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ABSTRACT

Using the theoretical framework of hermeneutics and guided by the conceptual framework of Developmentally and Culturally Appropriate Practice, two studies examined how preschool teachers perceive young children's gender differences in relation to the pedagogical considerations. Participants in Study 1 were 121 early childhood educators attending workshops on gender differences in the classroom. The teachers produced 113 different words to describe preschool boys and 98 to describe preschool girls. A wider range of behaviors were described for boys than for girls and there was a higher level of agreement on the three most common descriptors for boys (active, loud, aggressive) than for girls (quiet, talkative, sensitive). Teachers perceived boys to have more of the qualities of constructivist learners than girls, and more initiative and capacity for independent learning. Study 2 examined the meaning attached to these descriptors by others. Thirty-one early childhood practitioners completed surveys regarding the positive/negative nature of each descriptor and perceptions of children described with the most common descriptors for boys or for girls. The findings suggest that the female teachers tend to be less appreciative of boys' ways of playing, and constructing and using knowledge than those of girls. While many constructivist learner qualities are identified more often for boys than girls, overall the teachers' perception of the boys' group was as less "teachable" and "easy to work with" than the girls' group. (Contains 45 references.) (Author/KB)

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Examination of Preschool Teachers' Biased Perception on Gender Differences

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Note: This paper is the first version of Hyun & Tyler's (1999) latest study on preschool teachers' perception on gender difference of young children. Any quote from this report needs to be consulted by the authors.

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Abstract

Based on theoretical understandings of biological sex differences of young children and social-culturally oriented gender-based differences, we attempt to explore and discuss preschool teachers' understanding of gender differences of young children. This research article reports how the preschool teachers perceive young children's gender differences in relation to their pedagogical considerations. This research was driven by the theoretical framework of hermeneutics and guided by the conceptual framework of Developmentally and Culturally Appropriate Practice (DCAP; Hyun, 1998).

Conceptual Framework for the Study

Throughout human history, females have often been viewed as the subordinate of males or inferior to males in terms of intelligence, strength leadership qualities, and other intrinsic characteristics (Broughton, 1987; Cannela, 1997; Walkerdine, 1988). Many thoughtful and critical thinkers from both the feminists' and humanistic perspectives have articulated this notion. One of the 20th century's most stable social, political, educational, and intellectual debates centers on gender fairness that focuses on "equity" issues. The current research does not attempt to support either side of this ideological struggle. Rather, given research-based biological sex differences of human beings and social-culturally oriented gender proficiencies, we attempt to explore and discuss preschool teachers' understanding of gender-based differences of young children. This

research article reports how preschool teachers perceive gender differences in young children in relation to their pedagogical considerations.

Developmental psychologist Arnold Gesell argued forcefully at the turn of the century that biology was the largest determiner of human behavior (Cole & Cole, 1989) while at the same time Sigmund Freud (Feldman, 1998) was arguing that nurture is the primary arbiter of human emotion and behavior. The debate has continued with each side gaining primacy at various periods in the 20th century (Hamer & Copeland, 1994; Kagan, 1998).

From the first moment of conception, the presence or absence of a Y chromosome develops the biochemical environment for the fetal brain and sex organs, and it dramatically shapes them (Diamond & Hopson, 1998). Sex hormones affect brain development and neural activity in most animal species, and they do so in humans as well (Hines & Green, 1991). According to H. Hanlon (1996) there is a different rate of brain growth between human males and females at about two years of age: boys' brains growing faster than girl's at about age two. Later variances in brain growth lead to separate development rates for different parts of boys' and girls' brains. Hanlon claims that language, memory, and decision making predominate early in girls, and spatial reasoning, vision, and aiming at a target bloom early in boys. Hanlon's brain research also theorizes that the profiles switch in the two sexes at about age eight and balance out, with faster growth in the brain areas that handle language, memory, and decision-making in boys, and in the spatial, visual, and targeting areas in girls (Diamond &

Hopson, 1998). This information indicates that there are biological differences in brain development of the two sexes during the early childhood period.

Early on, hormones also affect young children's play styles, leading to rough, noisy movements among most boys and calm, gentle actions among most girls (Maccoby, 1988, 1990). According to Kimura (1992), little boys engage in rough-and-tumble play much more often than little girls. As early as age three, boys are better at aiming and catching objects. This simple skill leads to a generalization: Boys and men are generally better at rotating objects mentally and at navigating using geometric cues, angles, shapes, and compass points to solve spatial problems. In contrast, girls and woman are better at recalling landmarks and they tend to use these remembered cues when navigating or solving spatial problems. Later, these sex differences interplay with social-cultural influences which lead to gender-based proficiencies. Males tend to excel at mathematical reasoning while females tend to be better at arithmetic calculations, manual dexterity, verbal fluency, and at perceptual speed tasks (Diamond & Hopson, 1998). These differences are not only biologically formed proficiencies but also social-culturally formed gender-based proficiencies. Such gender differences appear in young children's play, development, and their various learning contexts.

Perry (1994) reported that if abuse and neglect occur between ages of two and five, it is likely to affect brain regions that regulate emotional and psychological mood and cognitive thinking. Girls are more likely to react by dissociation such as, daydreaming, fantasizing, and going numb, while boys are more likely to become physically and emotionally aggressive. Perry estimates that more than 3 million U.S.

children experience extreme abuse or neglect each year. Thus, gender differences in young children also appear to be influenced by trauma in the environment.

