



Board Games Play Matters: A Rethinking on Children's Aesthetic Experience and Interpersonal Understanding

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ABSTRACT

There has been a growing awareness of the contribution of play to the young children's learning and development. This study aims to investigate the implement of board games play on children's aesthetic experience and interpersonal understanding in Montessori and Constructivist classrooms. With the underlying framework follows a developmentally appropriate practice, Aesthetic Curriculum Outlines of Taiwan Education Bureau and Selman's conceptualization of interpersonal understanding of Negotiation Strategies (NS) and Shared Experience (SE) served as the standard to collect and analyze children's art work and play. The result is based on preschool educators' observing and mapping during 18-week period of what children (56 children aged 60-72 month) are offered within art work and board games play, including DRECKSAU, ZICKE ZACKE, and SLEEPING QUEENS. Analytical results of children's art work and school interviews showed difference in responsive and productive aesthetic experience in both classrooms. Analysis of NS and SE results showed a predominant use of Level 1 in both classrooms; while the Constructivist children had higher percentage and with more variety of Level 2 NS and SE. With comparison of NS and SE in friend and acquaintance pairings, there was no statistical difference in the interpersonal understanding; while there was significant difference in children's adoption of sub-categories in Level 1 NS. In the end, the results are discussed in terms of children's exploration and inquiry implications for early schooling educators.

Keywords: aesthetic experience, interpersonal understanding, board games play, children, preschool

INTRODUCTION

There has been considerable research in educational settings on the impact of classroom programs on children's social-moral development (DeVries & Goncu, 1988; DeVries, Reese-Learned, & Morgan, 1991; DeVries, 2004; Hatch, 1997; Jent et al., 2011) and the positive effects of play on children development (Erwin, 2013; Goldstein, 2012; Goncu, & Gaskins, 2012; Flanagan, 2009; Fleeer, 2013; Lennon & Coombs, 2007; Niklas & Schneider, 2014; Rogers, 2010; Woods, 2012). Futher, with the importance of aesthetic area integrated into early childhood

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State of the literature

- In the literature, researchers have consistently investigated the importance of play and socio-moral atmosphere on children's whole child development, especially on aesthetic experience and social interpersonal understanding perspectives.
- However, there is no study in Taiwan that combines the findings of individual studies to determine the effects of different socio-moral atmospheres and friendship in preschool children's board play experiences on their aesthetic experience and social interpersonal understanding.
- Board games play can combine the statistical analysis of the quantitative findings of children's interpersonal understanding behaviors and the qualitative analysis of children's aesthetic art work and interviews.

Contribution of this paper to the literature

- The results of this study contribute to the literature by providing information about children's social interpersonal understanding through board games play and about children's aesthetic experience through their art work in Constructivist and Montessori classrooms.
- The results provide theoretical and practical suggestions for early childhood educators, parents and related children culture-education institutions in Taiwan to further utilize socio-moral atmosphere and quality board games into preschool play-integrated activities.
- The study includes foreign and domestic studies to provide early childhood educators international and comprehensive perspective on the effects of different socio-moral atmosphere and friendship on children's aesthetic experience and social interpersonal development.

education play curriculum (Adu-Agyem & Enti, 2009; Apps & MacDonald, 2012; Mayesky, 2014; Pramling, 2011; Samuelsson et al, 2013; Tinmannsvik & Bjelland, 2009), and research (Kreft, 2014; Sharp, 2015) focusing on aesthetics of board game, for the above review suggest that no empirical studies of children's interpersonal understanding and aesthetic experience within different classrooms have been reported. This research was designed to target at the investigation of effects of Constructivist and Montessori classrooms on children's aesthetic experience and interpersonal understanding through the recently designed commercial board games. Different from traditional "teaching," nowadays, children keep on "interactive learning" with peers, teachers, and environment consistently (Yilmaz, 2011); though the globalization brings "child-centered" and Developmentally Appropriate Practice (DAP) concepts all over the world; however, when children enter the formal education system, the orderly system of teacher-centered instruction provides direct instruction as the main source of knowledge, while the children always play the role as the passive recipients of the knowledge (Johnson et al., 2013).

