

Comparison of Head Start and Child Care Facilities in Pennsylvania

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Introduction

The first five years of a child's life are critical for establishing a positive developmental trajectory. As more and more children spend time in non-familial care, the quality of the early care and education setting is of great importance. Research has shown that high quality care in the early years can benefit the development of language skills, socio-emotional skills and cognition. More specifically, a number of randomized intervention trials have demonstrated that high-risk children who receive intensive high quality care perform better on measures of academic competency, have fewer behavior problems, less likely to be delinquent and more likely to graduate from high school than their peers in more traditional forms of care (Weikart & Schweinhart, 1997; Campbell and Ramey, 1994). Effects in some instances even extend into adulthood with the individuals who received intensive high quality early care more likely to be employed in a skilled job, to attend a four year college and to postpone parenthood (Campbell et al, 2002).

Keeping the benefits of high quality care in mind, Pennsylvanian policymakers concerned with children's developmental potential need to be aware of the quality of care available in the state. In April 2002, then Governor Schweiker commissioned the Early Childhood Care and Education Task Force and charged them with the task of "examining the full range of proven, evidence-based school readiness strategies available for early childhood care and education targeted at children age 0-8 and the existing

Commonwealth services targeted to that age group.” The Task Force was then given the assignment of evaluating the overall state of child care in Pennsylvania. Through the efforts of the University Children’s Policy Collaborative (which is made up of the Pennsylvania State University, the University of Pittsburgh and Temple University), there emerged a baseline descriptive study of 372 early care and education programs across the state.

This baseline study (Etheridge, et al, 2002) included many of the types of care available in the state - Head Start, preschool/nursery schools, child care centers, family day care homes, group homes and legally unregulated homes. In essence, the report provided a snapshot of the types and quality of care that exist in Pennsylvania. One of the major findings was that the type of setting impacts the level of quality. Head Start and preschools were significantly higher in quality than child care centers and home environments; in fact, the majority of care (excluding Head Start) was rated only minimal to adequate. Another report by the Task Force conducted observational evaluations of classroom quality in the 372 early care and education programs. A comparison of the currently levels of quality to those recorded in previous studies indicates that the quality of care in Pennsylvania has actually declined over the past 10 years (Fiene et al, 2002). The present paper builds upon these two descriptive studies and examines the factors which may contribute to the significantly higher quality of care found in Head Start as compared to child care centers.

Literature Review

The Task Force Reports relied heavily on the ECERS-R as the main measure of quality for preschool aged children. The ECERS-R - Early Childhood Environmental Rating Scale- Revised (Harms, Clifford, and Cryer, 1998) has been used in several major

studies of early care and education over the past 20 years and is considered one of the most reliable program quality assessments in the early childhood field. The measure consists of 43 items divided into 7 subscales. Each item is rated on a scale of 1 to 7, with 7 representing excellent quality. Item scores are averaged together to form individual subscale scores as well as a composite score of overall quality. Thus, a program can earn an overall score in the range of 1 to 7. Typically 2.99 or less is inadequate, 3-3.99 represents minimal care, 4-4.99 is adequate, 5-5.99 is good and anything 6 or above is considered excellent. Subscale scores can be interpreted the same way. In the current paper, the ECERS-R score is generally used as representative of overall care quality.

The Baseline Report (Etheridge et al, 2002) also created a unique index of quality composed of various quality indicators drawn from the literature. Criteria were established to determine whether a program “passed” a particular indicator. For example, child-staff ratios have been linked to quality and thus ratio was one of the components of the index. In order for a program to ‘pass’ the ratio component, the program needed to match or surpass the established ratio. The overall index score represented the percentage of the 16 indices that were passed, providing another measure of the overall quality.

The components of the quality index provide a starting point in identifying what factors contribute to quality care. Comprehensive measures of quality are important but efforts for improving quality are better focused on specific areas, especially those aspects of care that can be linked directly (or indirectly) to improved child outcomes. For example, aspects of quality identified by the quality index – low staff-child ratios, smaller group sizes and higher levels of caregiver education- have been found to be associated with higher scores on measures of children’s development (NICHD Early Child Care Research Network, 1999).

