

Observations of Children's Task Activities and Social Interactions in
Relation to Teacher Perceptions in a Child-Centered Preschool:
Are We Leaving Too Much to Chance?

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The goal of the present study was to describe one center's interpretation of child-centered instruction and what this looked like in terms of the children's daily activities, social affiliation, and behavior in the classrooms. Staff at a self-identified child-centered constructivist preschool program were interviewed about their pedagogical philosophy and asked to give their estimates of the proportion of time that children in their classrooms spent both interacting with different people (alone, with peer, with teacher) and engaged in various behaviors. Data were collected pertaining to children's goal-directed, sustained activities, social affiliation, affect expression, and inappropriate/aggressive behavior via 2,752 naturalistic classroom observations over the course of a semester. Results indicate children a) spent significantly less time engaging in focused, goal-directed, learning activities, b) sustained their attention on one activity for significantly smaller lengths of time, c) expressed overt positive affect considerably less often, and d) had significantly less one-on-one teacher-child interaction, than was believed and desired by the staff. Results were consistent with both a fear expressed by the center director and recent calls from researchers in early childhood education, that teachers in many child-centered constructivist early childhood programs may be committing the "early childhood error" by stepping back and refraining from getting directly involved in children's activities.

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*Observations of Children's Task Activities and Social Interactions
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One of the great challenges in providing developmentally-appropriate practice in early childhood education is determining an appropriate level of teacher-provided direction in the classroom (Berk & Winsler, 1995; Bredekamp & Copple, 1997). On the one hand, early childhood teachers want to nurture, guide, lead, teach, and scaffold children to help them reach their highest potential. On the other hand, teachers want to foster children's autonomy, let them solve their own problems, and allow them freedom of choice. Indeed, arguably the largest debate in the field of early childhood education for some time has been where along the continuum of "child-centered" to "teacher-directed" it is best to define the role of the teacher for optimizing children's healthy development in the early childhood classroom (Gersten, Darch, & Gleason, 1988; Hirsh-Pasek, 1991; Kontos, 1999; Marcon, 1992, 1999; Powell, 1986; Schweinhart, Weikart, & Larner, 1986; Stipek, Feiler, Daniels, & Milburn, 1995; Stipek et al., 1998).

Historically, the point on this continuum that has been generally perceived by the field to be optimal at any given time has vacillated in relatively close synchrony with whatever the currently dominant theoretical perspective on child development was at the time. In the late 1950's and throughout the 1960's, for example, when Skinner's behaviorism was in the spotlight, highly structured, teacher-directed instructional programs (at one extreme end of the continuum) were more common. During the 1970's, 1980's, and early 1990's, Piaget's constructivism was in the mainstream and, indeed, "child-centered" early childhood curricula (the other end of the continuum) were seen as developmentally appropriate. Currently (mid 1990's to the present), Vygotsky's sociocultural developmental theory, which can be seen as a moderate point in the middle on the continuum, is central theoretical grounding within the early childhood field (Berk & Winsler, 1995; Bodrova & Leong, 1996), and the struggle now seems to be one of finding the "happy medium," a role for the early childhood teacher that effectively balances child initiation and autonomy with teacher facilitation, mediation, or "scaffolding" of children's development. Evidence of this recent shift can be seen in the changes in NAEYC's guidelines for developmentally-appropriate practice from the 1987 version which emphasized constructivist child-centered curricula (Bredekamp, 1987) to the 1997 version (Bredekamp & Copple, 1997) which calls for an increased, more active role on the part of the teacher to facilitate or scaffold children's development.

Growing dissatisfaction with strictly "child-centered" early childhood curricula is partly due to the large variance observed in how constructivism is interpreted and manifested in early childhood classrooms. Although for some "child-centered," constructivist early childhood programs, the teacher plays a very active role in engaging together with the children and guiding them along as they go about their daily activities, many early childhood programs interpret the term "child-centered" to the extreme and see the role of the teacher as one of simply a) setting up the environment for children to explore, b) allowing children maximum freedom of choice, and c) not "interfering" with children's activities (i.e., getting involved with the children's activities only when adult intervention is absolutely necessary). Indeed, Bredekamp and Rosegrant (1992) discuss what they call the "early childhood error" – the all too common situation when early childhood teachers do a good job of setting up a

developmentally appropriate environment that is stimulating for young children, but then err by stepping too far back, failing to provide further scaffolding, assistance, or meaningful one-on-one or small group interaction with the children.

Understanding child-centeredness is the essence of developmentally appropriate practice. Once an understanding of child-centered learning is in place in the teacher's mind, the basics of translating that understanding into classroom practices become much easier. Misinterpretation or lack of understanding is evident in the fact that developmentally appropriate classrooms are not typical in early childhood programs (Dunn & Kontos, 1997). While teachers believe in developmentally appropriate practice and they receive such training, apparently few are succeeding in its effective implementation (Sherman & Mueller, 1996). Dunn and Kontos (1997) reported that only about 25% of early childhood programs were doing a good job of implementing developmentally appropriate practices within their classrooms. This figure declines as the age/grade of the children increases (Buchanan, Burts, Bidner, White, & Charlesworth, 1998; Vartuli, 1999). One study (Bryant, Clifford, & Peisner, 1991) found that only 20% of kindergartens were rated as being developmentally appropriate. Hatch and Freeman (1988) found that most kindergartens used predominantly didactic, teacher-directed, teaching strategies – erring on the other (teacher-centered) end of the continuum.

Understanding how different centers view child-centered, constructivist pedagogy, how such interpretations get translated into practice, and what the everyday experiences of children in such early childhood classrooms are, thus, become important areas for research if we are to make gains in understanding how variance across programs on the continuum of teacher-directed vs. child-centered instruction relates to child outcomes. The main goal of the present study was to describe one center's interpretation of child-centered instruction and to describe what this looked like in terms of the children's daily activities, social affiliation, and behavior in the classrooms. Teachers at a self-identified "child-centered" preschool program were interviewed about their pedagogical philosophy and asked to give their estimates of the proportion of time that children in the classrooms engaged in various behaviors and their time spent interacting with different people (alone, with peer, with teacher). Naturalistic classroom observations of children's goal-related, sustained activity, social affiliation, aggressive behavior, and affect expression were conducted throughout an entire semester. The observational data were then compared to teacher beliefs, expectations, and the child-centered model.