In addition to the biologically based sex differences discussed earlier, cultural influences also promote differences between the genders. Research has demonstrated that the human brain undergoes physiological changes as a result of experiences. In discussing this phenomenon, Shore (1996) states that evolution has equipped the human species with an "ecological brain," dependent throughout its life on social-cultural environmental input. This creates a reciprocal relationship wherein the environment influences the functioning ability of the brain: an individual's phenotype. At the same time the environment affects the phenotype, genes influence the way the environment is interpreted (Wolfe & Brandt, 1998). Ecological human brain lead our understanding of sex differences to gender differences (Hyun, 1999).

In almost every human culture, adults view boys and girls differently and they treat them differently. This variation in the way the environment responds to children helps to shape sex-role behaviors as socio-culturally expected gender-based behavior (not to mention the culture of power struggle that females face in most every culture. Cannella, 1997). Children's social contexts such as home, school, and community offer many opportunities to observe other people behaving in ways consistent with gender stereotypes. Because of the biases that adults maintain about gender and children's behavior, these differences may be artificially and unnecessarily encouraged without consideration of an individual child's interests. In addition, due to the contemporary media culture, children are inundated with media-developed role models. Figures in movies, television commercials, cartoons, professional athletes, and various

types of video game characters provide detailed representations of stereo-typical female and male roles (Carlsson-Paige & Levin, 1987; Isenberg & Jalongo, 1997; Levin, 1998). As soon as preschool age children enter the world of the peer group, their peers also encourage conformity to gender roles. Social pressures for gender-oriented play is believed to generalize beyond the classroom into other aspects of society as well. As children grow and begin to interact with peers, they tend to choose play partners whose interests and behaviors are compatible with their own (Berk, 1997).

Harry Chugani (1994) found that the brain's metabolic activity peaks during the early childhood period, around age two, then burns sugar at a high rate until ages eight to ten. At that time, sugar use declines steadily until, at age sixteen to eighteen, it "bottoms out" at adult rates. Chugani believes that the brain of two- to ten-year-old children must burn more cellular fuel to support the huge forests of branching neurons, each with their 10,000 branches synapsing on 50,000 others. Thus, in general, young children are naturally active during early childhood periods (ages 0 - 8 years). But, the level and type of activity is different between boys and girls. These gender-based differences are due to influences from both nature and nurture.

Genes influence human behavior, and human behavior, in turn can influence how the genes function and how the child grows and develops within the culture he/she encounters. In a social-cultural context like the U.S., boys tend to be encouraged to take more math and science courses, their experiences in these classes stimulate and shape the ecological human brain, and not surprisingly, their test score tend to be higher in these areas. On the other hand, girls tend to develop verbal skills at an earlier age than boys, and the praise they receive as well as the experience they accumulate

feeds back into verbal capacity, heightened experience, expanded receptivity to words, and ever greater fluency. Most researchers agree that while influential, genes do not simply predetermine human behavior; environment also plays a role (Hamer & Copeland, 1994; Kagan, 1998).

Young children are biologically and developmentally different from adults. Children in the early childhood period (up to age 8) go through biological dynamic changes in their brain development, which is different in each sex--determined by genes. In addition, due to the human act of nurture in any social-cultural conditions, young children's sex-based differences transform as gender-based differences --social-culturally shaped behavioral proficiency in boys and girls. How well do we, as teachers of young children, understand this gender-based difference in young children? How well are we able to respond properly the gender-based differences to maintain truly meaningful, equal, fair, and gender congruent teaching and learning environments? Currently there is not enough research to provide a clear understanding of how early childhood teachers or education practitioners perceive gender differences and gender congruencies in young children in relation to the teachers' pedagogical consideration (e.g., Cahill & Adams, 1997; Fagot, 1985; Oettingen, 1985; Robinson & Canaday,1978). Australian researchers MacNaughton (1997a, 1997b) and Sims (1997) studied gender issues in early childhood education. These researchers focused on children's perspectives on gender differences, while the current research focuses on teachers' perspectives related to their gender congruent pedagogical consideration.

Research Purpose and Questions

This study attempts to examine how stereotypical gender-based differences of preschoolers are perceived by early childhood practitioners. Gender-based difference means young boys' and girls' differences driven by not only genetic (nature) influences but also social-cultural influences (nurture). The purpose of this study was to explore how early childhood practitioners perceive young boys and girls in the classroom. Specific research questions include: Are the perceptions that practitioners have of young boy and girls significantly different? If there is a difference, what is the nature of that difference? How do early childhood practitioners perceive the differences reflected in their pedagogical consideration? This study was started as a hermeneuticically emerging qualitative study expanding on the notion of Developmentally and Culturally Appropriate Practice (DCAP)* (Hyun, 1998; Hyun, 1996; Hyun & Marshall, 1997; Hyun & Marshall, 1996) in early childhood education.

Research Perspectives and Scope

> Theoretical Framework for the Emerging Research Methods:
> Contemporary hermeneutics is concerned with ways to explain, translate, and interpret perceived reality. In contemporary research, a concern with hermeneutics is a concern for interpreting and recounting accurately the meanings which research participants give to the reality around them. (LeCompte & Preissle , 1993, p.31)
>
> What are the conditions under which a human act took place or a product was produced that makes it possible to interpret its meanings (Patton, 1990)? This hermeneutic perspective has guided us in our exploration of the research on preschool teachers' perceptions of gender differences in young children.

* DCAP is a metacognitive framework that is designed for early childhood teachers to think and act critically, ethically, and reflectively about their daily practice to bring an equal, fair and culturally congruent teaching and learning environment for ALL young children. Teacher's use of multiple and multiethnic perspective-talking abilities are the key to DCAP (see Hyun, 1998; Hyun & Marshall, 1997)

Snips and snails and puppy dog tails, that's what little boys are made of. Sugar and spice and everything nice, that's what little girls are made of. Of course, nursery rhymes do not really capture the essence of early childhood boys or girls. However, those rhymes may capture our biased perception of human behavior (Tyler & Hyun, 1999).

