THE IMPACT OF FINANCIAL AND HUMAN RESOURCES UPON THE QUALITY OF CHILD CARE CENTER CLASSROOMS IN HAWAII

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF EDUCATION

IN EDUCATIONAL ADMINISTRATION

DECEMBER 1987

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ACKNOWLEDGEMENTS

This dissertation was inspired by the dedicated directors and teachers who work in Hawaii's child care centers. They have earned and deserve grateful alohas from young children, their families, and the early childhood community.

Many people helped me--my husband Neil, my family and classmates, and friends who were always ready with physical and cognitive hugs. They expected me to do my best and I appreciate their support. A special thank you to my academic advisors and to Dr. John A. Thompson who never gave up.

ABSTRACT

The purpose of this study was to examine the impact of selected financial and human resources upon the environments of child care center classrooms. The population to which the findings could be generalized consisted of ninety centers in Honolulu, Hawaii. A random sample of fifty-two centers was drawn from the population.

The data for this ex post facto causal-comparative study were collected from (1) ratings by observations of center classrooms and (2) interviews with directors. All data were gathered from April through May, 1987.

The results of the one-way analysis of variances revealed no significant differences at the p=<.05 level between various types of income such as tuition, public and private funding, fund raising profits, and investment returns when the dependent variable was the Early Childhood Classroom Observation (ECCO) Curriculum sub-scale rating. The results of the n-way analysis of variances when adjusted by parent participation hours indicated no significant differences between various types and levels of income.

When tested by the n-way analysis of variance, differences in human resources such as director and teacher degrees, and the early childhood education/child development (ECE/CD) units earned when adjusted by center factors were not significant when measured on the ECCO ratings. The same finding was indicated when director experience as a director and teacher experience were the independent variables. The group which included directors with below the mean years of

teaching experience received higher and significantly different ratings than those above the mean when measured on two ECCO sub-scales. A one-way analysis of variance of teacher ECE/CD units resulted in a finding that the group with teachers who had thirteen or more units were rated higher on the ECCO scale.

The size of the group was an indicator of higher ECCO ratings. The group size of twenty-one or below received higher and significantly different ratings than the group with more than twenty-one children. Adult-child ratios were not related to ECCO ratings.

The findings from the multiple regression analysis of income variances and center factors revealed no strong correlations. Group size accounted for a six percent variance in total per-child income. There was a non-chance correlation between larger groups and lower ECCO ratings.

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CHAPTER 1

INTRODUCTION

The purpose of chapter one is to present a general introduction to the research question which was explored in this study. A review of the historical and social contexts of the conditions which prompted the research is followed by an examination of the empirical and theoretical rationales for the approach to the study. The major research question, the hypotheses, and ancillary questions which were tested are defined and the final section outlines the relevant limitations, assumptions, and definitions.

The Research Topic: Rationale For Selection

There is a dearth of empirical studies which have examined child care by recognizing the financial and human resources required to maintain quality classroom environments for young children. The subject is a pertinent one because changing values and economic demands have made out-of-the-home child care an accepted and expected part of the family life cycle. Those needs and expectations have created a subsystem which links both the family and community in an important social alliance.

Group child care in America has developed into a vital component of a complex social system which encompasses home, neighborhood, school, and church. This development has translated into numbers which indicate that in 1986, ". . . more than 50% of children under the age of five will have experienced some form of out-of-the-home care before

they enter kindergarten,"[1] and is a radical historical 'first' in the child rearing practices of this country.

Some of the changes which have occurred in the social systems of young children and their families probably have come about as evolving responses to a dynamic society. The human roles, responsibilities, and interactions inherent in that society have moved from those of the independent pioneer family to the present day ecological complexities of the nuclear computer-age family.

As people have adapted to their more complex world, their attitudes and expectations about human roles, relationships, and interactions appears to have changed. An example of that shift may be seen in the historical differences between traditional paternalistic 19th century attitudes and those of today toward maternal responsibilities and the place of the young child in the community. Businesses and government slowly have begun to recognize working mothers as a labor resource and in turn those women have begun to share their daily child-rearing responsibilities with other members of their community.