Research on teacher beliefs and practices paints a mixed picture. Teacher beliefs about child development are significantly predictive of their practices and appear to be the best predictor of developmentally appropriate practice available (Charlesworth, Hart, Burts, & Hernandez, 1991; Charlesworth et al., 1993; McMullen, 1999), however, they are imperfect predictors because teacher practices are not as synchronous with their beliefs as one would hope. Teachers who hold beliefs consistent with DAP are indeed more likely to engage in developmentally appropriate practices in their classrooms (compared to those whose beliefs are inconsistent with DAP), however, much fewer developmentally appropriate activities are observed in these classrooms than would be expected given teachers' beliefs (Charlesworth et al., 1991; McCarty, Abbott-Shim, & Lambert, 2001). That is, teacher beliefs are more consistent with DAP than are teacher practices (Vartuli, 1999). There appear to be many obstacles to the effective implementation of developmentally appropriate instruction

for early childhood teachers, including pressures from parents and administrators to prepare children academically for school and for standardized tests (Bryant et al., 1991), requirements of the school system and lack of teacher autonomy (Buchanan et al., 1998; Hatch & Freeman 1988), teacher training (Buchanan et al., 1998; McMullen, 1999; Vartuli, 1999), historical increases in the academic expectations placed on preschool children (Shepard & Smith, 1988), cultural variation (Hsue & Aldridge, 1995; Spodek & Saracho, 1996), teacher personality (McMullen, 1999), and class size (Buchanan et al., 1998). Thus, the link between early childhood teacher beliefs and practices is there but it appears to be weak and certainly in need of further exploration (Charlesworth et al., 1991; Dunn & Kontos, 1997; Hatch & Freeman 1988; Jones, Burts, & Buchanan, 2000; Jones & Gullo, 1999).

Teacher beliefs likely contribute to determining the nature of the teacher-child interactions that occur in the early childhood classroom. A major component of high quality early childhood programs is the quality of teacher-child interactions (Kontos & Wilcox-Herzog, 1997a). While the importance of such interactions is easily understood, it is much less clear how to quantify those interactions to best promote optimal development for children. The amount of one-on-one time between teacher and child is one indication of quality. In a study of 119 preschool programs from five states, Layzer, Goodson, and Moss (1993) found that while teachers spent nearly 70% of their time actively involved with children, only 10% of that time was spent with individual children. In the total study, 31% of the children received no individual attention at all during the classroom observations, and in 12% of the classrooms, 50% or more of the children never received individual attention. This may be due to the fact that teachers must obviously distribute their time over a large number of children. Further, it appears that teachers spend much of their one-on-one time with particular youngsters who require more adult attention due to problematic behavior (Kontos & Wilcox-Herzog, 1997a; Layzer et al., 1993).

More important than sheer quantity of teacher-child interaction in preschool classrooms is the nature of such interactions; that is, what goes on during teacher-child interaction in terms of teacher goals and teacher talk. Developmentally appropriate teacher-child interactions that best stimulate cognitive and social development are those that extend children's thinking and enrich their experiences with classroom materials — for example, statements that elaborate on children's fantasy play, open-ended questions appropriately pitched at a level slightly higher than the child's current functioning, and joint collaboration with children on tasks with teacher assistance/scaffolding during such activities characterized by modulation of the amount and type of adult help depending on the child's current needs and contingent withdrawal of adult control as the child's competence and participation increases (Berk & Winsler, 1995; Kontos & Wilcox-Herzog, 1997b; NICHD Early Child Care Research Network, 1996). Such qualities of teacher-child interaction appear to be rare, however, in many early childhood classrooms.

Göncü and Weber (2000) investigated preschoolers' interactions with peers and teachers in relation to classroom activity. They observed 55 three- to five-year-olds in a university-based laboratory preschool during free play. The researchers found that interactions between teacher and child tend to be focused on the management and direction of child behavior/activities and on intervention with problems, rather than on extending or scaffolding children's play/cognitive activity. Kontos and her colleagues (Kontos, 1999; Kontos & Wilcox-Herzog, 1997a; Wilcox-Herzog and Kontos, 1998) have also examined the nature

of teacher-child interactions in preschool classrooms. These investigators find that about 81% of the time that teachers are in direct proximity to children, the teachers do not talk to the child. Further, when there is teacher talk, transcripts reveal that the interactions tend to consist mainly of getting children started with play, managing/directing their behavior, and providing personal or practical assistance (e.g., getting something for the child), rather than rich, stimulating speech that encourages development. This latter form of high-level or scaffolding type of teacher talk occurred only 18% of the time teachers were interacting with children.

To avoid committing the "early childhood error," it is essential for research to examine both teachers' conceptions of child-centered instruction and their beliefs concerning what is going on in their classrooms, and to compare these to independent observations of classroom activities. The present study does this within a self-identified "child-centered" preschool. Three main research questions were addressed in this study: (1) What percentage of time (both overall, and during self-selected activity periods) do children spend on focused, sustained, goal-directed activities, and how does this compare with both teacher perceptions and what might be expected from the child-centered model?; (2) What percentage of the time (both overall, and during self-selected activity periods) do children spend alone, with peers, and interacting with a teacher, and how do these compare with both teacher perceptions and what might be expected from the child-centered model?; and (3) To what extent is children's affect, goal-directed activity, and inappropriate/aggressive behavior associated with children's social affiliation (being alone, vs. with peer, vs. with teacher) in the classroom?

Children's sustained attention and focused goal-directed activity were selected for study under the assumption that it is during such moments of engagement and on-task problem-solving that key learning takes place for the young child (Berk & Winsler, 1995) and because task engagement itself can be seen as both a measure of preschool program quality (Ridley, McWilliam, & Oates, 2000) and as a predictor of early school competence (Cooper & Farran, 1988). Children's social affiliation was observed because the amount of time that children spend with a teacher is one indication of program quality (Kontos & Wilcox-Herzog, 1997a; Layzer et al., 1993) and because interaction between a teacher and child is clearly a prerequisite for teacher-child scaffolding to occur (Berk & Winsler, 1995). Finally, children's expressed affect and aggressive behavior were also examined here as these are important dimensions contributing to the overall social climate of early childhood classrooms (Arsenio, Cooperman, & Lover, 2000; Howes, 2000; Stipek et al., 1998).

Method

Participants

Children. Participants included 28 preschool children attending a university-affiliated laboratory preschool in the Southeastern United States. Half of the children ($N = 14$, 53% male) were all of those enrolled in the 'three-year-old room' at the preschool. The ages in this group ranged from 3;3 to 4;3 ($M = 45.4$ mos., $SD = 4.5$) at the beginning of the spring semester when data collection began. The remainder of the children ($N = 14$, 47% male) were 14 (those with completed consent forms) of the 16 children enrolled in the 'four-year-old room,' with ages in this group ranging from 4;4 to 5;3 ($M = 57.1$ mos., $SD = 3.5$). The ethnic breakdown of the children according to parental report on the preschool application/

registration forms was 75% Caucasian, 11% African-American, and 14% Asian-American. A reasonable range of family socioeconomic levels was present in the sample (Hollingshead index - Range = 31-66, $M = 53.30$, $SD = 9.98$) as the preschool stratified its enrollment in the classrooms into three equal thirds: a) children of university faculty/staff, b) children of university students, and c) children of community members. Paternal age ranged from 25 to 52 years ($M = 36.03$, $SD = 6.04$) and maternal age ranged from 24 to 44 years ($M = 33.04$, $SD = 5.29$). Fathers' years of education ranged from 13 to 21 ($M = 17.44$, $SD = 2.72$) and mothers' education ranged from 12 to 21 years ($M = 16.65$, $SD = 2.36$). None of these demographic variables varied significantly across the two classrooms.