Ertmer & Newby (2013) revealed that the direct instruction model has not aware of the various learning demands for children's interests and potential; while constructivism as a sense-making theory proposing authentic understanding could offer children active learning with their previous experiences and knowledge (Markey et al., 2008; Sjøberg, 2007; Van Hoon

et al, 2014; Yen et al., 2015). This conforms to Piaget's (1962) promoting for active schooling should aim at generating children's full personality development; constructivist educators design play activities compliant with the children's questioning. Ultanir (2012) observed, just like Piaget's teaching models, Montessori system stressing decentralization and opportunities for children as the center of focus is a cognitive learning method has developed the program in a structured environment that supports children's inherent curiosity. Regarding children in interactive play, Ramani et al. (2008; 2012; 2014) proposed that based on shared experiences, better social behaviors and collaboration with peers enhance children to solve complex social problems. Flear (2013) enumerates several benefits of exposing children to board games in their early stages of learning: for the board game represents a visual metaphor for the children to connect information, leading to improving children's hands-on skills when they are asked to handle the tasks physically. Unlike in the direct instruction method where children only process information dispensed by the instructor, the children learn how to organize new information and incorporate it into standard concepts. A review of the board game play.

LITERATURE DISCUSSION

Board Game Play and Children's Development

Miller and Almon (2009) reported that preschool curriculum did not accommodate adequate time for children to play: the reduced focus on the importance of play in child development to the societal pressure on the children to acquire reading skills. Consequently, children have limited time to interact with people, objects, Nature. Ramani and Siegler (2008) also observe that the amount of time children spent in play had a direct impact on their development of cognitive, aesthetic and social interaction skills. Research revealed children's skills in recognizing numbers and colors (Lee & Lee, 2008), math literacy (Niklas & Schneider, 2014) when they learn numbers and colors on board games: for the number and color based board games are both educative and interactive allowing the learners to gain knowledge and skills in a relaxed, playful environment. Further, the complex tasks, recurrent failures and final success of board game play in preschool enables the children to create an open mind for enhancing literacy (Markey et al., 2008), logical thinking (Kapp, 2012; Wilson et al., 2009), cognition skills (Goldstein, 2012), play therapy (Li et al., 2008), and aesthetics (Pearce, 2006).

Take Monopoly, one of the popular and interactive board games, for example, it triggers children's cognitive (Smith, 2006), language (Alofs & Swartjes, 2011), reasoning, negotiation, cooperation, and perspective-taking skills in the players. When played by team members, such a board game has been shown to increase the interrelationship among the participants regardless of their difference in age, recognition, and development. Since only one player can play at a time, children learn patience, respect and how to take turns in a group activity. The numeracy skills are also enhanced for the game involves number counting and recognition. In addition, as the children navigate different location with different shapes, buildings, people, and colors, they can develop their aesthetic constructivism from the different shapes and objects incorporated in the game. Further, from scaffolding perspective, the board games can

motivate young players communicate with body/oral language, share skills as the more knowledgeable train the less experienced ones in a playful environment making learning enjoyable. Essentially, the play-based learning setting consistent with child-centered and DAP concepts not only facilitates the individualized attention on the learner, and as well covers the group as a whole unit (Halverson & Shapiro, 2012), children's individual strengths and weaknesses can easily be recognized and meet appropriate solutions in a naturally happy playing environment.