As noted, more children are being cared for in out-of-the-home settings which often include child care centers. Child care centers are similar to public schools in that both require resources to fulfill their functions. In a center the classroom environment, which includes curriculum, adult-child interactions, and schedule of activities, may be affected by a variety of resources. Among those resources are external inputs such as financial resources which include tuition paid by the parents, government, private funding, and the gifts and fund

raising profits available to the center directors. Another external input is the hours that the parents of the children attending the centers spend either helping the teacher or in administrative support such as staff selection or fund raising activities. The formal education, as well as the experience brought to the classroom by directors and teachers, is an additional valuable human resource which contributes to a successful system. Certain structural factors may also have an impact on the classroom environment. These include center size, group size, adult-child ratios, the food services, and the number of hours child care service is provided.

The purpose of this study was to examine child care center classroom environments and investigate the effect selected financial, human, and school variables have upon them. The research topic was selected because it is pertinent to the reality of twentieth century life. It also is useful to begin gathering and analyzing empirical data about child care centers because they are an important social subsystem in which many young children grow and develop.

An Historical Perspective of Child Care in the United States

In the best of all possible worlds research topics in the field of education would be selected because they contribute to the knowledge base of the academic community and at the same time would be useful to practitioners, consumers, and policy makers. Such research efforts would be enriched when the investigator is able to trace the historical paths which have led to present day conditions. For example, in order to better understand how programs for young children have evolved into an important part of modern life Professor Bernard Spodek, in a July

1985 article, "Early Childhood Education: Past As Prologue," reviewed the "roots" of early childhood education. He wrote, "We can better understand our field by seeing how it . . . has become a distinctive institution within society."[2]

Spodek noted that parental concern for the cognitive development of their children was evident in 17th century Puritan New England communities. Children as young as three and four-years-old attended non-graded schools and were taught to read the Bible.

> In 1647, Massachusetts enacted a law requiring that towns establish schools for young children. By the beginning of the 19th century, most Massachusetts towns offered schooling to the young. In 1826, 5% of all children enrolled in these schools were below the age of 5.[3]

Those "early American roots" produced a tree of many branches.[4] One of those branches of the early education programs were "kindergartens" which were begun by students of Freidrich Froebel who in 1837 had developed a curriculum especially designed for young children in Germany. In Wisconsin German-speaking children attended the first American kindergarten in 1856. Massachusetts was the scene of the first private pre-primary school for English-speaking children (1860) and in 1873 St. Louis opened the first kindergarten supported by tax dollars. Those "firsts" were the beginning of one branch of the early education tree which spread throughout America until by 1986 in all fifty states some kind of support was given for "public kindergartens within elementary schools."[5]

A second branch of early education has produced a different pattern of historical development from that of the kindergarten movement. Verna Hildebrand wrote that

> The Nursery for the Children of Poor Women in the City of New York was the lengthy title given the first child care program in the United States in 1854. There wage-earning women left their children (ages six weeks to six years) for as long as twelve hours. Thus child care centers began for the children of poor, destitute, often immigrant mothers.[6]

In another section of the country the Boston Infant School provided all day care for children aged 18 months to 4 years. The fee was six cents a week, 6 A.M. to 7 P.M. with lunch to be brought from home.[7]

Philip Robins noted that in 1838 the children of seaman's wives and widows were cared for in day nurseries, and that during the Civil War (1863) the federal government established a day nursery in Philadelphia where mothers who "worked in hospitals and factories could leave their children."[8] By 1910 the City of New York was serving 5,000 children in various programs for the very young. All facilities had as their primary aim the relief of the effects of a "bad" home.[9]

James L. Hymes, Jr has reviewed the historical relationships between a national public interest in child care and three major economic and political eras. The first of these occurred in the 1930's when the federal government attempted to shore up a depressed economy by funding the Works Progress Administration (WPA) Nursery Schools. Teachers were given jobs in the 2400 schools for young children established around the country. ". . . and for the first time, many

children, in all parts of the country, from all backgrounds, had a chance to go to nursery schools."[10] As the American economy began to improve federal funding was withdrawn and the WPA schools closed down.