During 1997-1998, as a university-community partnership activity, we (the two researchers, one from an early childhood teacher education program, the other from counselor education) were asked to provide a workshop on how to deal with boys in early childhood settings. The workshop was to be presented at a regional annual childcare provider-training program. The coordinator of this training program believed that since many childcare providers frequently express concerns regarding how to deal with boys and their behavior in the classroom, a session on gender differences would be well received. The coordinator also mentioned;

> *"sometimes it is more than concerns, but rather complaining about boys' behavior in general in comparison with girls' in the classroom."*

The childcare providers who were the workshop participants had education background ranging from high school diploma and no specialized early childhood preparation, to CDA credentials or AA degree in early childhood education (ECE) or child development (CD). A few had a baccalaureate degree in ECE/CD. These teachers served children with all diverse backgrounds.

Based on the background information provided, two similar two-hour workshops were developed and provided. The titles of the workshops were " Boys! Boys! Oh, My the Noise!" and "Boys and Girls are Different: Responding to Gender Differences in

the Classroom." These two workshops were provided to two different groups of childcare providers in Southwest Florida.

During the two workshops, a total of 121 teachers were asked to describe the preschool boys and girls in their classroom. Working in small groups of four to five teachers at each table, they talked to each other and shared their perceptions of boys and girls. They then used "post it" note pads to write the words that they believed best describe preschool boys and girls. The words were then posted on the walls of the room where the workshop took place.

This activity generated a list of 113 different words that were used to describe preschool boys and 98 different words that were used to describe girls. (Table 1 and Table 2)*. The differences appear in not only the words they used but also the total quantity of the responses generated. There was only one male teacher among the 121 teachers who participated in these workshops. Thus, Table 1 represents 99.2 % female teachers' responses.

Based on Table 1 and 2, it appears that these teachers described a wider range of behaviors for boys than girls. In addition, these teachers had a higher level of agreement on the three most common words used to describe boys (active, loud, and aggressive) (see Table 2 Group 1:Boys) when compared to the three most common descriptors for girls (quiet, talkative, and sensitive). Based on all the descriptive words collected (the original data, see Table 3), it was teachers' descriptions indicated substantial differences in perceptions of boys and girls. These varying perceptions

* As an initial stage of data reduction, we used "number" for a simple quantitative comparison as an analytical choice to allow a story to evolve (Miles & Huberman, 1994, see page 11.)

included many stereotypical descriptors such as "destructive" or "loud" for boys and "creative" or "quiet" for girls.

The teachers' responses, which represent their perceptions of young boys and girls, raise several concerns regarding gender biases the classroom. A look at those adjectives that begin with "A" provides an example of these biases. For boys, teachers chose the following adjectives: "active", "aggressive", "agitators", "argumentative", and "attention seekers". Contrast this against the adjectives chosen to describe girls: "actresses", "affectionate", "artistic," and "attentive" (see Table 3). In spite of the fact that girls can be "active" and boys can be "affectionate," these teachers tend to label and separate children simply by gender, which may lead to inaccurate stereotypes in classroom practices.

Table 1: Quantity of the Teachers' Responses on Each Gender:

Gender	Words used	Total quantity of responses
Boys	113	241
Girls	99	156

Table 2: Frequently Mentioned Descriptive Words in Each group:

Group 1 (Boys)	Group 2 (Girls)
1. **Active** (26)* 2. **Loud** (16) 3. **Aggressive** (14) 4. **Energetic** (6) **Noisy** (6) **Physical** (6) 5. **Creative** (4) 6. **Busy** (3) **Curious** (3) **Hyper** (3) **Inventive** (3) **Risk takers** (3) **Stubborn** (3)	1. **Quiet** (8) 2. **Talkative** (7) 3. **Sensitive** (6) 4. **Like to and/or want to please** (5) 5. **Artistic** (4) **Bossy** (4) **Creative** (4) **Manipulative** (4) **Whiny** (4) 6. **Social** (3)

Note: The thirteen above words were appeared more than three times. Last of the 100 words were appeared less than two times in the original data list.	Note: The ten above words were appeared more than three times. Last of the 89 words were appeared less than two times in the original data list.

* Numbers in ( ) show how many times the each word used by the teachers when they described about their preschool boys and girls.

Table 3: Lists on Teachers responses for boys and girls

Boys (A-F)	(F-N)	(N-Z)
Active (26)	First in line	Number one ego problem
"Active learners on the floor"	Flattering	One-on-one mothering love
Admiring	Freight train	Out going
Aggressive (14)	Funny (2)	Persistent
Agitators	Good small-motor skills	Physical (6) (1p-rough)
Always on the move	Hands-on	Physically aggressive
Annoying	Helpful	Play ground leaders
Argumentative	High spirited	Playful
Attention seekers (2)	Hostile	Problem solvers
Boisterous	Hyper (3)	"Power Rangers on the move"
Bossy (2)	"I must play with truck"	Pushing-shoving
Builders	Imaginative	Push-tend to push and touch
Bully	Immature	Questioning
Busy (3)	Impatient (2) (1p-"right now")	Responsive
Caring	Impulsive	Restless
Center of attention	Independent (2)	Risk takers (3)
Challenging	Initiates conversations	Rough (2)
Choosy	Instruction	Rowdy (2)
Comical	Inventive (3)	Running
Competitive (2)	Involved	Sensitive
Communicate physically	Into gore and scary stuff	Short attention span
Constructive	Large muscle play	Shorter interest
Constant movement	Large muscle	Sly
Concerned	Leaders	Some quit time
Curious (3)	Lovable	Speak out
Creative (4)	(very) loving and need to be	Strong
Daring	Loved	Strong willed
Defiant	Loving (2)	Stubborn (3)
Destructive	Loud (16)	Take-charge
Dominating	Manipulative	talkative (2)
Does not listen to female	Mischievous (2)	Tender
"Don't want to participate in music and dance creative movement"	More kinesthetic	"Testing who rules & what the rules are"
	Mouthy	Tumble with each other
Egocentric	Many	Verbal
Energetic (6)	Movement	Very smart
Excitable	Moving	Wild
Fighting	Noisy (6) (1p-sound effects)	Wrestlers/wrestling (2)
	Non compliant	
	Non-sharing-works alone	
	Not very good listeners	