Teachers. The two head teachers of the classrooms also participated in the study. The main teacher of the four-year-old room was also the director of the Center. Both of the teachers were middle-age Caucasian women with more than 10 years of early childhood teaching experience. Both held advanced degrees in child/human development. The director was relatively new to the center.

Setting. The preschool program was a high-quality, NAECPP-accredited, five day a week, morning (8:00 am-12:00 pm) program, consisting of one three-year-old class and one four-year-old class, with each class typically including 14-16 children. Both classrooms were headed by one lead teacher and one graduate student assistant. Due to the center's responsibilities as a training and observation site for human development students, the classrooms also typically included one to five other adult students who would periodically observe or assist in the classroom. Although some of such students' time was devoted to structured observational activities, at other times, these students were allowed to interact as they saw fit with the children. Written literature from the center, impressions from the observations, and interviews with the teachers indicated that the preschool program explicitly adopted a 'child-centered' and/or 'constructivist' early childhood education philosophy (described more below in the context of the teacher interviews). The two classrooms shared the same teaching philosophy and had similar daily schedules, which other than the occasional special activity (such as a walk to a park or a field trip) consisted of certain times each day set aside for three different types of activities: 1) self-selected activities (SSA), in which children would choose to which of several activity centers (i.e., block area, house corner, Lego® table, dress-up area...) they would go to play, 2) outside play time (OUT), and 3) large group (LG) activities, such as reading or singing together as a group.

Procedure

Observations. Naturalistic observations were carried out in the two classrooms over a 10-week period during the spring semester of the academic year. Two female research assistants (one per classroom) observed children according to a predetermined random order using a time-sampling method. Observations began after a three-week introductory period during which time children grew accustomed to the presence of the observers in the classroom, observers were trained, the observational checklist instrument was pilot tested, and the reliability of the observational checklist instrument was established. Observer influence effects were minimized in this study by both the presence of the three-week, rapport-building period and by the fact that children in these classrooms were generally quite accustomed to the presence of observers in the classroom given the center's laboratory responsibilities. By design, observations took place during the three regularly-scheduled

daily activity periods (discussed above) in the two classrooms: large group (LG), self-selected activity time (SSA), and outside free play (OUT). Each child was observed an average of 98 times yielding a total of 2,752 observations. The resulting distribution of observations by classroom context was 1100 observations during SSA (40% of the observations), 882 during OUT (32%), and 770 during LG (28%). This distribution of observations represents well the relative proportion of time children in these classrooms spend each day in each context.

Observers, unaware of the specific research goals, used a behavioral observation checklist instrument to record their observations. Also, to assist in adhering to the time-sampling observation schedule, observers listened to pre-recorded time signals which projected via headphones to one ear from an audiocassette recorder attached to their belt. Target children were observed according to a predetermined random order for approximately 10, 10-minute periods, with each period consisting of 10, 10-second direct observation intervals separated by 50-second recording intervals. Thus, an observer would observe a target child for 10 seconds, at which time the audio signal would sound and she would then record her observations for that 10 second period on the checklist instrument for the remainder of the minute. Then the audio signal would sound again indicating that it was time to observe the child again for the second, ten-second observation. This pattern would continue for ten observations at which time the observer would go on to conduct a series of ten observations on the next child on the list. Predominant activity sampling (PAS; Hutt & Hutt, 1970) was used for the social context and activity variables, meaning that if more than one type of behavioral class occurred within a 10-second observation interval, observers coded the occurrence of only the predominant behavior that was present for the larger time period during the observation. In each case, therefore, 10-sec. observation periods were coded as either containing or not containing the target behaviors described below.

Observational Variables. The following five variables were coded on the observational checklist instrument: Children's activity was coded as being either explicitly goal-directed or non goal-directed. Goal-directed activity was defined as behavior by the child which appeared focused, organized, and had an identifiable goal or end point to the activity. The goal being pursued by the child could either be self-formulated or teacher-provided but it had to be appropriate (on-task) within the particular classroom context. Examples of goal-directed activity in the context of self-selected activity periods (SSA) or free play (FP) included, for example, building a structure out of Legos® or some other assembly/construction materials, doing a puzzle, playing a game with rules, or engaging in an organized make-believe episode of 'house.' Not explicitly goal directed behavior in this context included, for example, aimless wandering around the classroom, repeatedly spinning something around one's finger for the apparent 'fun of it,' and making a transition between one activity and another. Goal-directed/on-task behavior within Large Group (LG) periods was defined as the child engaged and participating in the large group activity as defined by the teacher.

Children's sustained activity was coded by assessing the relationship between the child's activity during the current ten-second observation interval and the child's activity during the previous observation period, one minute ago. For the second through tenth observation in each series of 10 observations on target children, the observer coded whether or not the activity the target child was engaged in during the current observation was the

same (in terms of apparent goal, materials, and behavior) as that in which the child was engaged during the previous observation one minute ago.

Children's immediate social affiliation was also coded. Observers noted, for each 10 second interval, whether the child was alone, with one or more peers, with a combination of one or more peers and a teacher, or one-on-one with a teacher. Children were coded as being alone if no other person doing the same general activity was within three feet of the target child and there were no social interchanges with another person during the observation. Children were coded as being with a peer if there were one or more other children present who were either doing the same activity in parallel with the target child within three feet or who were physically or verbally interacting with the target child. Children were coded as being with both peer(s) and a teacher if any adult was included as one of the members of a group, using the same criteria as those used above for 'peer.' Children were classified as being exclusively with a teacher if they were interacting one-on-one with a teacher with no other children interacting with them within three feet of the target child.

Children's affect (positive, negative, neutral) was also coded during the observations. Positive affect was coded if children exhibited any overt smiles or laughter during the observation. Negative affect was coded if frowning, crying, yelling, pouting, or explicit facial expressions of anger were present. Neutral affect was coded if the child's affect during the 10 seconds was neither explicitly positive or negative.

Finally, children's behavior during each 10 second period was coded as being either appropriate or inappropriate/aggressive. Inappropriate behavior was defined as an intentional action that a) actually did (or was meant to) physically harm another person (e.g., hitting, kicking), b) damaged property or classroom materials, or c) involved verbal or physical rudeness with another person (e.g., yelling, name calling, teasing, grabbing...). If one of these behaviors occurred during the observation, the period was coded as containing inappropriate/aggressive behavior.

Reliability. Inter-rater reliability for the above coding systems was determined during the last phases of observer training, at which time two observers independently rated the same children for 257, 10 second observations. Reliability was acceptable to good for all category systems. Percentage agreement across observers was 88% for children's activity (Kappa = .75), 96% for sustained activity (Kappa = .90), 89% for social context (Kappa = .83), 87% for affect (Kappa = .71), and 100% for inappropriate behavior.