Hymes noted that the second major era was in the 1940's during World War II when the production demands of a nation at war had to be met. As male workers left factories and offices to take up arms, women stepped in to become an essential labor resource. That labor pool included mothers and caring for their children became a community responsibility. For example, the Lanham Act was a federal legislative mandate to establish and support the Lanham Centers which provided care for over 130,000 young children of working mothers until the end of World War II. When the war ended, federal funds were withdrawn and most of the centers closed.

For about twenty years following the mid-1940's there was little evidence of public interest in out-of-the-home care for children. The political and economic changes of the 1960's established a third era which was christened "Head Start" and which focused ". . . the largest and most impressive national spotlight ever on Early Childhood Education."[11] The so-called "summer project" of 1965, which was fashioned to begin to meet the needs of the very young and the very poor became a permanent part of President Lyndon B. Johnson's "War on Poverty" and continues to this day. The Head Start programs serve almost half a million three to five-year-old children each year and that number is only about 15% of the children who are eligible for those programs. The endurance of Head Start represents a political commitment to improving the plight of the disadvantaged young by

providing safe and nurturing child care. Many modern child care programs have been influenced by Head Start programs which strive to combine good nutrition, supportive social services, a recognition of the family as the fountainhead of the values the child brings to his first 'school' experiences with a corp of well trained teachers to create a high quality early childhood environment.

In their 1986 book Child Care Administration, Judith Seaver and Carol Cartwright have presented another historical perspective. As shown in Figure 1 they have illustrated the major events in day care history.[12] The chart which clearly chronicles the overlapping eras (and terms) of child care in America is based on the type of support given child care programs.

The first era or "charity era" is described as "community based" with an emphasis on meeting the daily physical needs of youngsters whose parents were unwilling or unable to provide that care for their children. The second era covered the years in which child care programs moved out of the control of economically upper class women concerned with good works and into more organized delivery systems. "The social welfare era established day care as part of the organized, bureaucratized, and institutionalized social welfare system."[13]

The third era is titled the federal era because the U.S. government became an active partner with state and private agencies in providing services for young children and their families. The government attempted to put into place national licensing regulations and used federal laws and contracts to promote long term social