Table 3 continued

Girls (A-F)	(G-P)	(Q-Z)
Actresses	Gentle(more gentle rather than aggressive)	Quiet (8)
Affectionate	Giggly	Reserved (2)
aggressive	Girly-girls	Sassy
Always want attention	Groupie	Screamers
Artistic (4)	Good listens	Sensitive (1p.more sensitive than boys) (6)
Attentive	Gossiping	Share personal thoughts
Bossy (4)	Helpful (2)	Sharing items
Busy (3)	Helpers (2)	Shy
"Can be pretty much the same as boys"	Hides true feeling	Skillful
Careful	Housekeeping	Slow to move
Caring	Hugging	Small muscle
Cleaners	(feelings easily) Hurt	Smart
Cling	Interactive play	Sneaky (2)
Close	Kind (2)	Social (3)
Conscious of self (prime & proper)	Listen well (pay attention) (2)	Sweet (2)
Compassionate	Lovable (2)	Tattle more often
Compliant (2)	Loving (2)	Talkative (7)
Concerned (of others)	Loud	Tea parties
Concerned over friendship	Mammy roles	Tender
(socially) Concerned (2)	Manipulative (4) (1p. manipulative talkers)	The teachers
Confident	Manipulators	Tricky
Cooperative (2)	Mean	Verbal
Creative (4)	Mellow	Want to keep clean
Curious	Neat	Whinny (4)
Dependent	Negotiator	Whisper and tell secrets
Domineering	Nurturing (2)	
"Don't like to play with boys"	Ordered	
Emotional (2)	Organized (2)	
Enjoy music and movement	Organizer (2)	
Excited	Outgoing	
Enjoy quiet activities	Patient (more than boys)	
Focused	Persuasive	
Follows rules	Physical affection	
Friendly	Playful	
Friendly play	(Like to/want to) please (5)	
Fun	Pretend	
	Problem solvers	

Table 4: Descriptive Words and Frequency of the Words Used for Both Groups

Words	Boys	Girls
Aggressive	14	1
Bossy	2	4
Busy	*3*	*3*
Caring	1	1
Creative	*4*	*4*
Curious	3	1
Lovable	1	2
Loving	*2*	*2*
Loud	16	1
Manipulative	1	4
Outgoing	1	1
Playful	1	1
Problem solver	1	1
Sensitive	1	6
Tender	1	1

Table 4 presents words that used for both groups with different frequency. The word "aggressive" was mentioned for both groups, but with a significant difference in frequency (Boys 14, Girls 1). The same was seen for the word "loud" which was associated with boys 16 times, and with girls only 1. These descriptors indicate that boys are perceived as more aggressive and louder than girls. "Sensitive" was mentioned for both groups, but again was more commonly associated with girls than boys. The term "curious" was also mentioned in both groups, but in this instance, it was more often associated with boys. Only three words, "busy," "creative," and "loving" were used by more than 2 respondents and used equally to describe both boys and girls.

The data (Table 3), was also viewed from a constructivist perspective, which is considered one of the important orientations in U.S. early childhood education for developmentally appropriate practice (DAP) (Bredekamp & Copple, 1997). Table 5 presents some of the words from the descriptions of the both groups that reflect qualities of a constructivist learner.

Table 5: Words From the Descriptions of the Both Groups That Reflect a Constructive Learner's Quality.

Boys	Girls
"active" (26)	"cooperative" (2)
"builders" (1)	"creative" (4)
"challenging" (1)	"curious" (1)
"constructive" (1)	"negotiator" (1)
"creative" (4)	"organizer" (2)
"curious" (3)	"problem solver" (1)
"hands-on" (1)	"skillful" (1)
"independent" (2)	"social" (3)
"inventive" (3)	
"problem solver" (1)	
"questioning" (1)	
"responsive" (1)	
"risk takers" (3)	
"speak out" (1)	

Based on the data from Table 5, it appears that teachers perceive boys to have more of the qualities of constructivist learners when compared to girls. In addition, boys may be perceived as having more initiative and capacity for independent learning than girls. Girls may be perceived as more socially interactive and supportive in their dealings with others. This observation made us to wonder how teachers maintain constructive learning environment that would respond gender fair and gender congruent learning experiences in their classrooms.

Interactions with the groups of 121 teachers suggested to the researchers that the teachers' descriptions of preschool boys and girls were distinctively different from each other and that these descriptions contained a high level of gender bias. However, it was unclear what meaning the preschool teachers assigned to the various descriptors that had been used. This lack of clarity led the researchers to a hermeneutics-based inquiry

focusing on identifying the meaning that others assigned to these descriptors. Based on the apparent differences identified, a question emerged about the nature of the difference: Do early childhood education professionals hold a more positive view of one gender group when compared to the other? To explore the meaning of the descriptors, a research design was utilized that allowed other practitioners in the field to review and respond to the descriptors collected.