Teacher Interview. At the end of the school year, the head teacher of the 3-yr-old room and the director of the center (who also taught regularly in the 4-yr-old room) were individually interviewed by the first author according to a semi-structured interview protocol. Areas covered included the teacher's perceptions of how much time children spent in various activities and social contexts. Also discussed was the teacher's view of the role of the teacher within the classroom. Questions asked during the interview pertained to the teacher's perceptions of the frequency that certain behaviors occurred during the school day. Questions covering the entire day included how often children were in each of the various social contexts, and how often inappropriate/aggressive behavior occurred. Questions pertaining to only the self-selected activity period dealt with how often children were on-task; how often the children were sustaining an activity over time; and the percentages of positive, negative, and neutral affect that was present during this time. Teachers were also asked to

describe the extent to which their "ideal" classroom varies from their current classroom in terms of the percentages above. To insure that the teachers and the researcher were indeed talking about the same things, the same definitions described above for children's activity (i.e., goal-directed, affect, inappropriate/aggressive behavior...) were used and explained during the interviews with the staff. Because teachers were likely not used to thinking in terms of the overall percentage of time children in their classrooms engage in various behaviors, the meaning of this figure was carefully discussed and contrasted with the percentage of time that teachers engage in various behaviors, and the teachers were given ample time to respond.

Results

Teacher Philosophy and View of the Role of the Teacher

When asked to describe her teaching philosophy and the role of the early childhood teacher, the lead teacher in the 3-yr-old room described her classroom as being "child-centered" and "constructivist" and that her role was one of "facilitator," i.e., to "let the children work things out for themselves," "encourage child autonomy and initiative," "allow the children to choose what they want to do," "encourage children to play together," and to "set up and plan the environment so children can become independent." This description was consistent with the observers' impressions that, in this classroom, children were encouraged to independently explore their environment, design their own learning and play activities within the boundaries of the set of materials that had been set out by the teacher, and to play and solve problems independently as much as possible. The teacher generally did not get directly involved with the children's activities, and tended to intervene only when absolutely necessary. This characterization of the classroom as child-centered and constructivist is also consistent with the Center's written materials/hand-outs.

Responses to the same interview questions from the 4-yr-old room teacher/center director resonated with the other teacher's philosophy in that the role of the teacher was seen as one to "provide a safe, comfortable environment with opportunities for children to explore, with enthusiasm and inquisitiveness," to "provide hands-on concrete experiences for children," and to "provide materials based on children's own interests" so that children can "learn through exploration, not lecture." The director did identify the Center as being "child-centered," but made the important qualification that it was "more child-centered than teacher-directed, but not completely child centered," with the teachers "providing some structure and discipline." The director further volunteered that she didn't "agree with some radical constructivist ideas" for hands-off teaching and that this year she felt that the classroom actually fell a little "too far on the child-centered side" of the continuum and was hoping next year to bring in a bit more teacher guidance and structure to find more of a "happy medium."

Teacher Perceptions of Classroom Activities and Behavior

During the interview, the teachers were asked to estimate the percentage of time that children on average were engaged in various activities in the classroom. Table 1 reports these results. In terms of overall social affiliation, the teacher estimated that children spent 20% of their time alone, 40% of their time interacting with their peers, and 20% of the time interacting with both one or more peers and a teacher in a small group. The teacher estimated

Table 1.

Teacher Perceptions of the Percentage of Time Children are Engaged in Various Activities, Social Contexts, and Behaviors in the Classroom

	TEACHER		TEACHER/DIRECTOR	
SOCIAL AFFILIATION/CONTEXT (Overall – entire day)				
Alone	20%		20%	
Peer(s)	40%		60%	
Teacher and Peer(s)	20%		10%	
Teacher (One-on-One)	20%		10%	
- Working together on activity	(40%)		(70%)	
- Talking in general	(40%)		(20%)	
- Intervening with problem	(20%)		(10%)	
APPROPRIATE/INAPPROPRIATE (AGGRESSIVE) BEHAVIOR (Overall – entire day)				
	90%/10%		92.5%/7.5%	
GOAL-DIRECTED (ON-TASK)/ NON GOAL-DIRECTED (OFF-TASK) (Just Self-Selected Activity Period)				
	75%/25%		80%/20%	
SUSTAINED ACTIVITY (% of time on same activity within 10 min.) (Just Self-Selected Activity Period)				
	100%		75%	
AFFECT	Self-Selected	Outside	Self-Selected	Outside
Positive	50%	60%	90%	85%
Neutral	35%	15%	5%	7.5%
Negative	15%	25%	5%	7.5%

that about 20% of time children interacted one-on-one with a teacher, and this individual time with a teacher consisted of 40% working together on a focused activity (scaffolding), 40% general talking together about something not related to a particular classroom activity, and 20% teacher intervention/direction giving because of a problem. The director/teacher estimated less time overall (10%) spent by children interacting directly with a teacher but that during such one-on-one time, an even higher percentage of time (70%) was spent scaffolding children with focused activities and less (10%) of this time involved teacher intervention for problems. Both staff members viewed inappropriate behavior from the children to be relatively rare (7.5 – 10% of the time, overall) in their classrooms.

In terms of children's behavior and activity during self-selected activity (SSA) periods,

the teacher of the threes believed that children spent approximately 75% of the time engaged in focused, goal-directed, on-task activities, and that their sustained attention was excellent with children typically sticking to one activity for an entire ten-minute SSA observation period. The teacher/director's perceptions of children's goal directed activities were similar (80% of the time), but she estimated that only about 75% of a 10-minute SSA period involved children focusing on the same activity.

Teachers were also asked to estimate the percentage of time during outside time and during SSA, children expressed positive, neutral, or negative affect. The teacher estimated that children were exhibiting overt positive affect (laughing and smiling) about 50-60% of the time, and this figure for the director/teacher was higher at 85-90%. Overt negative affect (frowns, crying, anger) was estimated at 15-25% by the teacher of the threes and lower (5 - 7.5%) for the director/teacher of the four-yr-olds.

Finally, the teachers were also asked to reflect on their vision of the ideal early childhood classroom and how different that would be compared to their current classroom environment they just described. The teacher in the three- year-old room felt that there was a very close match between what they had done that year and what her ideal was and, thus, not much really needed to be changed. The director, on the other hand, as alluded to above, expressed her desire to move her classroom closer to her ideal next year by increasing the active role of the teacher and moving further away from their current and fairly extreme interpretation of child-centeredness.

Classroom Observations

Analysis Strategy. This section is organized into two parts. First, we will give an overall description of what was observed to be going on in the classrooms and discuss patterns/differences across the two classrooms/teachers. Here, comparisons will be made between the actual percentages observed and what was estimated by the staff and/or expected to occur from a child-centered pedagogical perspective. Second, we will explore questions concerning patterns of co-occurrence of the observational variables within contexts (i.e., during which social and classroom contexts were negative affect and/or sustained goal-directed activity more like to occur?).