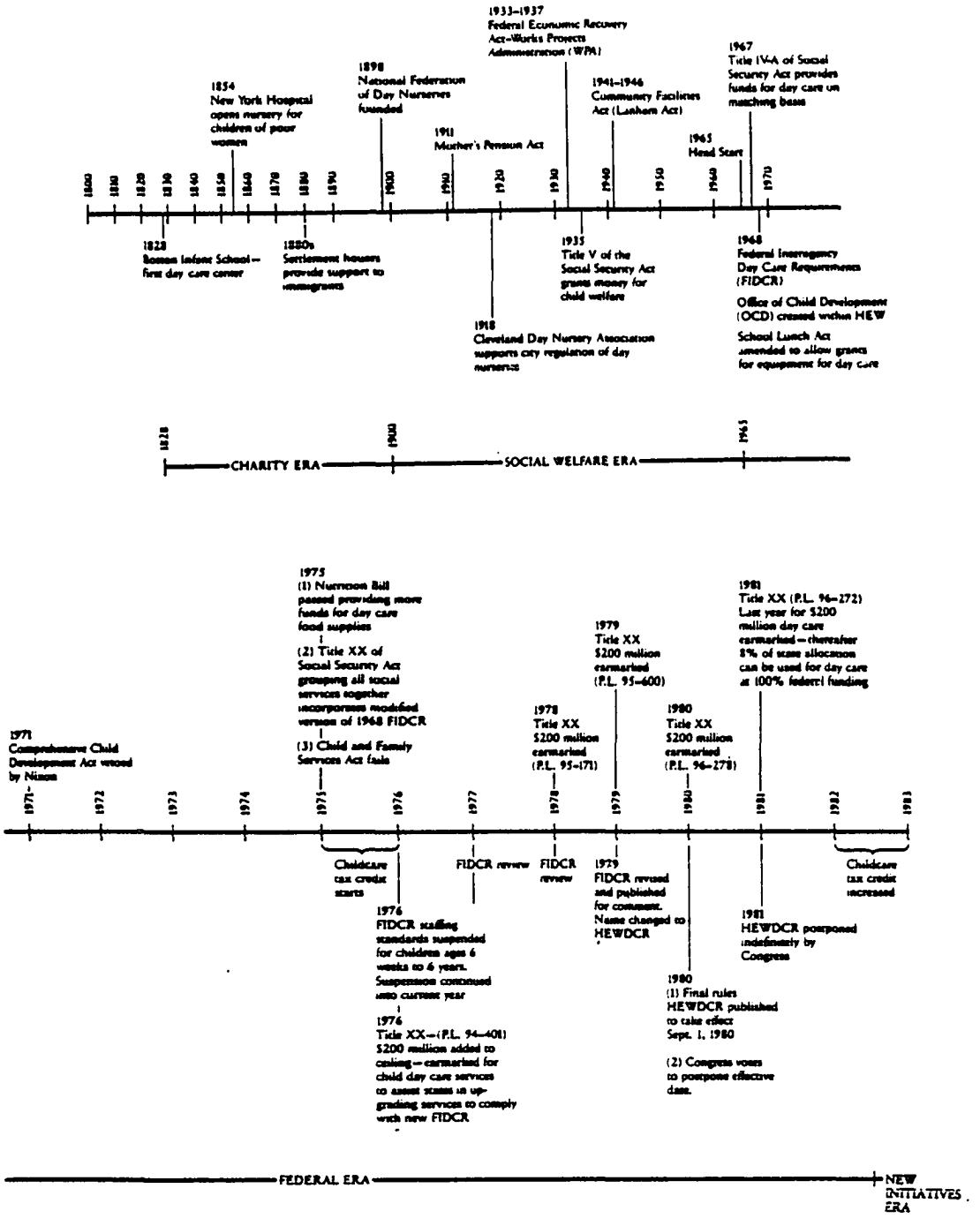


Figure 1. Major events in the history of child care.

services. Seaver and Cartwright maintained that "The federal era served its purpose in building a foundation for future practices."[14]

The final era is labeled the "new initiatives era" and is described as a "pendulum swing" from federal governmental responsibility back to local responsibility for child care. The authors expect that a variety of sponsors will support child care programs as child care chains develop their services into profitable businesses, employers and unions continue to explore ways of increasing worker productivity and quality of life by providing child care support as it is needed, and federal and state governments implement tax code provisions so that working parents may recover some of the costs of child care.

In their book, Seaver and Cartwright summarized the historical differences between kindergarten and child care.

> Modern child care programs are derived from two separate historical movements: day care and early education. Day care originated as a service to provide full-time custodial care for the children of working parents. As a result its history has been linked with society's own changing ideas of the suitable role of mothers at home and at work. The two forms of early education, kindergarten and nursery school, were developed for the children of middle and upper-class families. They occupied only a portion of the day and were intended to supplement the social and educational experiences available in the home.[15]

Seaver and Cartwright have created a model, which is presented in Figure 2, to illustrate how day care and early education have merged into a single comprehensive program.[16] In their model the authors proposed that Head Start was a unifying agent which helped coalesce the two branches of services to young children. The child care programs of