Research Methodology

Response Form Development: Table 2 and Table 3 were used to construct two sets of response forms. The first form had a qualitative format (Form I: see Appendix 1) while the second one had a quantitative format (Form II: see Appendix 2).

Research Participants: Originally 102 early childhood in-service and pre-service practitioners were selected for participation through the region's state university early childhood teacher education program and four major childcare provider organizations. These childcare organizations are funded by a variety of sources including, Subsidized Child Care, Head Start, Early Head Start, and Migrant Head Start. In most cases they serve children from a diverse population of Southwest Florida, including low-income families and migrant farm-worker's families. A total of 31 individuals completed the research questionnaires. This group included 12 early childhood pre-service teachers from a four-year university-based program, 2 early childhood education graduate students, 15 early childhood in-service practitioners (holding either an A.A degree in ECE/CD or CDA), and 2 day care administrators (Ed.D/ Ph.D. level) from two different counties in Southwest Florida. This group included only one male participant.

Demographic information about these 31 participants is shown in Table 6.

Table 6: Demographic Information of the Participants

Gender	Female 30	Male 1
Age	20's - 14 40's - 5 no info. - 1	30's - 7 50's - 4
Yeas of Teaching Experience	Internship - 4 1 year - 1 5 -10 years - 3 20 – 30 years 4	None - 3 2-4 years - 9 10 - 20 years - 6 no info. - 1
Ethnicity	"White" - 27	Hispanic - 4

Data Collection Process and Contexts: Among the 31 participants, eight participant's response sets were collected through regular mail. The remaining 23 response sets were collected during face-to-face meetings between the principal researcher and the respondents .

Prior to participating, each individual was provided a copy of the "Research Informed Consent Document." Then, the two research forms (I & II: Appendix 1 & 2) were introduced to the participants.

Form one contained descriptions of 2 sets of children. The first set was described using the most common descriptors for boys from the original 121 preschool teachers. The second group was described using the most common descriptors for girls. The paper questionnaire contained the following instructions: *"The words below describe children in preschool settings. Please review the words in each group and tell us your perceptions of each preschool group."* The participants were asked to write their perceptions of each preschool group. The response form contained no information identifying the gender of any children.

Form II was composed on two lists of descriptors. Those, which had been used to describe boys and those used to describe girls. On this Form (quantitative), participants were prompted to identify whether each adjectives was positive, negative, or neutral by asking them: *"Over one hundred early childhood teachers used the words below when they described preschoolers in their classrooms. How would you identify each word?"* The response form did not associate gender with either group. The two sets of word lists on Response Form II were listed in alphabetical order. A randomization procedure was used to provide some participants with descriptors of boys first, while other participants received descriptors of girls first. .

Data Analysis and Techniques

Data collection took place between October 1998 and February 1999. Data reduction, unit analysis, pattern coding, memoing (Miles & Huberman, 1994), open coding, axial coding, and selective coding (Strauss & Corbin, 1990) were used for the analysis of Response Form I (Qualitative) in order to find categories and patterns which represent emerging themes in the written qualitative data. Qualitative data analysis software Q. S. R. NUD*IST® 4.0 was used for an initial data sorting and categorizing. Chi-square was used for the quantitative data (Form II) analysis to see whether frequencies of the participants' responses represent significant differences in teachers' perception of preschoolers*.

* We used this quantitative form and data as analytical choices to evolve an fair discussion for the study (Miles & Huberman, 1994).

Data reduction refers to the process of selecting, focusing, simplifying, abstracting, and transforming data. Data reduction occurred continuously throughout the project until this research report was completed. To make deeper, careful, and conceptually coherent sense of what is happening in the data, a memoing technique was used. In memoing, reflective remarks, marginal remarks, mapping, and pattern coding were utilized throughout the process of data analysis (Miles & Huberman, 1994).

At the first stage of data analysis, open coding was used for the process of breaking down, examining, comparing, and conceptualizing data. Pattern coding, which is explanatory and inferential, was also adapted in between open coding and axial coding. Pattern coding allowed for the identification of emerging themes, configuration, and explanation of the themes (Strauss & Corbin, 1990). Through this process a number of similar categories were combined into more meaningful units of analysis before the axial coding. As a results of this first open coding analysis, ten emerging categories were identified (See Table 7).

Axial coding is a set of data reduction procedures whereby data are put back together in new ways (Strauss & Corbin, 1990). After open coding was completed, the original research questions were revisited, resulting in the ten categories being re-filtered. As a result of this axial coding, four emerging categories were identified (See Table 8).

Toward the end of axial coding, core categories were selected and related to other categories. Selective coding was also utilized during this time. Selective coding is the process of selecting the core categories, systematically relating them to other categories, validating those relations, and filling in categories that need further

refinement and development (Straus & Corbin, 1990). As a result of this selective coding procedure, two main categories were identified (Table 10 & Table 11).

Results and Discussion

As a result of open coding and data reduction, ten emerging categories were identified (see Table 7).