Aesthetic Development in Early Schooling

In accordance with Pramling (2011), the preschool should strive to ensure each child to develop their ability to convey impressions, thoughts and experiences in different forms of expressions, including play, pictures, songs and music, and dance. That is to say, aesthetics is considered to be a way for children to express themselves. The case is easy to find in children's board game playing, take DRECKSAU, ZICKE ZACKE, and PIRANHAS adopted for the study for example, those games could be incorporated into children's daily life routines, experiences, and knowledge construction. With educators' scaffolding, children's social, emotional, language, cognitive, and aesthetic development are taken care of. From Dewey's whole aesthetic experience perspective, board games application in the constructivist paradigm, through interaction with objects, plants, colors and other environmental factors, could ensure young children's sensory awareness, exploration, expression, creation and appreciation ability. Also, in Montessori program, it could keep on exerting children's cognitive learning, especially with teachers' decentralization role and the aesthetic environment preparation in a class setting. In Ertmer and Newby's (2013) research on the effectiveness of cognitive teaching methods, they observe that the incorporation of creative games certainly assist learners to gain new skills and interact in new environments. Such finding certifies that children can increase confidence, better communication skills, and enhance interaction. In the Montessori education method, play and creative activities are customized to enable the learners cultivate aesthetic awareness through painting, modelling, growing plants and art activities (Pitamic, 2009).

According to Ko & Chou, (2014) aesthetic cultivation in children relies on the materials and the way that their teacher presents to them and how they are arranged. Children learn variety when the items on display are freshly painted every day. Further, the art skills in the young learners are enhanced when they are involved in the arrangement of the items to make visually appealing displays and avoid clutter. Further, the incorporation of live plants in the classroom setting improves the aesthetic beauty of the room since they add color, fragrance, and their continuous change during growth creates daily wonder in the young learners. Consequently, many education systems have sought alternative instructional methods to enhance learning in children, including cognitive-based instructional models that are more learner-centered, like the Montessori system, and constructivism classrooms aiming at children's self-constructing knowledge through interacting with environments, have thus become popular in the western education systems.

For children enjoy playing, thus its incorporation into the curriculum makes learning enjoyable. Board games play has increasingly been integrated into teaching models for the young children because of more adoption of cognitivist educational systems, including the Piaget's and the Montessori instructional systems. The popularity of board games and their application in early childhood education also occurs due to the "child-centered development" thus making the play more accessible to a wide variety of different early schooling programs, in which children's cognitive, interpersonal, logical thinking, and aesthetic development are being integrated through play. With the popularity of learners in early childhood education are increasingly exposed to board games like chess, Monopoly, and Candyland, Goldstein (2012) observes that many educators have increased the amount of play-integrated curriculum to enhance children's art, work, and aesthetic cognizance.

To take a step further, research propose that Math (Chen et al 2012) and Chinese Chess (Yen et al, 2015) board games are interactive for individuals and teams, the challenges not only facilitate children's friendship development but also enhance critical thinking, problem solving, and social skills. Kalles & Kanellopoulos (2008) also note that board games are set in situations that allow face to face interaction among the players which is an important aspect of social learning: the learners gain skills in understanding and interpreting body language. Especially for parent-child interaction (Hinebaugh, 2009), board games improve interaction among family members by fostering stronger ties, communication, emotional and stress management skills. In a research following pre-schoolers exposed to board games, the researcher compared their performance with their peers without such exposure, Ramani et al. (2014) observed that the numeracy, interrelation, and aesthetic skills were more enhanced in the treatment population unlike in the control group.

The Montessori and the Constructivism Classrooms

Constructivism, a meaning-making theory, explains how human beings learn the nature of knowledge. With individuals constructing their new understandings through the interaction of what they already learned with which they come into newly contact, the educators play the role as a guide, facilitator, and co-explorer who is willing to encourage children to question, challenge and formulate their own ideas. According to Piaget's (1962) theory of cognitive development, children between two and seven years are in the pre-operative stage, in this stage, a child's intelligence is forged through adaptation and organization. Adaptation is the process of assimilation and accommodation, and in which they emphasize the children's ability to construct cognitively their new knowledge within stages and resolve conflicts. In board games, when a child encounters new information, the child performs the functions of assimilation and adaptation. By comparing new information with knowledge existing in mind, if the old information doesn't comply with the new one, the child will reconfigures his mind the regards to the new information, and this is cognitive development, a product of continuous effort. Recognizing that this process occurs for each individual child at a different rate helps the preschool educator to facilitate constructivist learning, constructivist educators regularly involve children in making classroom rules,

making decisions about classroom events, and engage children in conflict resolution and cooperative socio- moral discussions.