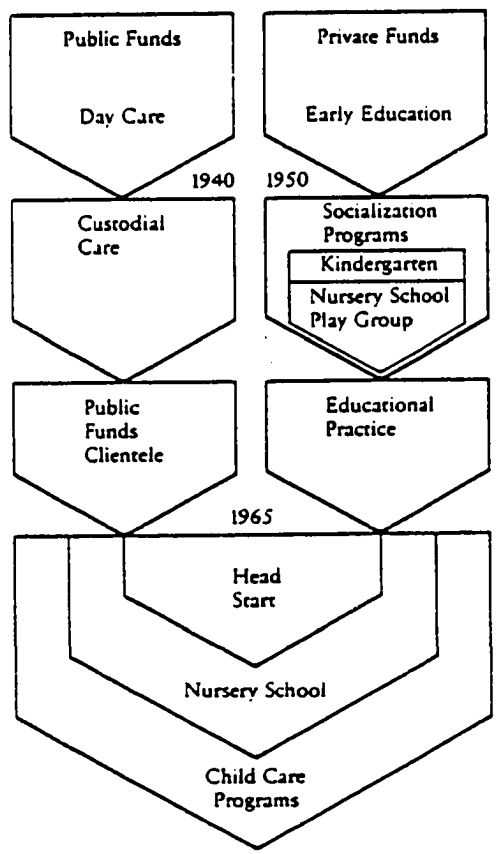


Figure 2. Two child care movements: The merging of purpose and program.

today have been given a worthwhile task as they try to combine the goal of providing a place where disadvantaged children could be safe, clean, and adequately nourished, with a commitment to planning and delivering

the cognitive, physical, and social-emotional experiences designed to help every child reach his or her full potential.

The history of child care in Hawaii. In the Territory of Hawaii the history of kindergarten and day care programs probably began on the island of Oahu in 1892. In that year, the Reverend Frank Damon offered a kindergarten program for Chinese-speaking children as part of his mission work.

In 1895 members of the Women's Board of Missions for the Pacific met to share their concern "about the physical and mental welfare of the immigrant children then coming to Hawaii."[17] They began the Free Kindergarten and Children's Aid Association of the Hawaiian Islands (KCAA). At the request of Reverend Damon the KCAA subsequently accepted responsibility for the operation of the program he had begun. The KCAA also developed similarly racially segregated kindergartens for Hawaiian, Japanese, Portuguese, and Caucasian children.[18] They set up the first racially integrated kindergarten (1896) as a social experiment. Its success paved the way for island-wide kindergarten integration after 1900, and by 1916 the association was responsible for thirteen hundred children in its eight kindergartens.

Meanwhile, in 1899 the Castle Memorial Institute for Child Development and Parent Education was established. Teacher training and parent education were considered important parts of the institute services.[19] The Castle program began to serve three-year-olds in 1922 and in 1927 lowered the admission age to eighteen months. The University of Hawaii assumed responsibility for Castle Memorial Hall in 1941. It was ". . . dedicated to the training of teachers for

kindergarten work . . . the preschool unit's primary function was to serve as a laboratory school for student teaching. This system was in operation for a mere three weeks when it was forced to close at the outbreak of World War II."[20]

Since World War II Castle Hall has been the site of the kindergarten through sixth grades of the University Laboratory School, for Head Start classes, and for curriculum and instruction researchers. In 1987 the University began to offer child care services at Castle Hall for the children of University students, faculty, and staff.

While private schools such as Punahou and Hanahauoli included kindergartens as part of their primary schools, the only free kindergartens were administered by the KCAA. The Castle Memorial Institute and the KCAA were the major providers of service for young children during the early years of the 20th century as both groups added pre-kindergarten children to their programs.

The focus of child care services has been an important determinant of private/government support in Hawaii. The pre-World War II agricultural plantation economy with its dependence on non-English speaking foreign born families for its labor source was a prime environment for the growth of kindergarten programs which focused on immigrant children.

Another factor was recognized in Sally Hood's master's thesis written in 1975 when she noted the concern for "The Americanization of non-English speaking children and . . . teaching English to the teachers as well."[21] This interest in non-English speaking children was evident in certain political arenas. Although funds were not

authorized and thus no action was taken the 1919 Territorial Legislature, in order to "Americanize" the children of immigrants, went on record supporting a policy which would establish public kindergartens on all the islands. The KCAA supporters and administrators continued a campaign begun in 1923 and in 1943 succeeded in influencing the Territorial Legislature to appropriate $113,400 for twelve kindergartens.[22]

In the post World War II years the Department of Public Instruction recommended to the legislature that kindergartens be a part of all public schools and specified the purpose of those programs.