Early care and education quality emerges through both structural and process factors (Etheridge et al, 2002). Structural factors included things like the education and training level of the staff, staff-child ratios, group size, use of a curriculum and/or structured assessments, etc. Typically, structural factors are regulatable and are often the focus of the program standards for early childhood groups such as the National Association for the Education of Young Children. Many structural factors have been shown to be associated with higher quality care and positive child outcomes including ratio, group size and education level (Burchinal, et al, 2002; NICHD Early Child Care Research Network, 1999; Howes et al, 1992).

Structural factors are often what come to mind when considering the components of quality care. For example, a high quality environment is typically thought of as one with a certain number of adults per children, where the adults have achieved a certain education level and the classroom is stocked with certain kinds of materials. Structural factors can be easily assessed through basic survey questions. However, a program with all the structural factors at appropriate levels is not guaranteed to be of high quality and imparting beneficial impact on children's development. The second kind of factors – process- needs to be considered as well.

The ecological theory of development suggests that development occurs through interactions between the individual and the environment (Bronfenbrenner and Morris, 1997). Ongoing interactions with both people and objects shape a child's development over time. The strongest influences are those individuals with whom the child interacts on a regular basis. Parents, obviously, exert a huge influence on development, but as more and more children spend the majority of their waking day in non-parental care, the child care setting can also be considered an important influence on development. The

daily interactions found in the classroom setting are an example of process variables. Even with all the appropriate structural variables in place, if the child is subjected to inadequate staff-child interactions, optimal development may be compromised. Thus, process variables such as interactions can be considered one of the most important components of child care quality.

Though not exerting as direct an influence on development, structural indicators of quality are still important to consider in examining differences in overall quality. It may be that structural factors have a more indirect influence, perhaps mediated by the process factors such as staff-child interactions. Research from the NICHD Study of Early Child Care suggests that a process variable such as staff-child interaction can mediate the effects of structural variables such as ratio (NICHD Early Child Care Research Network, 2002). Thus, any explorations into the components of quality care should include both structural and process indicators.

Results

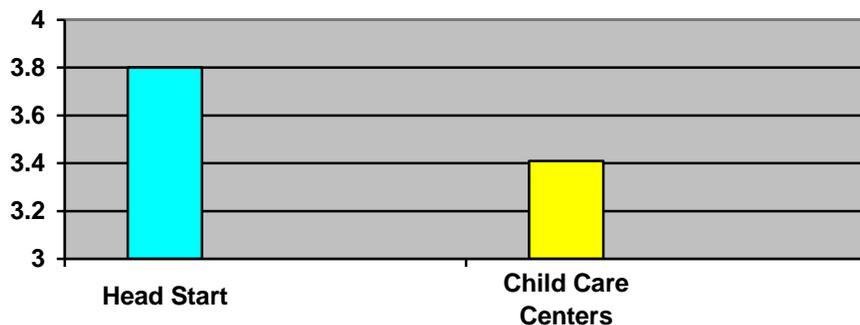
Process Indicators of Quality : Staff-Child Interactions

The Task Force studies have established that Head Start programs and Child Care Centers (CCCs) differ significantly in quality as measured by the ECERS-R with Head Start consistently scoring higher (Fiene, 2002; Etheridge, 2002). Thus, this paper seeks to investigate which individual components of quality may contribute to this difference. Based on ecological models of development, staff-child interaction is hypothesized to be a factor that may affect quality. Thus, staff-child interactions were examined through several different measures.

This study used the Arnett Caregiver Interaction Scale (CIS) to examine the staff-child relationship. The CIS is a measure of caregiver sensitivity and consists of 31 items divided into four subscales -sensitivity, harshness, permissiveness and detachment (Arnett, 1989). Items are scored on a four point scale based on how often the behavior occurs. For example, to score a three on “speaks warmly to children,” the behavior was observed in many instances or 31-60% of the time or to score a four, the behavior was observed consistently, i.e. 61% to 100% of the time. A four is considered excellent, three good and so on. Negative items are reverse scored for the overall measure of interaction quality.