Children's learning occurs through the construction of meaning rather than through passive reception, DeVries (2004) has proposed the characteristics below for implementing a constructivist learning environment, including A. Instructional emphasis on cooperation and democracy. B. Educators' role as a collaborator and encourager. C. Classroom activities focusing on learner centered, and individual and group work. D. Children's role as an active constructor of knowledge. Consequently, through children's autonomous activities that they are interested in the constructivist classroom, they should seek for relationships and ideas. Thus, in the preschool board games setting, physical-knowledge activities also help children to construct logico-mathematical relationships and thereby increase children's intellectual power. To cut in from the constructivist view-point, learning requires self-regulation and the building of conceptual structures through reflection and abstraction, leading to the fact that children taught through interactive board game activities would contribute in children's perspective taking and friendship bridging, according to Piaget (1962), it is through cooperation that children are able to take other perspectives into account, and as children move toward mutual understanding, their social interactions can be placed on a continuum ranging from constraint to cooperation.

In the Montessori system, the independence of each learner within a regulated learning environment is emphasized; for it has been found by Montessori that the direct instruction method did not meet individual learners' social, psychological, and development needs. (Pitamic, 2009). As a result, to improve the logic skills development of the learners, Montessori system includes the use of symbols, objects, and colors in an interactive environment. Though Montessori didn't consider play an essential component of the classroom, referring to playing with dolls as a useless amusement that children are happy to trade for more meaningful work on the apparatus, Montessori saw development as unfolding the sequence of stages preprogrammed in the human species.

While advocating for increased child play in early childhood education, Ertmer and Newby (2013) support the Montessori model since it decentralizes the teacher and the learners contribute in the learning process. For example, whereas their peers have previously learned these skills and internalized them in their cognitive memory, preschoolers have to learn shapes, colors, and numbers and create new memories. Aesthetic construction is thus, considered an important aspect in the design of learning strategies for preschoolers. Considering similar goals but different means, Fisher et al. (2011) call for one constructivist approach in particular, playful learning, as a developmentally appropriate alternative to didactic instruction as a way to help preschoolers learn naturally. With the educational process basing on children's self-direction, the task of the Montessori teacher is to make the child the centre of learning, and is to be responsible for establishing the interrelationship between the children and their environment (Cobb & Steffe, 2010). The decentralization of education eliminates the role of the traditionally privileged teacher who now is compatible with the idea

of shared authority. Teacher is then assumed as a facilitator, so that children may engage in and criticize education they are receiving. Furthermore, children's creative problem solving skills are enhanced (Montessori, 2013). Lillard (2011) proposes that Montessori education is to some extent like playful learning in objects, lessons, freely chosen, child directed, peer involvement possible, fun, and intrinsic rewards. To conclude, many of the outstanding aspects of Montessori's work conforms to an environment conducive to both self-directed individual learning and cooperative group learning; the decentering of the teacher, and sequential progressive skill development.

METHOD

Participants

56 children aged 60-72 month from a Constructivist and a Montessori classroom were enrolled in two preschools in Southern Taiwan. The two classrooms were judged to be representative of their respective theoretical foundations. For example, teachers which serve to facilitate children's constructing knowledge through this process in the Constructivist classroom found opportunities to encourage children to think, reason, and solve problems by group discussion; Teachers in the Montessori classroom served as demonstrators and observers, and the classroom contained the already prepared didactic materials found in Montessori classroom.

Instruments

Firstly, Aesthetic Curriculum Outlines for Preschool Activities designed by Taiwan Education Bureau were served as the standard to collect children's aesthetic experience from their art work. Secondly, confirming Piaget's stage-development structures, Selman (1980) demonstrated in a natural observation setting, the nature of children's personal feelings and interpersonal understanding can be observed through their social interaction with peers. Instrument of seventy-five items used in this study was adopted from DeVries, Reese-Learned, and Morgan (1991) based on Selman's (1980) conceptualization of enacted interpersonal understanding at three levels of negotiation strategies (NS) and shared experiences (SE). Thirdly, the instrument consisted of questions adopted partly from DeVries, Reese-Learned, and Morgan (1991) concerning classroom rules, punishment, and friendship were added. Answers were collected in interviews with each child in individual sessions with the researchers.