Table 7: Results From Open Coding - Emerging Categories and Incidents in Each Group

Categories & Properties* of Each Category	Incidents**: Group 1 [Represents Boys]	Incidents: Group 2 [Represents Girls]
Negative perception: Comments that represent negative views on the group.	10**** G3-6***: Crazy, ..These kids would drive me crazy. I need a little peace once in a while to keep my sanity.	3 G3-11: Not having a good self-esteem. Self centered...
Appearance: Comments that represent the teachers' overall perception on each group	15 G2-2: This is a group that has been allowed to learn from experiencing the environment around them, teacher directed learning has been minimal. Classroom structure is limited also. The teacher motivates her class to explore	17 G2-2: ...all learning has been teacher directed. Students are well mannered and behaved, children learn to give teacher what they want. Their self-exploration of their environment is smothered.
Need: Comments with "need" and "require"	8 G4-2: I perceive that this child requires a lot of structure and direction. These students probably require constant and close supervision.	4 G4-2: This type of child requires less structure and direction.
Curriculum related comments: Comments that represent learning environment	6 G1-2: These children will be happiest with very active centers: blocks, cars, trucks, sand and water tables, outdoor play, and woodworking. Circle time will need to include active, whole body music and movement activities to "work out" the extra energy so the children can settle into a story.	12 G1-2: This group seems to be more mellow, and easy going. These children may be found at the art center, manipulatives, housekeeping, reading, discovery, and sand and water tables.
Positive remarks: Comments that represent positive views on the group.	5 G3-10: These children seem to want to learn.	8 G2-6: teachable
Easy to work with: Pedagogy related comments that represent teachers' feelings of easy to work with the group	0 NONE	6 G1-3: Easy to get along with. Few problems.
Fun group as preschooler: comments that describe the group as fun group	6 G2-6: Fun group.	0 NONE
Like to please others	0	3

	NONE	G3-5: ...they like to please others rather than themselves
Able to express themselves	0 NONE	3 G3-3:...children are able to express themselves
Regular preschooler	6 G3-3: A mixture of [preschool] boys and girls	3 G3-3: A mixture of [preschool] boys and girls, but less number of children than group one possibly.

*Property means definition of the category
** Incident is actual example of the category from the raw data.
*** Raw data identification code from the original Response Form I
**** Number of the incidents

The open coding process provided an overall sense of the data. Even though it was a preliminary stage of data analysis, there are distinctively different responses regarding the two different groups:

- Teachers' negative views on each group are significantly different, with the boys group (10 incidents) viewed as more negative than the girls group (3 incidents).
- The boys' group (8 incidents) was viewed as a group that needed more attention than the girls group (4 incidents)
- Six of the 31 respondents viewed the girls group as easier to work with than the boys group, whereas no one identified the boys group as easier to work with.
- Six of the 31 teachers viewed the boys group as a fun group, whereas no one identified the girls group in this manner.
- The girls group was viewed as individuals who "like to please others rather than themselves"
- Three of the 31 teachers viewed the girls group as "able to express" themselves, but no one viewed the boys group in this manner.
- Six out of 31 teachers viewed the boys group as regular preschool children, while three respondents viewed the girls group in this manner.

This process proved useful in identifying some fundamental differences, but did not provide a level of analysis that allowed for generalization. To achieve this next level of analysis axial coding was used. As a result of axial coding, four emerging categories were identified:

- Positive perception: Positive views of the group held by the teacher
- Negative perception: Negative views of the group held by the teacher
- Group appearance: Perceptions of each group's learning style and teaching needs
- Group needs: Views on issues related to curriculum and the learning environment

Table 8 presents an exemplary comparison of positive and negative responses regarding the two groups. A number of positive comments were made about both the male and female groups. While a greater number of positive comments were made about the female group, the types of comments did not appear substantially different, with one exception, which implies an expectation of positive interpersonal interaction with members of the girls group. No similar statements were made concerning the boys group. Thus, it may be that respondents were somewhat more attracted, interpersonally, to the girls group. (See Table 8 – positive section). As with the positive comments, negative comments were also made about both groups. However, there were three times the negative comments (9 versus 3) made about the boys group. Again, reflecting the pattern noted in the positive comments, the difference in the negative comments reflected interpersonal concerns. Specifically, respondents expressed a higher expectations of overwhelming stress and hesitation to work with the boys group when compared to the girls group (See Table 8 – negative section).

Table 8: Results From Axial Coding – Emerging Comparison of Positive and Negative Responses

Group 1 - Boys	Group 2 – Girls
Positive:	***Positive:***
G1-3: **Fun** to be with action packed group.	G1-3: **Easy** to get along with. Few problems.
G1-7: **Exciting** group	G1-7: **Great** group
G2-6: **fun**	G2-4: **nicer**
G3-10: These children **seem to want to learn.**	G2-6: **teachable**
G3-11: **Emotionally adjusted** for age group. Willing to try new things due to a **good self-esteem.**	G3-6: Calm, **I could work much better with this group of kids.** They see more personable and loving.
Negative:	G3-8: **good listeners**
G1-1: They will verbalize their experiences as they	

have no inner voice to describe what is happening and how they are making sense of their experience. G1-2: **Do I have enough energy to keep up with this group?** G1-4: ...**could be a problem** G1-7: Physically wearing on adults G2-4: **hyper** G3-1: **hyper** G2-6: exhausting or tiresome G3-2: ...students with **ADD** G3-6: **Crazy,...** These kids would drive me crazy. I need a little peace once in a while to keep my sanity. G3-8: Short attention span boys	G3-10: This class also seems very good... G3-12: **smart, loveable** ***Negative:*** G1-1: They **do not try new things** nor express their observations,... G1-7: Psychologically a handful G3-11: Emotionally more immature...**Not having a good self-esteem.** Self centered...

Based on the themes emerging from this qualitative analysis, a quantitative analysis was used as a check based on the data from Response Form II (See Table 9). As shown below, the quantitative data analysis also demonstrates that the respondents tend to perceive the girls group as more positive when compared to the boys group.