Based on the overall CIS score as representative of interaction quality, both child care centers and Head Start programs perform in the good to excellent range. However, child care centers do score significantly lower on the CIS composite score than do Head Start programs, $t = 4.23$, $p < .01$, with CCC’s averaging around 3.4 and Head Start programs averaging 3.8 (See Chart 1).

Chart 1--Mean Scores on the Arnett Caregiver Interaction Scale



The Arnett CIS is an effective tool for assessing interactions but it is also limited in that it does not distinguish the highest quality programs. The highest score is a four represents those programs which perform appropriately 60% to 100% of the time, a wide

range of behavior. A second measure of interaction quality was needed to more closely examine the difference in interactions that are associated with quality.

The ECERS-R, which is one of the best means to evaluate overall quality, does include an interaction subscale. However, this original interaction subscale focuses more on supervision and discipline rather than on staff-child interactions. Thus, a new Interaction Subscale was created by combining items from several of the original subscales (see Table 1 for details.) These six items form a clearer picture of the quality of staff-child interactions. This new Interaction variable correlates highly with the CIS, $r = .75$, $p < .001$, and with the overall ECERS-R score, $r = .82$, $p < .001$. Cronbach's alpha for the new interaction subscale is .78, suggesting an appropriate level of coherence.

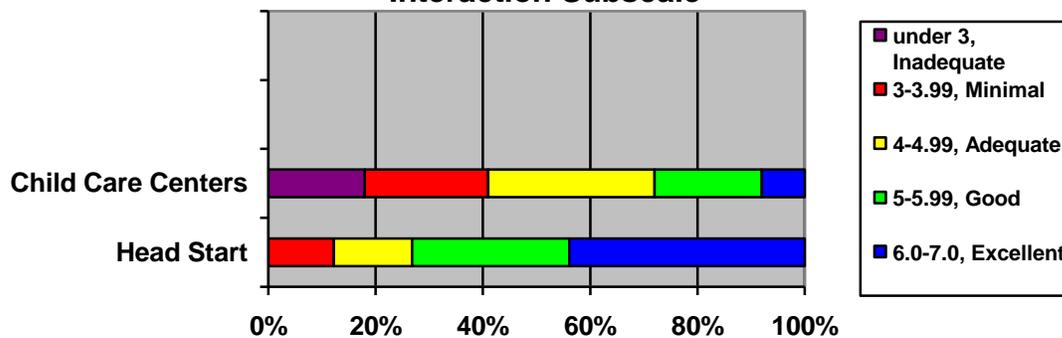
Table 1: Items in the New ECERS Interaction Subscale

ECERS Item #	Name	Original Subscale	Description of Item for High Quality
9	Greeting/Departing	Personal Care	Children and parents are greeted individually and warmly, children helped to become involved in activities if needed.
10	Meals/Snacks	Personal Care	Meals and snacks are times for conversation; for ex staff encourage children to talk about things they are interested in. Children encouraged to eat independently and help with setting up meals.
16	Encouraging Children to Communicate	Language-Reasoning	Staff balance listening and talking appropriately with children. Encourage children to communicate about activities, have materials which facilitate communication.
17	Using language to develop reasoning skills	Language-Reasoning	Staff talk with children about reasoning, encourage children to reason throughout the day, concepts are introduced and talked through.
18	Informal Use of Language	Language-Reasoning	Staff have individual conversations with most of the children, Children encourage to talk and asked questions (what, why, how)

32	Staff-Child Interactions	Interactions	Staff seem to enjoy being with children, encourage mutual respect between children and adults.
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When Child Care Centers and Head Start programs are compared on the new ECERS Interaction subscale, Head Start with a mean score of 5.55 again performs significantly better than the 4.22 average of the Child Care Centers, $t = 6.52, p < .01$. Over 40% of Head Starts fall into the excellent category while only 8% of Child Care Centers reach that kind of quality. On the lower end, a 41% of CCC's are minimal to inadequate while only 12% of Head Starts are rated as minimal.

Chart 2: Distribution of Scores for New ECERS Interaction Subscale



Thus, on both an overall measure of quality (ECERS-R) and measures specifically concerned with interactions (CIS and new Interaction subscale), Head Start scores significantly higher than Child Care Centers. The next series of analyses compared the two types of programs on structural variables of quality and related those structural variables to the process variable of interactions.