Procedures

Board game situation

The commercially produced board game "DRECKSAU, ZICKE ZACKE, and SLEEPING QUEENS" were used to provide a context for children to be motivated to cooperate or compete with the peers. The game roles include pigs, chickens, and queens, which roles are highly interrelated with children's life experiences and knowledge. With the board games full of

aesthetic elements which are arranged together with children's familiar story books; therefore, in such a context, children were strongly motivated to explore, negotiate, communicate, express, solve conflict, and share experiences within the natural board game settings.

Coding of Enacted Interpersonal Relations

While watching the videotapes, each classroom having 3 observers (preschool educators) who thoroughly understand Selman's three levels of NS and SE would mark a unit of behavior when it fit one of the 75 enacted interpersonal understanding items of Selman's scale. The Selman's scale which was adopted by 6 observers was translated into Chinese version by the research herself. After finishing the marking, three observers solve the disagreements through watching the videotapes together. Before school life interview conducted with each of the children, the researchers explained what was happening clearly to the children and also gained all parents' agreements.

Aesthetic Experience

Aesthetic Curriculum Outlines for Preschool Activities designed by Taiwan Education Bureau served as the standard (exploration and awareness, expression and creation, and response and appreciation) for 6 preschool educators to collect and analyze children's aesthetic experience from their art work, including line art, tempera, stickers, crafts, paper work, clay, and drawing with different materials.

RESULTS

Children's Interpersonal Understanding in Board Game Play

In order to test the hypothesis that children's interpersonal understanding in the Constructivist and in the Montessori classroom would make a difference regardless of friendship pairings, frequencies for NS and SE were tested using a chi-square analysis (see **Table 1**). Results indicated that there was a significant difference in both NS and SE in the two classrooms (NS, $\chi^2 = 187.65$, $p < .001$, $df = 2$; SE, $\chi^2 = 598.38$, $p < .001$, $df = 2$).

Table 1. Frequency and Percentage (in parentheses) of Negotiation Strategies (NS) and Shared Experiences (SE) of Children at Three Levels in Constructivist and Montessori Programs

	Negotiation Strategy Developmental Level			Total
	NS 0	NS1	NS2	
Constructivist	282 (4.0)	6130 (87.1)	626 (8.9)	7038
Montessori	128 (6.2)	1917 (92.4)	248 (4.4)	5630
<i>Total</i>	<i>586</i>	<i>11208</i>	<i>874</i>	<i>12668</i>

	Shared Experience Developmental Level			Total
	SE 0	SE1	SE2	
Constructivist	280 (14.1)	1306 (65.8)	400 (20.1)	1986
Montessori	698 (63.3)	219 (19.9)	184 (16.8)	1101
<i>Total</i>	<i>978</i>	<i>1525</i>	<i>584</i>	<i>3087</i>

Table 2. Frequency and Percentage (in parentheses) of Level 2 Negotiation Strategies Subcategories Adopted by Children in Constructivist and Montessori Programs

Classroom	Level 2 Negotiation Strategies Subcategories			Total
	CPM F	FAIR	JWE	
Constructivist	131(21)	106 (17)	156 (25)	393/626 (63)
Montessori	69 (28)	24 (10)	14 (6)	107/248 (44)

$\chi^2 = 15.227, p < .05, df = 2$

Table 3. Frequency and Percentage (in parentheses) of Level 1 Negotiation Strategies Subcategories Adopted by Children in Constructivist and Montessori Programs

Classroom	Level 1 Negotiation Strategies Subcategories			Total
	AA&TAT	CLA	OFF	
Constructivist	551 (9)	674 (12)	490 (8)	1715/6130 (28)
Montessori	761 (15)	1421 (28)	1472 (29)	3564/5078 (72)

$\chi^2 = 153.72, p < .05, df = 2$

These results indicate the two programs were almost identical for the percentage of Level 1 NS, but they were different in Level 2 NS.