> There is a great need to carry on the kindergarten expansion until it reaches into every school. This is one real step toward the Department's goal of eventually making every school in the Territory an English standard school.[23]

With five-year-old children established in the public and private school systems, individuals and agencies began to expand their services to more programs for the two to five-year-olds. The Territory monitored those programs by making the Department of Welfare responsible for organizing and implementing a regulation and licensing process (1955:Public Law 62). In 1966 the Department of Welfare (now renamed the Department of Social Services and Housing [DSSH]), with the help of educators, day care center administrators, and government representatives from the Department of Health, fire and building inspectors, and many others produced a set of rules and regulations which guided the inspectors who issued operating licenses. These rules and regulations are revised periodically as more programs for young

children, such as infants and school age children, have required licensing.

Pre-kindergarten children have been recognized by elected and appointed officials even though they often enacted laws without providing financial resources. For example, in 1955 the Department of Education (DOE) was mandated to "administer programs of education and public instruction throughout the State, including education at the preschool, primary, and secondary levels. (Revised Laws of Hawaii, 1955, Chapter 26-12)"[24] Despite an opinion issued in 1972 by the Hawaii Superintendent of Education that the Board of Education (BOE) had a legal mandate to "proceed with pre-kindergarten programs," in 1975 they chose not to establish a comprehensive pre-kindergarten system.[25]

Hood noted the considerable time, effort, and money that public officials have given to studying early childhood education.

> During the period 1966-74 eleven studies relating to child care in Hawaii have been released and several are still in progress. In addition, two reports have addressed themselves to model early education curricula and programs. In almost every study the conclusions have been in related agreement. The studies have concluded that child care services in the state are insufficient, inadequate, and fragmented.[26]

The history of child care in Hawaii has been one in which there has been considerable interaction among government agencies, university researchers, and private social programs. The collection of data has continued while elected and appointed officials search for new ways to

support quality pre-kindergarten programs for young children. Since the mid-1970's the community has moved into the "new initiatives era" described by Seaver and Cartwright. Some positive actions have resulted in the following: the Maui Land and Pine company has built a facility for the children of its employees; the City and County of Honolulu has sold bonds to build a center in downtown Honolulu (and is calling for bids to plan seven more centers); the military community has built million dollar centers on its bases and posts; private colleges and universities, such as Chaminade and Brigham Young, have set up parent and child centers for training teachers; the University of Hawaii has contracted for a large center at Castle Memorial Hall to meet student and staff needs for child care, and is working toward a state-wide system of child care centers in the community colleges modeled after the Honolulu Community College laboratory center which serves the children of students as part of its teacher training program; the Kamehameha Educational Research Institute has developed teaching methods and materials compatible with the cultural background of Hawaiian children and is working with the public school system and the University of Hawaii to develop high quality learning experiences for young children.

In the previous section the history of child care in the United States has been described. There have been a range of programs, from those sponsored by public and private charitable agencies for poor and abandoned children, to public and private kindergartens and nursery schools in which children enjoyed a variety of learning experiences in safe, clean surroundings. In the 1980's high quality child care

programs combine basic health and nutrition services with a well-planned curriculum to meet the social, physical, and cognitive needs of their young charges.

Child care in Hawaii has evolved in a pattern similar to the rest of the country. Private organizations took the major responsibility for child care programs in the Territory until World War II when the public school system opened twelve kindergartens. Private non-profit agencies, licensed by a governmental agency, continue to be the major source of child care services for pre-kindergarten children. As the demand for programs increase, public and private agencies have begun to search for ways to work together so that parents and their children may be assured that high quality programs are available and affordable.

The Economic, Political, and Academic Context of Child Care Concerns

The perspective of history helps the researcher recognize certain patterns in the evolution of child care to its present state. For example, both nationally and in Hawaii private support for pre-kindergarten children has been reasonably consistent while government commitment has come and gone. While past may be seen as prologue, the researcher must also review the national and local economic, political, and academic contexts in order to establish the relevance and value of any study; in short, to answer the question, is child care an authentic concern?