Structural Indicators of Quality: Use of Curriculum, Accreditation, Turnover and Training Hours

One factor that may contribute to the quality of staff-child interactions (and thus the overall quality of care) is whether or not the program uses a curriculum. Previous

research suggests that those programs that use some form of curriculum have higher quality than those programs that do not (Fiene et al, 2002). Closer examination finds that 87.8% of the head start programs use a curriculum while only 49% of Child care centers do (See Chart 3). This is a significant difference, $t = 4.55, p < .01$. In addition, use of a curriculum shows a significant association with measures of quality including measures of process quality (see Table 2). Therefore, it seems that the use of a curriculum may be affecting the quality of process indicators within early care programs.

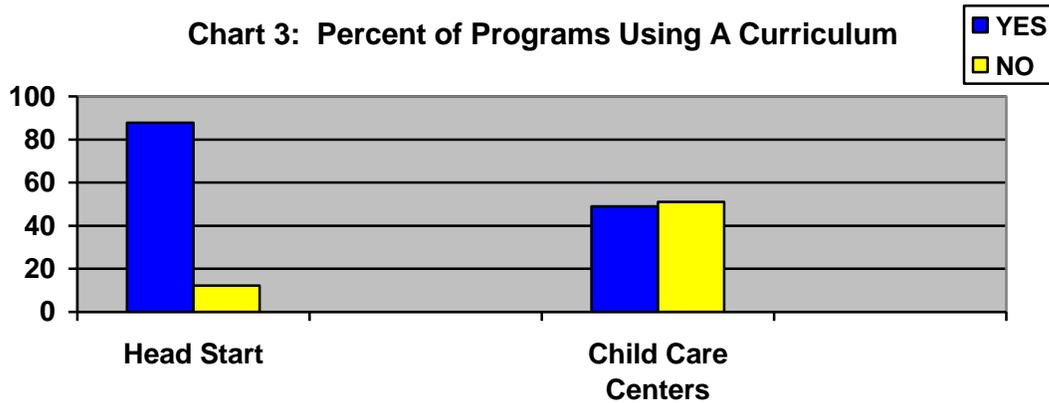


Table 2: Correlation between Quality Measures and Use of Curriculum*

	ECERS total	Arnett Total	New Interaction
Curriculum	.31	.23	.28

* significant at $p < .01$. N= 141 (all child care centers and Head Start programs)

Accreditation

A second possible contributor to process quality is whether or not a given program is accredited. This may play less of a role in the differences between Head Start programs and CCC's because Head Start has extensive program standards to which it

must adhere. Though 19.5% of Head Start centers are accredited (typically by NAEYC) while only 14 % of CCCS are, there is also a greater percentage of Head Start programs that are not accredited or working on (63%) than there are Child Care Centers (56%).

Table 3: Head Start and CCC that are accredited

Are you accredited?	Head Start (n = 41)	Child Care Centers (n = 100)
YES	19.5%	14%
Working on it	17.1%	29%
NO	63.4%	56%

Though there is no significant relationship between accreditation and quality measures, there is a pattern within child care centers of at least a half a point difference in quality on the ECERS total score and the interaction variable score between those centers that are accredited versus those that are not (see Table 4).

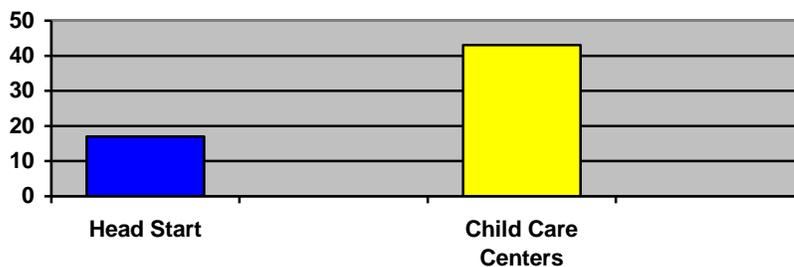
Table 4: ECERS, Arnett and ECERS Interaction Variable for Child Care Centers