Observations were chosen as the unit of analysis (rather than children), and thus the overall proportion of observations in which 'X' occurred (regardless of child) was typically calculated and used in the analyses (rather than proportion of observations within child calculated and then an average taken)¹. This approach seemed warranted for a number of reasons. First, overall proportion of observations in which 'X' occurred seemed to be the most appropriate number with which to compare the overall global proportional estimates the teachers were asked to generate during the interview. That is, teachers weren't thinking of these numbers for 15 individual children, taking into consideration individual differences, and then taking an average proportion across kids. They preferred using the whole classroom

¹ Analyses were also run at the subject level with mean proportions as a cross check. The results were the same in practically every case. Also, logistic regression analyses with observations nested within subject were also conducted as a cross check with the results being the same. For simplicity, the simple %'s and chi-square results will mostly be presented.

overall as the unit of analysis and so did we. Second, because total number of observations varied slightly from target child to target child (due to chance and to normal variation in child attendance), calculation of each child's mean proportion of observations and then averaging across these would give biased parameter estimates due to both the different number of observations going into each child's mean proportion and then equal weighting given to all children's means. Having observations as the unit of analysis allowed us to use all of the data (every observation), rather than the subset that would result after eliminating some children who had a smaller number of observations, and allowed each observation to get equal weighting. Third, individual differences across children were not a focus of this investigation. And finally, generalizing across children was not the goal here (nor was generalization across classrooms or teachers for that matter). The goal was simply to describe what was going on in this one "child-centered" preschool. Accordingly, the significance tests reported below are essentially testing inferred generalizations made from the sample of observations made in the classrooms to the entire population of classroom behavior at this center, not inferring parameters about other children in other classrooms.

Overall Description. Table 2 provides the proportion of observations in which each behavioral category was observed, overall, by classroom, and by classroom context (SSA, LG, OUT) within classrooms. The underlined numbers in the table refer to percentages that were directly estimated by the teachers during the interviews. The shaded columns represent what was occurring within the classrooms during self-selected activity periods, the classroom context of most interest in this study.

Goal-Directed, On-Task Activity. The image associated with the child-centered model is that when preschool children are left to their own devices, they will spontaneously engage in exploration and goal-directed learning activities within the classroom. During SSA, when children were expected and allowed to choose from a variety of learning centers throughout the room, three-year olds were focused on some type of goal-directed behavior during 60% of the observations and four-year olds about 74% of the time. Four-year olds, as to be expected, appear to be more able to engage themselves in goal-directed activities with the available classroom materials than three-year-olds. This was the case both for observations within the SSA context, $\chi^2(1, 1098) = 23.21, p < .0001$, and overall, $\chi^2(1, 2751) = 85.77, p < .0001$. Most important, however, was that both of these figures were less than what was estimated by the teacher and director (75%, 80%, respectively), and the difference was especially discrepant within the three-year old room. To get a sense of how discrepant our observed results were from the teacher's predictions, we entered the teacher's predicted value as the null hypothesis of the true proportion in a one-sample chi-square and assessed how likely it would be to obtain the observed proportion from our sample of observations if indeed the teacher's estimation were correct. For the three-year-old room, the null hypothesis of 75% was rejected $\chi^2(1) = 62.97, p < .0001$, and so was the 80% figure for the four-year-old room $\chi^2(1) = 11.33, p < .001$. Of course, it is not at all clear what the optimum percentage of time children ought to be engaged in goal-directed activity is within this context. Nevertheless, it does appear that focused goal-directed activities are occurring *less* frequently than what was predicted by the teachers.

Sustained Attention / Activity. Another assumption of the constructivist, child-centered model is that children's spontaneous learning and exploration within the preschool classroom is so intrinsically interesting that youngsters will remain actively engaged in goal-directed

Table 2.
Percentage of Observations in which Each Behavioral Category was Observed,
Overall, by Classroom, and by Classroom Context

	THREE-YEAR-OLD ROOM				FOUR-YEAR-OLD ROOM				BOTH CLASSES COMBINED			
	SSA 592 obs	LG 359 obs	OUT 500 obs	Overall 1451 obs	SSA 508 obs	LG 411 obs	OUT 382 obs	Overall 1301 obs	SSA 1100 obs	LG 770 obs	OUT 882 obs	Overall 2752 obs
CHILDREN'S ACTIVITY												
Goal-Directed/ On-Task	<u>60.1</u>	69.6	22.6	49.5	<u>73.8</u>	99.5	22.8	66.9	66.4	85.6	22.7	57.8
Non Goal-Directed/ Off-Task	<u>39.9</u>	30.4	77.4	50.5	<u>26.2</u>	0.5	77.2	33.1	33.6	14.4	77.3	42.2
SUSTAINED ACTIVITY												
Same Activity	<u>59.4</u>	75.3	25.7	51.8	<u>64.9</u>	98.4	19.9	62.3	61.9	87.6	23.2	56.8
Different Activity	<u>40.6</u>	24.7	74.3	48.2	<u>35.1</u>	1.6	80.1	37.7	38.1	12.4	76.8	43.2
SOCIAL CONTEXT												
Alone	12.2	0.8	15.0	<u>10.3</u>	20.1	0	19.4	<u>13.5</u>	15.8	0.4	16.9	11.8
With Peer(s)	24.0	5.6	35.4	<u>23.4</u>	48.8	0	72.2	<u>40.3</u>	35.4	2.6	51.4	31.4
With Teacher	11.2	3.3	13.2	<u>10.0</u>	0	0	0	<u>0</u>	6.1	1.6	7.5	5.3
Teacher & Peer(s)	52.5	90.3	36.4	<u>56.3</u>	31.1	100	8.4	<u>46.2</u>	42.6	95.5	24.3	51.5
BEHAVIOR												
Appropriate	99.7	100	99.8	<u>99.8</u>	98.8	100	98.2	<u>99.0</u>	99.3	100	99.1	99.4
Aggression	0.3	0	0.2	<u>0.2</u>	1.2	0	1.8	<u>1.0</u>	0.7	0	0.9	0.6
AFFECT												
Positive	<u>16.7</u>	19.8	33.7	23.4	<u>27.0</u>	20.9	28.2	25.4	21.5	20.4	31.3	24.3
Neutral	<u>81.1</u>	79.3	<u>63.9</u>	74.7	<u>72.0</u>	79.1	<u>69.7</u>	73.6	76.9	79.2	66.4	74.2
Negative	<u>2.2</u>	0.8	<u>2.4</u>	1.9	<u>1.0</u>	0	<u>2.1</u>	1.0	1.6	0.4	2.3	1.5

learning activities for reasonable periods of time. Table 2 shows that in the three-year-old room during SSA, children were engaging in the same activity that they were doing only a minute before only 59% of the time. This figure for the four-year-olds was approximately 65%. It is important to point out, that there are a couple of different possible meanings to (i.e., ways to get) a .60 score on this metric and this variable was unfortunately not able to distinguish between them. This either means that children, within a ten-minute period, spent six continuous minutes doing one focused activity and then spent the other 4 observation periods doing 4 different and other things, OR that children spent basically the whole 10 minute period doing one thing (at least they went back to it often) but that there were at least 4 periods of serious distraction, OR that within the 10 minutes, children actually did three completely different activities but did each of them for about 2 minutes each with about a minute break in between each activity. In either case, it is clear that children were still working on the task/activity that had occupied their attention a minute ago only about 60% of the time during SSA.