It is clear from **Table 1** that the children in the Constructivist classroom had a higher proportion of Level 2 NS than the children in the Montessori classroom, while the children in the Montessori classroom mainly used Level 1 NS. More specifically, the Constructivist children showed higher proportions than the Montessori children of the following subcategories of NS Level 2 (see **Table 2**).

Children in the Montessori classroom showed higher proportions than the ones in the Constructivist classroom in the following NS Level 1 strategies (see **Table 3**).

Table 4. Frequency and Percentage (in parentheses) of Level 2 Shared Experiences Subcategories Adopted by Children in Constructivist and Montessori Programs

Classroom	Level 2 Shared Experiences Subcategories			Total
	ELA	PSE	TAA	
Constructivist	140 (35)	92 (23)	20 (5)	252/400 (63)
Montessori	17 (9)	22 (12)	18 (10)	57/184 (31)

$\chi^2 = 14.078, p < .05, df = 2$

Table 5. Frequency and Percentage (in parentheses) of Level 0 Shared Experiences Subcategories Adopted by Children in Constructivist and Montessori Programs

Classroom	Level 0 Shared Experiences Subcategories			Total
	SIL	SOL VMI	SMIM	
Constructivist	14 (5)	34(12)	14 (5)	62/280 (22)
Montessori	181 (26)	168 (24)	175 (25)	524/698 (75)

$\chi^2 = 13.836, p < .05, df = 2$

Table 6. Frequencies and Percentages (in parentheses) Reported by Classroom and Friendship Pairings for Negotiation Strategies

Classroom	Pairings	Negotiation Strategies Developmental Levels			Total
		NS 0	NS 1	NS 2	
Constructivist	Friend	157 (4.3)	3141 (86.7)	325(9)	3623
	Acquaintance	125 (3.7)	2989(87.5)	301(8.8)	3415
Montessori	Friend	168 (5.4)	2815(91.1)	109 (3.5)	3092
	Acquaintance	136 (5.3)	2263 (89.2)	139 (5.5)	2538
<i>Total</i>		<i>586</i>	<i>11208</i>	<i>874</i>	<i>12668</i>

$\chi^2 = 178.25, p < .001$

Comparing Level 0 SE between the two groups (cf. [Table 6](#)), it is clear that the children in the Constructivist program used a lower percentage of Level 0 Shared Experiences than the children in the Montessori program, while for Level 2 SE, the children in the Constructivist classroom used a higher percentage of Level 2 Shared Experiences than the children in the Montessori classroom. Taking a closer look at the categories that children in the two classrooms adopted provides a clearer picture of their styles of interaction. The Constructivist children showed higher proportions of the following Level 2 Shared Experiences than the Montessori children (see [Table 4](#)).

Montessori children showed higher proportions of the following Level 0 Share Experiences strategies than the children in the Constructivist classroom (see [Table 5](#)).

Friend/Acquaintance Pairings within the Classroom Environment. While friendship pairings alone did not show a difference in NS or SE, perhaps when the classroom

Table 7. Frequencies and Percentages (in parentheses) Reported by Classroom and Friendship Pairings for Shared Experiences

Classroom	Pairings	Shared Experience Developmental Levels			Total
		SE 0	SE 1	SE 2	
Constructivist	Friend	120 (12.0)	691 (69.2)	187(18.8)	998
	Acquaintance	160 (16.1)	615 (62.2)	213 (21.7)	988
Montessori	Friend	373 (64.4)	121 (20.9)	85(14.7)	579
	Acquaintance	325 (62.3)	98 (18.8)	99 (18.9)	522
<i>Total</i>		978	1525	584	3087

$\chi^2 = 468.61, p < .001$

Table 8. Frequency and Percentage (in parentheses) at Three Levels of Negotiation Strategies (NS) and Shared Experiences(SE)of Children in both Classrooms with Friendship and Acquaintance