	Is your center accredited by any professional organization?	N	Mean
ECERS total score	Accredited	14	4.2929
	Not accredited	56	3.6546
Arnett total score	Accredited	14	3.6452
	Not accredited	56	3.3149
Interaction variable from ECERS items	Accredited	14	4.5833
	Not accredited	56	3.9821

Turnover

The rate at which staff leave and new staff enter a program could affect the quality of the interactions as both the children and the staff adjust to the new relationship. Head Start has a turnover rate of about 17%, while child care centers report a rate of 43%. The turnover rate shows a significant negative association with the overall ECERS-R score, $r = -.203$, $p < .05$ indicating that a higher turnover rate is associated with lower quality. The same negative association occurs with the Arnett score and the interaction variable but the association is not significant.

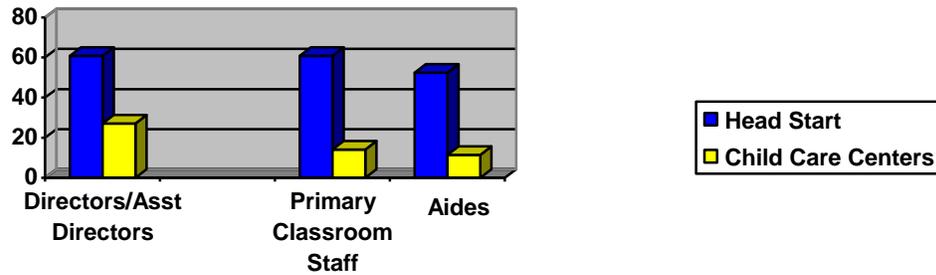
Chart 4: Staff Turnover Rate in the Past Year



Training Issues

The number of training hours that the staff accumulates may also impact staff-child interactions as the staff learn the best practice in numerous areas. If training is associated with higher quality, this would also be an easy target for quality improvement efforts with more training hours offered or focusing in on specific topics. Within the sample, there was a wide range in the amount of hours spent in training. In all three categories of staff (directors/assistant directors, primary classroom staff, and aides), Head Start had significantly more hours of training. For directors/assistant directors, $t = 4.49$, $p < .01$, for primary classroom staff, $t = 9.99$, $p < .01$, and for aides, $t = 8.16$, $p < .01$.

Chart 5: Number of Training Hours by Staff Category



The number of training hours may affect interactions thereby contributing to why Head Start is significantly higher in quality than child care centers, particularly considering that the number of training hours is positively correlated with the ECERS-R total score, the Arnett Score and the Interaction (See Table 5).

Table 5: Correlations between Quality Scores and Training Hours*

	ECERS-R total	Arnett CIS	New ECERS Interaction
Training hours for directors/asst directors	.33	.28	.32
Training hours for primary classroom staff	.38	.26	.34
Training hours for aides	.41	.21	.38

*All correlations significant at $p < .01$, except ECERS/ aides at $p < .05$

Discussion

Staff-child interactions are an important component of the early care and education experience. Even from a common sense view, it seems that the relationship between the child and the caregiver, i.e. their interactions, could make or break the experience. The data above show that high scores on measures of interaction quality

(CIS and the new ECERS Interaction subscale) are correlated with high scores on assessments of overall quality (ECERS-R). In addition, structural components of quality show an association with both interaction quality and overall quality suggesting that staff-child interactions are the means through which the structural variables affect quality.

How might this occur? First, let us consider that more hours of training are associated with higher quality and that CCC's and Head Start programs differed significantly in the amount of training hours their staff had accumulated. Training hours can reflect the quality of interactions in two ways: knowledge and educational philosophy. Training experiences can educate staff about developmentally appropriate interactions as well as stressing the importance of providing a warm, caring environment. For example, staff may be unaware of the importance of asking children open ended questions (this appears to be a real concern in many programs) or greeting each and every child in a warm and friendly manner. Training can remedy these deficits in knowledge. In addition, the accumulation of many hours of training may indicate a strong desire to provide the best possible environment for young children. The individual follows an educational philosophy that is committed to fostering positive development rather than simply aiming to provide adequate custodial care.