Again, although it is not at all clear how long preschoolers should be able to sustain their attention (in fact the figure is probably not expected to be too high given that preschoolers attention spans are not particularly impressive), the interesting point is that the observed 59% is significantly lower than the 100% figure that was predicted by the teacher of the three-year olds, $\chi^2(1) = 343.84, p < .0001$, and similarly the 65% observed for the four-year-olds was considerably lower than the 80% estimate by the teacher/director, $\chi^2(1) = 56.16, p < .0001$ (same procedures as above - inserting teacher estimate as the null hypothesis). Thus, it appears that the children in these classrooms are not sustaining their attention and activities for as long a time as the teachers are assuming and/or hoping for their classrooms.

As would be expected, children's sustained attention was greater during teacher-directed (LG) circle-time activities (87% overall) and less than this during outside time (23% overall), as indicated by a sustained activity by classroom context interaction, $\chi^2(2, 2468) = 639.7, p < .0001$. Also, children in the four year old room were better able to sustain their attention during large group teacher-directed activities (99%) than the three-year-olds (70%), but the small age differences observed were not statistically significant in the SSA or OUT contexts (age by classroom context interaction in a logistic regression, $\chi^2(2) = 51.28, p < .0001$).

Social Affiliation. Overall, children in both classes combined were observed to be alone about 12% of time, with one or more peers 32%, with a small group consisting of a teacher and one or more peers 52%, and one-on-one with a teacher 5% of the time. Of most relevance to the present investigation are the figures relating to the presence of a teacher. Also, because the child's social context during teacher-directed, large group activities is almost completely defined by the context and not really allowed to vary (by definition it is large group, teacher present time), much of the analyses and discussion below is concerned just with children's social partners during SSA and OUT. Further, it is important to recall that adult-child ratios were quite low at this center with (at the most) 14-16 children per classroom with both 2 regular teachers per classroom and 1-4 adult human development students assisting/observing in the classroom (due to the laboratory function of the center). Thus, the child-adult ratio was at worst 8 to 1 and at best 3 to 1.

Considering just the three-year old classroom and just those contexts in which social

affiliation was free to vary (i.e., excluding large group activities), we found that 45% of children's time involved the presence of a teacher in a small group, 29% of the time with one or more peers, 13% alone, and 12% of the time was spent one-on-one with a teacher. The considerable amount of time children spent with a teacher present in a group (45%, or 56% including LG) is more than the teacher of the three-year-olds anticipated (20%), $\chi^2(3) = 927.5, p < .0001$, possibly because during the interview the teacher was just thinking of the time children spent with her personally rather than with all adults in the room. However, the teacher overestimated the proportion of children's time spent interacting one-on-one with a teacher (20% estimation as compared to 12%, or 10% including LG), $\chi^2(3) = 927.5, p < .0001$. Thus, children overall in the three-year old classroom are receiving less one-on-one attention than was thought by the teacher.

To get a sense of what was going on during moments of one-on-one teacher-child interaction in the three-year old room, we limited the observations to just those that contained one-on-one teacher-child interaction and calculated the proportion of these observations in which the child's activity was goal-directed/on-task. An observation that contained both direct teacher-child interaction and child behavior coded on-task was taken as evidence of scaffolding or the teacher assisting the child with his or her goal-directed activity. Observations with direct teacher-child interaction occurring together with child off-task behavior were taken as evidence of the teacher interacting with the child for a different reason (intervening with a problem, directing the child to do something, or chatting about a topic separate from the child's task at hand). This was done separately in the two classroom contexts in which social affiliation was free to vary (SSA and OUT). Recall that the teacher of the 3-yr-olds estimated that 40% of the one-on-one teacher-child interaction time in the classroom was spent assisting children on goal-directed activities. Overall (considering both SSA and OUT time together), the teacher was right on target with her estimate of the proportion of one-on-one time that was spent assisting children with their task activities — 45% (60 out of 133) of the one-on-one observations occurred during children's goal-directed activities, $\chi^2(1, N = 133) = 1.43, p = .23$ (ns.).

As would be expected, more one-on-one time with teacher with the three-year-olds was devoted to assisting children with goal-directed activities during self-selected activities indoors than during outside free play. During self-selected activity periods (SSA — the context in which teacher scaffolding is most likely to occur), 63% (42 out of 67 observations) of the one-on-one observations occurred during children's goal-directed task activities (the remaining 37% thus occurred during off-task activities). This suggests that much of the one-on-one time three-year old children got with teachers during SSA was in the form of teacher scaffolding/assistance. However, it is noteworthy that one-on-one teacher-child interaction is generally rare to begin with during SSA in the three-year-old room, occurring only 11% of the time. While outside on the playground, only about one quarter (27% - 18 out of 66 observations) of the direct teacher-child interaction time consisted of providing assistance with the child's activities.

Results concerning direct teacher-child interaction for the four-year old classroom were particularly striking. Out of a total of 1,301 observations over the course of the semester, *not one* instance of one-on-one teacher-child interaction was observed. The teacher/director had estimated this figure to be 10%. Also relevant to recall in this connection is the relatively high number of adults who were typically present in the classroom. Thus, it appears that

one-on-one teacher-child interaction is considerably rarer than was expected by the staff at this center (9% as compared to an estimated 20% for the three year old room, and 0% compared to 10% estimated for the four-year-old room — for a total of 5% of the time across the whole center) and certainly less than would be expected by early childhood professionals who see the teacher as playing an active role in engaging together with children and their activities. The lack of one-on-one interaction with a teacher was particularly noticeable for the four year olds. Overall, considering only contexts in which social affiliation was free to vary (excluding large group activities), four year-olds spent 20% of their time alone, 59% of their time with peers, and 21% with a combination of teacher and peer present.

Also of interest were the observations in which a teacher was present and interacting with a small group of children (the "teacher & peer(s)" category) and determining what was going on during these occasions. Teacher presence defined this way was also more common in the three-year-old room than in the four-year old room. As reported above, considering just those contexts in which social affiliation was free to vary (i.e., excluding large group activities), 45% of three-year-old children's time involved the presence of a teacher in a small group. This figure for the four-year-olds was about half that, at 21%. As is to be expected, teachers were more likely to get involved in a small group of children's activities inside during SSA than outside on the playground, $\chi^2(2, N = 1982) = 79.19, p < .0001$. In terms of what was going on during these small group interactions, it differs, as it did above, by classroom context (SSA vs. OUT). Outside, teacher presence consisted of the adult assisting the child with goal-directed activities about a third of the time (31% for the three-year-olds, and 35% for the four-year-olds). During SSA however, the majority of these small group observations occurred in the context of the target child working on a task activity (84% for the four-year-olds, 65% for the three-year-olds).

Inappropriate/Aggressive Behavior. Although both teachers estimated the prevalence of inappropriate/aggressive/rude behavior to be relatively low at 10% and 7.5% of the time, respectively, significantly less inappropriate behavior was observed to be the case (.21 of 1% for the three year-olds, and 1.01% for the four-year-olds ($\chi^2(1) = 154.6, p < .0001$, $\chi^2(1) = 75.5, p < .0001$, respectively). Thus, it appears that these teachers overestimated the proportion of time that children in their classroom are engaging in aggressive behavior.

