty was 2.35 and 1.83 respectively.

Comparison of Dimensions of Divergent Thinking of Preschool Children by Gender

To know whether there were any significant differences or not in dimensions of divergent thinking of preschool children by gender, descriptive statistics and independent sample t test were conducted. The results were presented in Table 7.

Table 7 The Results of Independent Sample t test for Dimensions of Divergent Thinking of Preschool Children by Gender

Variable	Gender	N	Mean	SD	t	df	p
Fluency	male	26	16.73	7.198	-.752	58	.455
	female	34	18.06	6.448			
Novelty	male	26	2.08	1.573	-.881	58	.382
	female	34	2.44	1.599			

According to the above Table 7, there were no significant differences in two scores of divergent thinking. Thus, the results of the current study concluded that preschool children's divergent thinking did not depend on gender. This finding was agreed with the finding of Fehr and Russ (2016).

Comparison of Dimensions of Divergent Thinking of Preschool Children by Age

In order to investigate whether there were significant differences in dimensions of divergent thinking of preschool children by age, descriptive statistics and independent sample t test were conducted. The result was shown in Table 8.

Table 8 Results of Independent Sample t test for Dimensions of Divergent Thinking of Preschool Children by Age

Variable	Age	N	Mean	SD	t	df	p
Fluency	4 years and below	32	14.50	5.501	-4.123***	58	.000
	Over 4 years	28	20.89	6.511			
Novelty	4 years and below	32	2.00	1.796	-1.531	58	.131
	Over 4 years	28	2.61	1.257			

Note: ***The mean difference is significant at 0.001 level.

In Table 8, there was a significant difference in fluency score of divergent thinking by age. However, there was no significant difference in novelty score of divergent thinking by age. This finding of the present study was in line with Wallace and Russ (2015).

The Relationship between Pretend Play and Divergent Thinking of Preschool Children

In order to investigate the relationship between pretend play and divergent thinking of preschool children, Pearson Product-Moment Correlation was applied.

Table 9 Inter-correlations between Dimensions of Pretend Play and Two Scores of Divergent Thinking in Preschool Children

Score	NP	FP	PP	I	O	E	C	VA	PA	NA	UA	FA	F	N
NP	-													
FP	-.031	-												
PP	-.757**	-.629**	-											
I	-.557**	-.395**	.693**	-										
O	-.622**	-.419**	.756**	.668**	-									
E	-.525**	-.443**	.699**	.637**	.656**	-								
C	-.699**	-.180**	.662**	.548**	.584**	.595**	-							
VA	-.358**	-.049	.306*	.234	.227	.213	.240	-						
PA	-.462**	-.283*	.542**	.339**	.490**	.541**	.232	.220	-					
NA	-.289*	.015	.216	.085	.200	.166	.344**	.552**	-.101	-				
UA	.126	-.033	-.075	.055	-.126	-.129	-.035	.384**	-.260*	.144	-			
FA	-.477**	-.180	.489**	.302*	.426**	.430**	.405**	.705**	.469**	.667**	.292*	-		
F	-.426**	-.283*	.519**	.481**	.298*	.199	.334**	.328*	.158	.049	.111	.178	-	
N	-.238	-.123	.255*	.343**	.276*	.228	.193	.447**	.126	.090	.163	.207	.482**	-

Note: * Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

NP = No Play, FP = Functional Play, PP = Pretend Play
I = Imagination, O = Organization, E = Elaboration, C = Comfort
VA = Variety of Affect,
PA = Positive Affect, NA = Negative Affect, UA=Undefined Affect
FA = Frequency of Affect

Table 9 showed the correlations between dimensions of pretend play and two divergent thinking scores of preschool children. It indicated that the divergent thinking fluency score had moderate positive correlation with pretend play ($r=.519, p<0.01$) and imagination ($r=.481, p<0.01$) and it was slightly positively correlated with organization ($r=.298, p<0.05$), comfort ($r=.334, p<0.01$) and variety of affect ($r=.328, p<0.05$). Moreover, the divergent thinking novelty score was significantly positively correlated with pretend play ($r=.255, p<0.05$), imagination ($r=.343, p<0.01$), organization ($r=.276, p<0.05$) and variety of affect ($r=.447, p<0.01$). These results of the current study were agreed with the studies of Hoffmann and Russ (2012). Moreover, no play and functional play negatively correlated with other dimensions of pretend play and divergent thinking scores. Therefore, the result interpreted that preschool children more engaged in pretend play had higher in divergent thinking.