Table 9: Results of Quantitative Dana Analysis

The questions used for chi-square test: "Do early childhood education practitioners use more positive terms to describe girls than they use to describe boys?"

The hypothesis tested were:

1) There is no difference in the number of positive responses to describe boys when compared to girls.
Result: rejected $p < .0004$ - a significantly greater number of positive responses were used by respondents to describe girls when compared to those used to describe boys

2) There is no difference in the number of negative responses used to describe boys when compared to girls.
Result: rejected $p < .007$- a greater number of negative responses were used to describe boys when compared to those describing girls

3) There is no difference in the number of neutral responses used to describe boys when compared to girls.
Result: rejected $p < .001$-a greater number of neutral responses were used to describe boys when

compared to girls.

Note: Due to chi-square analysis, we took out the male respondent to keep the numerical balance in each cell. Thus, this result represents the 30 female participants' responses out of the total 31 (99%).

During axial coding procedure, two categories were selected (group appearance' & 'group needs') and related to new categories including 'learning styles' and 'pedagogical connection.' As a result of this selective coding, two main categories emerged as the final categories (see Table 10 and Table 11).

Table 10: Results From Selective Coding – Examples of Learning Style Related Comments

Group 1 - Boys	Group 2 - Girls
G1-1: This group has the need and **desire to explore.**	G1-1: They do not try new things nor express their observations
G2-1: Outgoing and enjoy large groups.	G1-2: Easy going, While this group seems more passive on the surface, there is an undercurrent of vying for social leadership/acceptance.
G2-6: athletes and performers, outdoorsy	G1-3: Easy to get along with.
G3-5: These children are ready to learn, anxious, and are well on their way to becoming **independent learners and thinkers.**	G1-6: The children **may be expressive, but within certain guidelines.**
G3-7: A group of children that would rather **explore** and **investigate,...** works best in a large **active environment**, cannot be confined to seats and teacher dictated activities.	G2-1: Likes to work alone, and works on a deadline.
G3-11: ...children, who are **naturally busy, curious and creative... Willing to try new things** due to a good self-esteem. Interested in his/her environment.	G2-6: school children(indoors), **literate: readers or drawers**
G5-1: Active group who is busy with gross motor activities and lots of manipulative to keep them busy and motivated. Always **exploring and seeking new experiences.**	G3-3: The group may **work well together**; children are able to **express themselves through art and other ways**, they are egocentric, but **learning social skills.**
	G3-7: ...might enjoy some teacher direction so they know exactly what is needed to please, would prefer a more controlled environment.

As Table 10 shows, the participants perceive a distinctive difference in the two groups' learning style. Typical constructivistic learner characteristics as described in DAP (Bredekamp & Copple, 1997), are repeatedly mentioned for the boys' group learning style. In contrast, the girls group learning styles are expressed as somewhat passive and social-culturally controlled by external will.

Table 11: Results From Selective Coding – Examples of Pedagogy Related Comments

Group 1 - Boys	Group 2 - Girls
G1-2: These children will be happiest with very active centers: blocks, cars, trucks, sand and water tables, outdoor play, and woodworking. Circle time will need to include active, whole body music and movement activities to "work out" the extra energy so the children can settle into a story. G1-3: Will need to keep things moving and be prepared to keep engaged. G1-4: ...aggressive and stubborn could be a problem... G1-6: This group probably has a teacher with more of an open spirit. The children are encouraged to be creative and inquisitive. The classroom is probably developmentally appropriate. G1-7: Exciting group Keep teacher on toes G2-2: This is a group that has been allowed to learn from experiencing the environment around them, teacher directed learning has been minimal. Classroom structure is limited also. The teacher motivates her class to explore G2-6: exhausting or tiresome G3-3: The group is very into what they do in school during the day. They stay busy and are allowed freedom to create and use their imaginations, as well as express themselves. G3-7: ...need hands-on activities and opportunities	G1-1: This group has been denied opportunities of learning in an experimental way. G1-2: These children may be found at the art center, manipulative, housekeeping, reading, discovery, and sand and water tables. ... The teacher needs to watch for clues of this and address the social issues. G1-3: Few problems. Will enjoy art projects and being read to. G1-6: This group probably has a teacher who is more restrictive. G1-7: Great group G2-2: Classroom is overly structured as all learning has been teacher directed. Students are well mannered and behaved, children learn to give teacher what they want. G2-3: I can tell the parents and teachers are there for them. G2-6: teachable, academic G3-3: ...less number of children than group one possibly. G4-2: This type of child requires less structure and direction. However bossy and manipulative kids get on my nerves. G5-1: I would expect to hear lots of language in

to talk and create, ... G4-2: I perceive that this child requires a lot of structure and direction. These students probably require constant and close supervision. G5-2: Because they are creative and curious they are probably capable of learning a lot. The teacher may need to find ways to focus the group (due to the words active, energetic, busy, and hyper)	this classroom.

Based on Table 11, the girls group is viewed as somewhat passive and in need of teacher/adult directed learning. Well seen as well mannered, they are perceived as needing continuous direction to promote further learning. The girls are perceived as teachable, academic, and literate. On the other hand, the boys group is viewed as constructive, active, independent, and creative learners. The boys are perceived as somewhat too active to focus on "teacher driven" activities, thus they need a lot of structure and constant, close supervision.