Affect. Children's overt expressed affect was predominately neutral (74% of the time overall) in both classrooms. Overt positive affect (laugh, smile...) was observed to occur about 24% of the time and overt negative affect (frown, cry) was quite rare — occurring in about 1.5% of the observations across the two classrooms. Children engaged in far less overt positive affect, less negative affect, and more neutral affect than was predicted by both the teacher of the three-year-olds (SSA estimation $\chi^2(2) = 533.5, p < .0001$, OUT estimation ($\chi^2(2) = 671.7, p < .0001$) and the teacher of the four-year-olds (SSA estimation $\chi^2(2) = 1592.8, p < .0001$, OUT estimation $\chi^2(2) = 907.2, p < .0001$). For the three-year-olds, positive affect was more likely to occur during outside play time than during the other two contexts, but positive affect was more evenly distributed across the three contexts for the four-year olds (significant context-by-class interaction in a logistic regression model predicting affect from classroom and context — $\chi^2(4) = 18.24, p < .001$). The four year-olds exhibited more positive affect during self-selected activities in the classroom (27%) than did the three year-olds (17%).

Children's Behavior as a Function of Social Affiliation - Self-Selected Activity Period.

In addition to describing the percentages on each of the observational variables in isolation (above), we thought it would be informative to look at the associations between child behavior and their social affiliation. Since it is expected that most on-task, sustained behavior would occur during self-selected activities (SSA), and SSA is the classroom context of most interest, only observations within this context were used for these analyses. A series of chi square analyses was performed to determine if there were any significant associations between the appearance of one behavior with another in particular contexts. During SSA, children were much more likely to be engaged in focused, goal-directed activities when a teacher was present (70% goal-directed when teacher present) than when they were alone (45%), $\chi^2 (4, N = 1,100) = 43.18, p < .0001$. Similarly, sustained attention on one activity over time was more likely when a teacher was present interacting with the children (69% sustained activity when teacher present) than when the children were working/playing alone (37%), $\chi^2 (3, N = 991) = 46.6, p < .0001$. Finally, children were happier (expressed more overt positive affect) when they were in the company of an adult (22% positive affect when teacher present) than when they were working alone (3%), $\chi^2 (6, N = 1090) = 46.7, p < .0001$.

Other Associations/Co-Occurrences Between the Observational Variables - Overall.

The final set of analyses conducted were chi-square tests of association between pairs of the other observational variables not involving social affiliation, and these were conducted on all observations together (SSA, LG, & OUT). Negative affect was much less likely to occur when children were engaged in on-task, goal-directed activities than when they were off-task (76% of all the negative affect expressed occurred during non-goal-directed activities) $\chi^2 (2, N = 2,730) = 19.8, p < .0001$. Similarly, negative affect was much less likely to occur during sustained activities than during new/switching activities (67% of all negative affect expressed occurred during new/switching activities), $\chi^2 (2, N = 2,451) = 9.9, p < .01$. Children were happier when they were engaged in on-task, goal-directed activities. 60% of all the positive affect expressed was observed during goal-directed activities (the other 40% occurring during non goal-directed activity), and this 60/40 split is significantly different from the 50/50 split that would be predicted by chance if positive affect were unrelated to children's on-task behavior ($\chi^2 (1, N = 664 \text{ positive affect observations}) = 24.8, p < .0001$). Similarly, 56% of the positive affect that was observed occurred during sustained activities (vs. the other 44% during non sustained activities). This is also significantly different than the 50/50 split that would be predicted by chance if positive affect were unrelated to children's sustained attention ($\chi^2 (1, N = 606 \text{ positive affect observations}) = 7.2, p < .01$). Thus, children are happier when they are engaged in sustained activity compared to changing from one thing to another. Finally, inappropriate behavior was linked with a lack of sustained, goal-directed activity. Most (75%) of the inappropriate behavior that occurred happened when children were not engaged in goal-directed activity $\chi^2 (1, N = 2,748) = 7.13, p < .01$. And most (73%) of the aggressive behavior occurred when children were not engaged in sustained activities, $\chi^2 (1, N = 2,467) = 5.62, p < .05$.

Discussion

The goals of this study were to describe the activities, behavior, and social affiliation of children in a self-identified, child-centered early childhood classroom and to examine relations between theory, teacher's beliefs, and actual practice. The following questions

were of particular interest: (a) What percentage of time do children spend on focused, sustained, goal-directed activities, and how does this compare with teachers' perceptions, and what might be expected from the child-centered model; (b) What percentage of the time do children spend alone, with peers, and interacting with a teacher, and how do these compare with both teacher perceptions and what might be expected from the child-centered model; and (c) To what extent are children's affect, goal-directed activity, and aggressive behavior associated with children's social affiliation in the classroom. The results in each of these areas will be summarized, along with a discussion of the implications and limitations of these findings.

Central to the child-centered, constructivist perspective in early childhood is the notion that children learn through individual active involvement with objects and people in their environment. When left to their own devices, children will construct their own knowledge and understanding of their environment through meaningful engagement with learning materials (Kamii & Ewing, 1996). The child controls the learning situation by pursuing self-initiated activities within the classroom. This self-initiated activity is goal-directed in nature and is sustained according to the child's interests (Schweinhart & Weikart, 1988). Also according to theory, the teacher acts as a facilitator rather than an authority figure guiding children's activity. The teacher sets up appropriate activities within the environment, but does not get involved in children's learning except to give guidance when truly necessary (DeVries & Kohlberg, 1990; DeVries & Zan, 1995). The staff interviewed at the center participating in this study clearly agreed with such a pedagogical orientation and believed they were providing such a child-centered, developmentally appropriate experience for their children. The teachers also believed, consistent with the child-centered, constructivist perspective, that the children were receiving considerable amounts of one-on-one time with a teacher, that the children were meaningfully engaged in sustained and goal-directed learning activities for much of the time, and that the children expressed a great deal of overt positive affect throughout the day.

The classroom observations, however, paint a slight different picture, and they confirm a fear that the center director herself had shared with us during the interview—that the center was a bit “too child-centered” and that she may need to revisit the role of the teacher and increase the degree of teacher-provided scaffolding for the next academic year. Children in these classrooms a) spent less time engaging in focused, goal-directed, learning activities, b) sustained their attention on one activity for smaller lengths of time, c) expressed overt positive affect considerably less often, and d) had significantly less one-on-one teacher-child interaction than was believed and desired by the teachers, and less than would be expected from many descriptions of developmentally-appropriate, child-centered pedagogy. It appears that this early childhood program may be committing the “early childhood error” and leaving too much up to chance—that is, assuming that children, without much teacher-provided assistance or scaffolding, will happily and spontaneously engage and challenge themselves with focused learning activities more so than is actually the case. The results of this investigation, thus are consistent with calls by others to revisit the “hands-off” role of the teacher in many child-centered classrooms and move toward a more active “scaffolding” role for early childhood professionals (Bredekamp & Copple, 1997).