Conclusion

The main purpose of this study was to study the relationship between pretend play and divergent thinking of preschool children. Moreover, gender differences and grade differences in pretend play and divergent thinking were also explored. In this study, a total of 60 preschool children from Sagaing District and Pyin Oo Lwin District participated. In this study, Affect in Play Scale – Preschool version (APS-P) for measuring the dimensions of pretend play and Multidimensional Stimulus Fluency Measure (MSFM) for assessing divergent thinking were used in this study. APS-P is a standardized 5-minute play task designed to measure various dimensions of preschool children's pretend play.

To analyze gender difference in pretend play, independent sample *t* test was computed and the result revealed that the mean scores of female in pretend play, imagination, elaboration and positive affect variables were significantly higher than those of male. However, male significantly engaged in functional play and expressed more in negative affect. These results were in agreement with the result of Fung and Cheng (2015) and they found that girls tend to engage in more pretend play and express fewer themes of aggression and negative affect in their pretend play than boys (cited in Marcelo, 2016). Moreover, another recent study by Yates and Marcelo (2014) also found that males expressed more negative affect and less positive affect in play than females.

Age differences in pretend play variables were explored in this study. The result revealed that older children in the current study significantly occurred in more pretend play segment and younger children significantly showed in more no play and functional play. Moreover, this study also found that older children were significantly better than in all cognitive variables of pretend play and frequency of affect. These findings are similar with the results of Fehr and Russ (2016). Moreover, the result of this study showed that older children expressed in more negative affect and displayed in more variety of affect. Therefore, pretend play variables depend on age in preschool aged children. This may be due to the theoretical facts that as children grow older, their pretend play becomes more sophisticated in form, organized in content, and social in context (Smolucha & Smolucha, 1998) and pretend play peaks during late preschool (Pellegrini & Smith, 1998).

In the current study, there was no significant gender difference in divergent thinking task. This result was in line with the studies of Tegano and Moran (1989) and Fehr and Russ (2016). Moreover, the result found age differences in divergent thinking fluency score. However, it did not find age differences in divergent thinking novelty score. Therefore, it can be concluded that older preschool children generated more fluent in responding the divergent thinking task.

The major finding of this study was that pretend play showed significant, positive correlation with two scores divergent thinking. Pretend play moderately correlated with divergent thinking fluency score and it slightly correlated with divergent thinking novelty score. However, no play and functional play negatively correlated with divergent thinking scores as well as the cognitive and affective variables of pretend play. Thus, the result was interpreted that children who displayed in more pretend play episodes in their play were better on divergent thinking task.

Moreover, imagination and organization in the cognitive variables of pretend play positively correlated with both fluency and novelty scores of divergent thinking. This finding is

similar with the findings of Wallace and Russ (2015). Moreover, this study found that variety of affect positively correlated with divergent thinking scores and comfort, one cognitive variable of pretend play positively correlated with divergent thinking fluency score. Therefore, this study interpreted that preschool children whose play was rated as better organized, more imaginative elements, more enjoyable in their play and displaying different categories of affect generated more responses on divergent thinking task. These findings may be confirmed with the suggestions that pretend play involves making associations which is an important part of divergent thinking (Russ, 2004) and it should also facilitate divergent thinking because in play children practice divergent thinking skills by using toys and objects to represent different things and by role-playing different scenarios (Singer & Singer, 1990).