This study has found that teachers' perceptions of preschoolers' gender differences are significant. These findings raise critical issues, which need further consideration. The female teachers in this study tend to be less appreciative of the male preschoolers' way of playing, constructing knowledge and its use (frequently used words in describing Group 1 in the Response Form 1: hyper, crazy, and outdoorsy). Most teachers (who tend to be female, "gender-matched") perceive female preschoolers as positive and sensitive learners (frequently used words in describing Group 2 in the Response Form 1: learner, calm, nicer, teachable, academic). While many constructivistic learner qualities are identified more often for boys than girls, overall

the teachers' perception of the boys' group is less "teachable" and "easy to work with" than the girls group.

What we think, what we believe, and how we act do interact in important ways. While there may not be a one-to-one correspondence between specific thoughts and actions, a teachers' self-talk that describes preschool age boys and girls will affect their daily teaching and interaction with children. Additionally, these perceptions will play a critical role in the teachers' process of curriculum decision making (a hidden curriculum) and the manner in which they evaluate their own teaching.

Implications and Conclusions

In U.S. early childhood education, gender-fair learning environments have been identified as an important component in a teacher's daily practices (Cannella, 1997; Derman-Sparks, 1989, Schlank & Metzger, 1997). However, the meaning of gender-fairness or "how to" maintain gender-fairness has not been clearly articulated. Often, gender-fairness is connected with issues of "equity" or "equal opportunity" and "multiculturalism." While recognizing issues of fairness and equity within an oppressive society, we may fail to resolve these issues because we strive to solve these issues within a values system that is a part of the problem. We are not sure whether "gentle" and "caring" feministic human qualities can be still equally accepted as "being active" learner quality, which may be a gender congruent practice.

This research is an initial attempt to identify gender bias in early childhood education professionals' thinking and to promote gender-fairness in Developmentally and Culturally Appropriate Practice (DCAP) for ALL young children (Hyun, 1998, see page

7 footnote). As Cannella (1997) mentions, males and females are biologically and socially different. Due to both biological (nature) and social-cultural (nurture) influences, young boys and girls construct somewhat different cultures within their respective gender groups. Gender congruent practice in education means that the teachers' critical thinking and curriculum decision-making processes have an inherent and pervasive capacity of accepting and promoting gender-based differences as well as ALL children's individual-based differences as equally rich resources in the learning community. To bring true gender equity and gender-fairness to education, we must learn more about the biases of education professionals, and how to create gender congruent practices based on actual differences in children. These practices must allow ALL individuals from both sexes to freely participate in a manner that values their own human qualities and provides for equal opportunities and fair compensations.

As many researches have indicated (Berk, 1997; Kimura, 1992; Mccoby, 1998), the culture created by young boys and girls as they play, their learning styles, and communication skills are different from each. Based on these gender-based differences, young boys and girls require somewhat different learning environments. Developmentally and culturally appropriate environments that support young boys' and girls' gender congruent play and learning experiences are necessary. In such an environment, the teachers' understanding and knowledge of gender-based proficiencies is critical.

Boys and girls are different in the classroom. Some of these differences are genetic, others are environmental; most are a combination of what one is born with and what one learns. The role of the DCAP teacher is to find ways to support the natural

tendencies and strengths of the child, while at the same time promoting behavior that is socially acceptable and helps the child meet their unique individual needs. This research shows that in some ways, preschool teachers may reinforce young children of both sexes for "feminine" rather than "masculine" behavior. In classrooms, obedience is usually valued and teachers generally discourage assertiveness. In the field of early childhood education more than 85% of teachers are female. This institutionalized "feminine bias" is believed to promote a certain degree of discomfort for boys in school. As Berk (1997) argues, it may be equally or even more harmful for many girls, who willingly conform, with possible long-term negative consequences for their sense of independence and self-esteem. Because a feminine bias exists and influences pedagogical practices, teachers need to be extremely careful to maintain gender-congruent experiences and a gender-fair learning environment.

It is hoped that this study is a point of departure to continue the process of uncovering biased perceptions of ECE teachers. By striving to imagine what gender-congruent practices need to look like, it is possible to create gender-fair learning environment for ALL young children. While this is an extremely hard task, it is not only necessary, but long overdue.

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Appendix 1

Response Form I

The words below describe children in preschool settings. Please review the words in each group and tell us your perceptions of the each preschool group.

Group 1	Group 2
Active **Loud** **Aggressive** **Energetic** **Noisy** **Physical** **Creative** **Busy** **Curious** **Hyper** **Inventive** **Risk takers** **Stubborn**	**Quiet** **Talkative** **Sensitive** **Like to and/or want to please** **Artistic** **Bossy** **Creative** **Manipulative** **Whinny** **Social**
Your perceptions to Group1:	**Your perceptions to Group 2:**

Please identify your:
Gender: Male _____ Female _____ Age: _____

Years of teaching experience: _____Racial Ethnicity: _____

The research data require --without individual's name and his/her own affiliation-- gender identification, age, years of teaching experience, racial ethnicity, and group identification such as, students group, in-service practitioners group, or administrators group. These identification information are for an in-depth cross-case data analysis. Research participants' individual identification coding system will not be used. All the data will be treated and analyzed anonymously.

Appendix 2
Short Version of Response Form II

Over one hundred early childhood teachers used the words below when they described preschoolers in their classrooms. How would you identify each word?

Words	Positive	Negative	Neutral	Comments
Active				
Active learners on the floor				
Admiring				
Aggressive				
Agitators				
Always on the move				
. . . Wrestlers/wrestling				

Short Version of Response Form II Continue

Over one hundred early childhood teachers used the words below when they described preschoolers in their classrooms. How would you identify each word?

Words	Positive	Negative	Neutral	Comments
Actresses				
Affectionate				
Aggressive				
Always want attention				
Artistic				
Attentive				
. . . Whisper and tell secretes				

Thank you for your responses.

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