This concept of educational philosophy also plays into the possible relationship between use of curriculum and accreditation with quality of interaction. The goal of some programs may be to provide basic custodial care - feeding children, keeping them safe - while the children's parents are busy. Other programs go beyond custodial care and try to promote optimal development of the children in their care. Programs which make use of a curriculum are showing that they are committed to aiding children's development, even if only at the most basic level, by planning specific activities. Lack of

a curriculum does not necessarily mean that the program is not interested in promoting positive development but the motivation may be weaker. Use of a curriculum was associated with higher quality interactions and overall quality suggesting that those programs which use a curriculum are committed to fostering children's positive development.

Accreditation may also reflect the philosophy of the program, thereby influencing the quality of interaction. Those centers who have made the effort (or are in the process) to achieve accreditation are committed to providing a high quality environment for the children in their care. While avoiding accreditation does not mean that the program is only interested in basic custodial care, it does seem that such basic care programs are unlikely to have any interest in accreditation.

The data on accreditation in this study may be misleading because the Head Start programs which are higher in quality than the CCC's have a greater percentage of programs which are not accredited. However, this may be due more to the governing program standards of Head Start than to the lack of interest in accreditation. Child care centers, which are licensed by the Department of Public Welfare (DPW), have only the most basic guidelines, particularly in terms of interactions and classroom practice. Head Start program standards are much more complex and detailed, with more similarity to the accreditation standards of an organization like NAEYC than DPW. Therefore, it may be that Head Start programs interested in improving/maintaining quality have more directives for best practice within their own organization rather than CCC's who must look beyond their governing body to find guidelines for higher quality. Thus, focusing specifically on the relation between CCC's accreditation and level of quality may be more informative than including Head Start programs in the mix. Results show that those

CCS's which are accredited (or working on it) have higher overall ECERS-R scores than do those centers who are not accredited. Head Start programs show no such trend.

By considering the possible ramifications of a program's philosophy, we can understand the relationship between training hours, use of curriculum and accreditation to the quality of interaction. Correlational analysis shows us that the three structural variables are associated with staff-child interaction measures as well as to overall quality. Perhaps future qualitative studies can focus more directly on the educational philosophy of the programs and determine the effect on quality. However, if qualitative information is unavailable, accreditation, use of a curriculum and even number of training hours pursued may provide insight into whether the program is committed to providing high quality care that benefits children's development or whether the program is designed more to provide adequate custodial care.

Turnover is another structural variable that was associated with quality of interaction as well as the quality of the program overall. Higher rates of turnover were negatively associated with quality measures. If caregivers are constantly changing, it is difficult for the child and teacher to build the trusting relationship that is so crucial for positive development. In addition, with a constantly change staff roster, the program has no chance to create an efficient and effective system conducive to high quality care. Child Care Centers high rates of turnover makes them particularly vulnerable to scoring poorly on measures of quality (such as interaction) that could be affected by staff turnover.

Policy Recommendations

With more and more children spending large portions of their day in non-parental care, there arises a new emphasis on providing high quality care to promote positive development. Previous research has established the connection between high quality and positive child outcomes. This study identifies staff-child interactions as one of the main factors that contribute to differing levels of quality between Head Start programs and Child Care Centers within the Commonwealth of Pennsylvania. Applying this knowledge to early childhood care and education policy is complicated since the regulation of interactions is difficult. However, this study also identifies dimensions of quality that are linked with interaction quality as well as overall quality of care. These components – turnover, amount of training, use of curriculum and accreditation – are more easily targeted by statewide policies and initiatives.

One possible policy change is to increase the amount of training hours mandated by the state. Six hours is the minimum required by DPW and a review of the data from child care centers indicates that the average center does not go much beyond the required minimum. Head Start on the other hand, though not requiring a set number of hours, calls for on-going in-service training opportunities for staff to “acquire the knowledge and skills necessary to implement the content of the Head Start Program Performance Standards.” Perhaps by increasing training hours for child care centers, the quality of care could be increased.

Addressing the issue of turnover is crucial to ensure the presence of the quality interactions such as those that have been linked to high quality care. If the children are unable to form bonds with a single caregiver, due to rotating staff, optimal development is compromised. Possible means of addressing turnover rates include increased wages

and better benefits to encourage staff to stay in the profession. The state could offer a program where there are monetary rewards for staff that remain at the same center, similar to the WAGES program offered in North Carolina.