The national scene. The recent rapid growth[27] in the number of child care programs has been related to the social changes which have occurred in the United States primarily during the past twenty-five years. Those changes include a feminist movement which has encouraged

women to express their personal and professional individuality, and a labor market which has offered new and varied career opportunities for women. The result has been that the 'typical' American family with the father at work and mother at home with the children has undergone significant change.[28] The Union Work and Family Study reported that in the fourth quarter of 1985, 60% of the mothers of children under the age of eighteen were employed while in 1940 that percentage was slightly more than 8%.[29] The most remarkable change has occurred among the mothers of infants and toddlers who have increased their participation in the labor market by 70% during the past decade.

A 1984 report by the Bureau of National Affairs captured the situation in one theatrical sentence. "The influx of mothers into the labor force has been one of the most dramatic and far-reaching social changes in recent times."[30] Department of Labor data indicates that by 1990 over 80% of the women in the childbearing 25-44 age group will be working. The Congressional Caucus for Women's Issues reports that 80% of the females in the labor force are likely to become pregnant and, on average, will return to work six weeks after the baby is born.[31] This rise in the percentage of working mothers will continue, according to a House Select Committee on Children, Youth and Families.

Some data have indicated that the increase in the number of working mothers is related to the increase in the number of children in out-of-the-home care.[32] For instance, enrollment in child care programs for three and four year olds has doubled from 15% in 1970 to almost 34% in 1983.[33] Labor market analyists and early childhood researchers predict that by the 21st century the number of American

children under six in some kind of full time non-parental care will increase more than 50%.[34]

This dramatic social change has already appeared to have some far-reaching effects. The shift in labor resources probably has resulted in some rearrangement of family fiscal priorities as child care costs have taken an increasingly larger share of family budgets.[35] The National Commission on Working Women estimates that working families can expect to spend as much as 10% of their gross incomes on child care services during the years that their children require such services.

Businesses are also affected by the present child care situation according to a 1986 book by John Fernandez, Child Care and Corporate Productivity: Resolving Family/Work Conflicts. Fernandez surveyed 5000 employees in 5 companies and found a range of difficulties which are experienced by mothers and fathers and related to the availability of child care. The findings indicated that single fathers often reported that the lack of child care jeopardized their jobs while "46% of the surveyed women with children under two, and 23% of their male counterparts, said child care concerns would influence their decision on whether to accept a promotion."[36] Other survey results have shown that the problems attendent to child care have forced working parents to take extra days off, been a cause of poor morale, and tended to make workers perceive of themselves as less productive than they might be.[37-40]

Another impetus to the growth of child care services has come from the work of scientists and educators whose research has focused on the

critical growth and development which occur during the early years of life. Studies which have assessed on the effects of regular non-parental care on the child have produced findings that high quality programs do not damage the positive social-emotional development of children and may help some adapt more quickly to the expectations of their elementary school teachers than children who have not attended such programs.[41-44] Researchers agree that child care must be of good quality[45-47] and it is this key word and its operational definition that has merited the most recent study by the National Association for the Education of Young Children (NAEYC).[48]

Other research projects have extolled child care programs as both a worthwhile societal contribution and positive cost-benefit business investment,[49-51] as ways of achieving equal opportunity and equity for children of the poor, as well as those with special needs,[52-53] as supportive services essential to welfare families,[54] and as important components of the early education process.[55-56] In some cases, the research has moved policy makers and educators to begin to assess the place of the young child in American institutional systems.

That assessment has been colored by a cultural climate and value system in which both consumers and politicians have had to deal with ambiguous perceptions about their responsibility toward the very young. Those perceptions have helped contribute to the belief by many policy makers that there is a magical day when the child is ready to come out of the home and neighborhood and take his or her place in the learning community called school. Until recently most policy makers have been reluctant to "intervene" between very young children and their parents,

and consequently have tended to take the position that child care is exclusively a family responsibility.[57]

That position has hindered the development of a comprehensive national child care policy and thus working families have been forced to patch together makeshift solutions to their child care problems.[58] Those solutions have included child care arrangements which may combine hours in center programs, time spent at a neighbor's home, occasional teen-age baby sitters, and even bringing the baby to work.[59]