	Negotiation Strategy Developmental Level			Total
	NS 0	NS 1	NS 2	
Friend	313 (40.7)	5889 (88.3)	470 (7.0)	6672
Acquaintance	273(4.6)	5319 (88.7)	404 (6.7)	5996
<i>Total</i>	586	11208	874	12668

	Shared Experience Developmental Level			Total
	SE 0	SE 1	SE 2	
Friend	503 (31.9)	798 (50.8)	271 (17.3)	1572
Acquaintance	475 (31.3)	727 (47.9)	313 (20.8)	1515
<i>Total</i>	978	1525	584	3087

Table 9. Frequency and Percentage (in parentheses) of Level 1 Negotiation Strategies Subcategories Adopted by Friends and Acquaintances in both Classrooms

Pairings	Level 1 Negotiation Strategies Subcategories			Total
	JAU	JME	OFF	
Friend	1296 (22)	942(16)	766 (13)	3004/5889*
Acquaintance	372 (7)	319 (6)	426 (8)	1116/5319*

*Refers to total frequencies in Level 1 for Friend and Acquaintance

$\chi^2 = 39.192, p < .001, df=2$

environment is considered there would be a difference. Frequencies for NS (see **Table 6**) and SE (see **Table 7**) were categorized by classroom environment and friendship pairings. Results indicated that there was significant difference in both NS and SE based on friendship and acquaintance pairings in two classrooms (NS, $\chi^2=178.25, df = 6$; SE, $\chi^2 = 468.61, df = 6$).

It is clear that concerning children’s enacted interpersonal understanding, classroom specific environment overcomes the effects of friendship pairings. Significantly, both pairings behaved similarly within the expectations of their classrooms: children with both friends and acquaintances in the Constructivist classroom exhibiting more level 2 NS and less level 1 NS

Table 10. Frequency and Percentage (in parentheses) of Level 1 Negotiation Strategies Subcategories Adopted by Friends and Acquaintances in both Classrooms

Pairings	Level 1 Negotiation Strategies Subcategories			Total
	CPT	CRI	DEM	
Friend	942 (16)	294 (5)	236 (4)	1472/5889 (25)
Acquaintance	1489 (28)	851 (16)	1596(30)	1656/5319 (74)

$\chi^2 = 89.037, p < .001, df=2$

Table 11. Frequency and Percentage (in parentheses) of Level 2 Shared Experiences Subcategories Adopted by Friends and Acquaintances in both Classrooms

Pairings	Level 2 Shared Experiences Subcategories			Total
	COMFT	FT	SEC	
Friend	81(30)	43 (16)	68 (25)	192/271 (71)
Acquaintance	28 (9)	16 (5)	31 (10)	75/313 (24)

$\chi^2 = 3.907, df=2$

Table 12. Frequency and Percentage (in parentheses) of Level 2 Shared Experiences Subcategories Adopted by Friends and Acquaintances in both Classrooms

Pairings	Level 2 Shared Experiences Subcategories			Total
	APOL	TAA	TEA	
Friend	33(12) (11)	22 (8)	38 (14)	93/271 (34)
Acquaintance	69 (22)	85 (27)	78 (25)	232/313 (74)

$\chi^2 = 2.098, df=2$

and in the Montessori classroom exhibiting much less level 1 and 2 SE and much more level 0 SE.

Effects of Friendship

With the hypothesis that friendship and acquaintance pairings would make a difference, the results revealed that there was no difference in NS and SE based on friendship pairings (NS, $\chi^2 = .664, df = 2$; SE, $\chi^2 = 5.993, df = 2$).

The percentages in each level of NS and SE are nearly identical. Most of NS and SE for all groups are found at Level 1. Among Level 1 NS, 51% of friend pairings used the following NS compared to 21% for acquaintance pairings (see [Table 9](#)).

In contrast, 74% of acquaintance pairings used the following NS Level 1 categories as compared to 25% for friends (see [Table 10](#)).