Results pertaining to the amount of direct teacher-child interaction occurring in the classrooms are particularly impressive and confirm what others have documented as a

concern about the quantity and quality of teacher-child verbal interaction in many early childhood programs (Göncü & Weber, 2000; Kontos, 1999; Kontos & Wilcox-Herzog, 1997a; Layzer et al., 1993; Wilcox-Herzog & Kontos, 1998). Out of 1,301 observations conducted in the 4-year-old-room over the course of the semester, not one instance of one-on-one, teacher-child interaction was noted, which is of course considerably lower than the 10% figure estimated by the teacher. Recall that the child-teacher ratios at this center are quite low – between 3 to 8 children per teacher/adult depending on how many human development students are present. Overall, the three year olds were observed to be directly interacting with a teacher about 10% of the time (which is half of the 20% estimated by the teacher) and the majority (55%) of these already rare one-on-one interactions occurred during off-task activities in which the teacher was likely directing behavior rather than scaffolding the child's learning activities.

High quality interactions and appropriately challenging and supportive verbal interchange between teacher and child during joint problem-solving activity is known to foster children's cognitive, social, and motivational development in children, and thus is an essential ingredient for high quality child care (Berk & Winsler, 1995; Kontos & Wilcox-Herzog, 1997b; NICHD Early Child Care Research Network, 1996). Contrary to fears that teachers might have of intruding on and disturbing children's activity, decreased teacher-child ratios are associated with increases in children's active and sustained engagement in learning activities in early childhood classrooms (Raspa, McWilliam, & Barry, 2001). Indeed, teacher presence in the classrooms observed here did facilitate children's focused learning activities, as children were more likely to engage in both sustained and goal-directed activity in the presence of a teacher compared to being alone. Furthermore, children were happier (expressed more positive and less negative affect) and were less likely to exhibit aggressive/inappropriate behavior when they were engaged in such focused and sustained goal directed activities compared to during off-task and rapidly-changing activities. Unfortunately, such moments of adult-facilitated, focused child goal-directed learning were relatively uncommon occurrences in these classrooms.

Of course, it is not expected or even optimal for young children to be engaged in focused, scaffolded "on-task," goal-directed activity all or even most of the time. Nor is it clear what the optimum percentages of time are that children should be engaging in the various classroom behaviors investigated in the present study. The main and important point, however, is that children were not having the early childhood classroom experience that the teachers thought they were having (in terms of time spent with a teacher, focused and sustained engagement in goal-directed learning activities, expressed affect etc...). This suggests that it is a good idea for early childhood professionals to step back and objectively assess the extent to which what is desired and assumed to be happening in their classrooms is in fact occurring. Indeed, as the center director has suspected, children were not receiving the degree of teacher scaffolding and structure that she saw as being optimum.

It is interesting to note on the side that both teachers overestimated the frequency of aggressive behavior occurring in their classrooms. Although aggressive and destructive behavior by the children was indeed quite rare in these classrooms (less than 1% of the observations), it is potentially instructive that the teachers estimated this figure to be much higher - between 7.5 and 10%. This suggests, first of all, that teachers perceive intervening with problematic child behavior to be a relatively large part of what they do, at least larger

than what appears necessary from the observations. Second, such teacher overestimation of the frequency of problematic child behavior in the classroom is a potentially important issue for the literature on early childhood cross-informant assessment which often finds that parents report even more problematic behavior in children than do teachers (Gagnon, Vitaro, & Tremblay, 1992; McGee, Silva, & Williams, 1983; Verhulst & Akkerhuis, 1989; Winsler & Wallace, 2002).

A number of qualifications and limitations of the present study should be discussed. First of all, it is worth pointing out for clarity that the classroom observations conducted in this study were at the child level of analysis – that is, randomly selected target children were being observed at systematic intervals. We feel that this decision is justified given that after all, children and the experiences and outcomes for children in early childhood programs, are the primary concern of early childhood education. Observational studies in which early childhood teachers (instead of children) are the targets of observation (Kontos, 1999; Layzer et al., 1993) understandably report different estimates for teacher-child interaction (around 70%) as they are estimates of a different figure — the amount of time that teachers spend interacting with children. These studies suggest, that given typically large numbers of children per teacher, simple math could account for the discrepancy between their figures and the 10% estimate observed here for child-teacher interaction from the child's perspective. However, the very small teacher-child ratios of the current center would suggest that the percentage of time for direct teacher-child interaction from the teacher's perspective for this center is actually lower than the 70% figure reported by others.

Other limitations of the study were that only two of the four teachers at the center were interviewed. To fully understand the implications of teacher beliefs upon actual classroom practice, it would have been optimal to have interviewed all of the teachers involved with the program. Further, no standardized/published self-report measures of developmentally appropriate practice or teacher beliefs and practices were completed by teachers here, thus limiting our ability to compare the present results with those of other work on teacher beliefs and DAP. There is certainly more to teacher beliefs than their perceptions of the percentage of time children engage in the various activities studied here. Additionally, only social affiliation (who was with whom) was coded in the present study and not the quality or nature of the interactions. Clearly, to get a better understanding of the dynamics of teacher-child interactions in classrooms and of the extent to which teachers are or are not scaffolding children's activities, videotapes and transcripts of interactions would need to be analyzed. Future work in this area could benefit from overcoming these limitations. Finally, it is worth mentioning that only one center was observed in the present investigation and the particular site studied is likely not typical or representative of the "average" early childhood program. Generalization of the findings to other centers and teachers is not possible and was not a goal of the study. It is, of course, possible that the same is true for other, similarly "child-centered" preschools (or any other early childhood program, for that matter). Discovering the extent to which similar processes characterize other preschool programs is a critical issue for future research.

Understanding how different centers view and implement child-centered, constructivist pedagogy, and examining the extent to which such early childhood classroom environments are in fact meeting the goals and expectations of center staff, is a critical step toward reaching

the goal of providing developmentally-appropriate educational experiences for young children. Part of this journey involves critically examining and defining optimum roles for early childhood teachers in terms of the amount of structure, interaction, and scaffolding they provide for children in their classrooms. It is relatively easy for teachers to provide early childhood curricula at the extremes of the child-centered to teacher-directed continuum. On the extreme of the teacher-directed side, one can easily prepare ahead of time and follow-through with very structured and scripted didactic presentations of materials and activities for the children. On the extreme of the child-centered side, teachers can very easily step back and simply not "interfere" with children's activities, letting youngsters do what they will as they construct their own daily activities. The difficult task is flexibly and contingently "finding the happy medium" as the center director interviewed in this study put it – that is, figuring out where in the middle of the continuum it is best to be in order to provide care which simultaneously encourages children's self-direction, self-construction, and autonomy yet enriches their educational experiences through responsive teacher-mediated scaffolding or assistance. Results from this investigation suggest that this "child-centered" early childhood program had much to gain from being self-reflective and objectively measuring the extent to which what was actually occurring within their classrooms was consistent with staff perceptions and goals. In this case, children were not engaging in as much focused, sustained, goal-directed learning activity, were not expressing as much positive affect, and were not receiving as much individual attention from the teacher as was predicted and desired from the teachers. This center, thus, might consider reorganizing their curricula in such a way as to allow for more one-on-one direction and scaffolding of children's learning activities.

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