The above results carry implications for how parents, preschool teachers and educators view divergent thinking and some benefits of pretend play. It is need to examine the future research studies concerning pretend play and divergent thinking. Moreover, the factors affecting on pretend play and divergent thinking need to explored in the future studies.

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References

- Anoiko.(2011).*Creativity*.Retrievedfromhttp://oiko.files.wordpress.com/2011/03/2011_wiki_anoiko_creativity1.pdf
- Fehr, K. (2010). *Pretend aggression in play, aggressive behavior, and parenting style*. MA: Case Western Reserve University Press.
- Fehr, K., & Russ, S. (2013). Aggression in pretend play and aggressive behavior in the classroom. *Early Education and Development, 24*(3), 332-345.
- Fehr, K., & Russ, S. (2016). Pretend play and creativity in preschool-aged children: Associations and brief intervention. *Psychology of Aesthetics, Creativity, and the Arts, 10*(3), 296-308.
- Fein, G. G. (1989). Mind, meaning, and affect: Proposals for a theory of pretense. *Developmental Review, 9*, 345–363.
- Fisher, E. P. (1992). The impact of play on development: A meta-analysis. *Play and Culture, 5*, 159-181.
- Fisher, J. L. (1988). The relationships among conformity, locus of control and ideational fluency in the preschool child [Master of Science]. The Faculty of Virginia Polytechnic Institute, State University.
- Hoffmann, J., & Russ, S. (2012). Pretend play, creativity and emotion regulation. *Psychology of Aesthetics, Creativity and the Arts, 6*, 175-184.
- Hoffmann, J. D. (2014). “A Pretend Play Group Intervention for Elementary School Children”, PhD Thesis; Department of Psychology, Case Western Reserve University.

- Kaugars, A., & Russ, S. W. (2009). Assessing pre-school children's play: Preliminary validation of the affect in play scale – preschool version. *Early Education and Development, 20*, 733-755.
- Marcelo, A. K. (2016). *The Structure and Development of Pretend Play Across Childhood*. UC Riverside Electronic Theses and Dissertations. Retrieved from <https://escholarship.org/uc/item/7r80470c>
- Mengying Zhang (2017). "Relationships between Pretend Play and Cognitive Development in Early Childhood Education", M.Ed Thesis; Department of Curriculum and Instruction, University of Victoria.
- Pellegrini, A. D., & Smith, P. K. (1998). The development of play during childhood: Forms and possible functions. *Child Psychology and Psychiatry Review, 3*(2), 51-57. doi:10.1017/s1360641798001476
- Russ, S. W. (2004). *Play in child development and psychotherapy: Toward empirically supported practice*. Mahwah, NJ: Erlbaum Associate Publishers.
- Russ, S. W., & Grossman-McKee, A. (1990). Affective expression in children's fantasy play, primary process thinking on the Rorschach, and divergent thinking. *Journal of Personality Assessment, 54*, 756-771.
- Russ, S., & Schafer, E. D. (2006). Affect in fantasy play, emotion in memories and divergent thinking. *Creativity Research Journal, 18*, 347-354.
- Singer, D. G., & Singer, J.L. (1990). *The house of make-believe: Children's play and the developing imagination*. Cambridge, MA: Harvard University Press.
- Smolucha, L., & Smolucha, F. (1998). The Social Origins of Mind: Post-Piagetian Perspectives on Pretend Play. In O. N. Saracho & B. Spodek (Eds.), *Multiple perspectives on play in early childhood education*, 34-58. State University of New York Press.
- Tegano, D., & Moran, J. (1989). Sex differences in the original thinking of preschool and elementary school children. *Creativity Research Journal, 2*(1-2), 102-110.
- Wallace, C., & Russ, S. (2015). Pretend play, divergent thinking, and math achievement in girls: A longitudinal study. *Psychology of Aesthetics, Creativity, and the Arts, 9*(3), 296-305.
- Yates, T., & Marcelo, A. (2014). Through race-colored glasses: Preschoolers' pretend play and teachers' ratings of preschooler adjustment. *Early Childhood Research Quarterly, 29*, 1-11.