As in NS, we find that more children in friend pairings used SE items that may be defined as pro-social (see **Table 4**); while more acquaintance pairings tended to use items that are not perceived as pro-social (see **Table 11**).

Friend pairings mainly adopted the following Level 2 SE items more than acquaintance pairings (see **Table 11**).

For acquaintance pairings in Level 1 SE, the distribution does not appear to favor any particular set of categories over another. However, in Level 2 SE acquaintance pairings chose the following items more than friend pairings (see **Table 12**).

Thus, on one side, all children primarily used Level 1 NS and SE strategies, the strategies that friends used and the strategies that acquaintances used showed a clear (yet not significant) difference. Besides, in both NS and SE, the friends are seemingly modelling more pro-social behaviors even with similar developmental levels.

Children's Response on Their Classrooms Life

Classroom Rules. The difference between the two classrooms lay in the ownership of classroom rules. In the Constructivist program, including friendship, negotiation, sharing, respect, and playing rules, more different explicit rules were made by children to follow together. As for children in the Montessori classroom, they mentioned they need more assistance from teachers about rules in board game playing and individual learning.

Friendship. In both classrooms, children have similar concepts of friendship. Those children who always play with often or who sit near them are considered as friends. In this study, children's daily peer social interaction, including negotiating, sharing and solving problems are defined as friendship.

Children's Aesthetic Experience

With the art work, children's aesthetic experience makes the research so rewarding because children in two programs carried the classroom so much deep and insightful discussions, and the vocabularies expression they talk also enhanced: balance, elegance, grace, harmony, order, simplicity, modesty, and gentility. Children become more active in discussing things aesthetically from their sensory looking, hearing, touching, smelling, and tasting.

DISCUSSION

Effects of Classroom Environment

There are significant differences in children's interpersonal understanding between two classrooms, and the results were in tune with what DeVries and Goncu (1988) have found on children's interpersonal awareness of different socio-moral classroom environments in western culture. Also, the difference in the friendship and acquaintance pairings have resulted in different percentages in children's adopting of sub-categories within NS and SE, revealing

importance of children's friendship that certainly relates to their social development consistent with research results (Burgess et al, 2006; Laursen et al, 2007; Rubin et al, 2011). Furthermore, in accordance with Piaget (1962), preoperational children are mainly egocentric during play. However, before moving from subjective to objective mutuality and placing themselves in another's perspective, the preoperational stage of children's egocentric play is a necessary stage. The results of the children's distinctive behaviors in adopting mature pro-social sub-categories demonstrated that holding the likeness of friendship, friend pairing children were more likely to adopt more mature behaviors.

Children's School Life Interview

Similar to what DeVries, Reese-Learned, and Morgan (1991) revealed, in attitudes toward classroom management, the teacher's role, punishment, respect for others, friendships, rules, and voting in the classroom, children in the Constructivist classroom have expressed higher level of interpersonal understanding.

Children's Aesthetic Experience

Consistence with Fenner (2003), there are three range of associations which we may make in having an aesthetic experience, including children's recalling their past experience, associating a certain emotion with the object, and making a connection in thinking about the object to another one sharing similar property. Also, conforming to Wickman (2006) Dewey's aesthetic experience, an experience is a bounded organic whole, in this research, when researchers observe children's playing board games and doing art work, it seems that when a moment is sufficient to itself, and this aesthetic experience is individualized.

Limitations

Firstly, with the children were not randomly assigned and only two classes were involved, the differences in the two classrooms might be due to the teachers, not the programs. Secondly, ambiguities might exist between the English and Chinese for Selman's conceptualization of children's enacted interpersonal understanding.

Suggestions

In light of the fact the differences in children's adopting different behaviors within negotiation strategies in two classrooms and between the friend and acquaintance pairings were found, further research is needed to identify the category of certain behaviors and the difference existing within two classrooms. Further, in terms of small sample, age and gender variance, further research could be conducted to probe the difference between preschool and elementary children, which might provide a clearer implications for the curriculum design in Taiwan.

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