In addition, efforts to improve respect for the child care profession would encourage long term employment. Possible methods include increasing education requirements and campaigns with local leaders to spend a day in the classroom. Since high levels of stress was cited as one challenge in retaining staff, centers could be encouraged to reduce stress on teachers by allowing for more planning time (through one or more floater teachers) and increasing in-service workdays.

Overall quality could be improved by an increased public awareness of the benefits of high quality care. Media campaigns could encourage parents to look for high quality programs, thereby increasing demand and stimulating programs to increase quality in order to draw in business. In addition, DPW could tighten program standards, modeling them after Head Start or NAEYC program standards, in an attempt to regulate quality from the state level.

Additional trainings could also help to improve interaction quality. For programs already committed to providing high quality care, trainings on the importance of interaction, as well as practical “how-to” would be of help. Mentoring programs which have seen so much success (Fiene, 2002) would seem the ideal means with which to show weaker programs the best methods of interaction.

Conclusion

The data suggests that the differing levels of quality in staff-child interactions contribute to the disparate levels of quality between Pennsylvanian Head Start Programs

and Child Care Centers. Future research should explore how staff-child interactions mediates the effect of the structural variables. In addition, later studies can examine whether there are certain aspects of quality that are more important than others in contributing to overall quality of care, such as the Baseline's Index of Quality. Does each component contribute equally in creating a caring environment that promotes positive child outcomes. Such information would inform efforts to improve the quality of care with limited funds. In any case, staff-child interactions are a critical component of quality early care and education and efforts to raise quality levels should consider how best to improve staff-child interactions.

References:

- Arnett, J. (1989). Caregivers in day-care centers: Does training matter? *Journal of Applied Developmental Psychology*, 10, 541-552.
- Bronfenbrenner, U. & Morris, P.A. (1997). The ecology of developmental processes. In W. Damon (Ed.) *Handbook of Child Psychology* (5th ed., pg 993-1028). New York: Wiley.
- Burchinal, M.R., Cryer, D., Clifford, R.M, & Howes, C. (2002). Caregiver training and classroom quality in child care centers. *Applied Developmental Science*, 6, 2-11.
- Campbell, F. A., Ramey, C. T., Pungello, E. P., Sparling, J., & Miller-Johnson, S. (2002). Early Childhood Education: Young Adult Outcomes from the Abecedarian Project. *Applied Developmental Science*, 6, 42-57.
- Campbell, F. A. & Ramey, C. T. (1994). Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families. *Child Development*, 65, 684-698.
- Etheridge, W., McCall, R., Groark, C., Mehaffie, K., and Nelkin, R. (2002). *A Baseline Report of Early Care and Education in Pennsylvania: The 2002 Early Care and Education Provider Survey*, Pittsburgh Pennsylvania: Report prepared for Governor's Task Force on Early Care and Education.
- Fiene (2002). Improving child care quality through an infant caregiver mentoring project, *Child and Youth Care Forum*, 31(2), 75-83.
- Fiene, R., Greenberg, M., Bergsten, M., Carl, B., Fegley, C., & Gibbons, L. (2002). *The Pennsylvania early childhood quality settings study*, Harrisburg, Pennsylvania: Governor's Task Force on Early Care and Education.
- Harms, T., Clifford, R., & Cryer, D. (1998). *Early Childhood Environment Rating Scale-Revised*. New York: Columbia University Teachers College Press.
- Howes, C., Phillips, D.A., & Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based child care. *Child Development*, 63, 449-460.
- Nation Institute of Child Health and Human Development Early Child Care Research Network. (2002). Structure> process>outcome: Direct and indirect effects of caregiving quality on young children's development. *Psychological Science*, 13, 199-206.
- Nation Institute of Child Health and Human Development Early Child Care Research Network. (1999). Child outcomes when child care center classes meet recommended standards for quality. *American Journal of Public Health*, 89, 1072- 1077.

Weikart, D.P., & Schweinhart, L.J. (1997). High/Scope Perry Preschool Program. In G. Albee & T.P. Gullotta (Eds.). *Primary Prevention Works* (pp. 146- 166). Thousand Oaks, CA: Sage