Child care in Hawaii. The current child care situation in Hawaii reflects the national picture in that ". . . there is increasing concern over the availability and affordability of child care as well as its quality. Because of the high percentage of working mothers in this State, the demand for child care is critical."[60] While there are no published data which reports the impact of child care problems on morale and productivity some employers have recognized and taken steps to ameliorate the situation for their working parents. For example, on the island of Maui the Maui Pineapple Company began losing valued employees and had difficulty recruiting new people. Market surveys indicated that employees would work if there was a place for their pre-kindergarten children. The company built and continues to help support a center and has reported fewer recruitment problems and improved morale among its employees. In Honolulu the Mayor's Child Care Task Force plans to gather chief executive officers of the island's major companies as well as those from small businesses to discuss how cooperation between public and private agencies and individuals can help families meet their child care needs.

Child care centers in Hawaii are licensed by the State Department of Social Services and Housing (DSSH). That agency is charged with maintaining minimum standards among all the programs which are required by law to be licensed in order to operate. Those minimum standards are established through cooperation between a community advisory committee and the DSSH. When research and political pressure have dictated, the rules and regulations have been reviewed and revised. In 1986 the DSSH licensed almost 400 child care programs and estimated that over 21,000 children were being served. That number included school age youngsters on part-time schedules and small demonstration infant care programs.

The Selection of Empirical Data

The selection of the fiscal and human resources to be examined in this study was made by listing the major inputs available to child care center administrators. Organizational variables regulated by the state licensing agent such as center size and adult-child ratios were also included.

Financial resources. Child care centers in Hawaii depend on a variety of financial resources with parent tuition as the major income. Others include government subsidies, such as those from the Department of Agriculture which provide payment for food for low income children and money from the DSSH to compensate centers for enrolling children from welfare families and those with special needs. Private subsidies such as free facilities, Aloha United Way scholarships, local foundation support for special projects, and interest income generated from investments may also be part of the funding packages. Child care administrators may also rely on various donations, gifts, and profits

from fund-raising activities to purchase equipment, to fund personnel in-service training and to provide for emergency expenses.

In Hawaii most licensed child care programs are sponsored by a variety of non-profit organizations and agencies with an estimated 70% depending upon churches, temples, and synagogues for their facilities and administrative support. Some religious groups have subsidized child care by offering rent-free (or below market) space while other have asked the church staff to double as receptionists, bookkeepers, and secretaries for the resident child care program.

Human resources. In addition to financial resources, child care centers require a variety of inputs from parents, teachers, and directors if they are to operate successfully. Directors and teachers must meet minimum educational and/or teaching experience qualifications before the center can be licensed. According to the DSSH regulations teachers must have degrees in child development or early childhood education from an accredited college or university, a general post-secondary education combined with teaching experience in an early childhood program, or a combination of the two.

Teachers and directors bring a variety of both educational credentials and classroom and administrative experience to child care programs. The impact of these resources on the observed behavior of children in child care center classrooms has been explored and reported.[61-67] The most comprehensive report was from the National Day Care Study (NDCS) which was commissioned in 1974 by the Administration for Children, Youth, and Families to assess the cost/effects of selected center characteristics on NDCS measures of quality of care in

a child care center.[68] The research was undertaken by Abt Associates of Cambridge, Massachusetts and SRI International in July 1974 and ended in September 1977. Sites were selected in Atlanta, Detroit, and Seattle and ". . . The selection process maximized the generability of the study's results by wide variation among centers along crucial dimensions."[69] In their 1979 summary findings of the NDCS research, Children at the Center, principal authors Richard Ruopp, Jeffrey Travers, Frederic Glanz, and Craig Coelen reported one of the major findings was that neither a formal education nor the work experience of the child care teachers were related to NDCS measures of quality.[70] The research established the critical importance of specialized education for those responsible for young children in child care settings. Ruopp et al. noted that, "Caregivers with education/training relevant to young children deliver better care with somewhat superior developmental effects for children."[71]

Another aspect of the human resources which seems to be important to the successful functioning of these centers is parent input. In 1982, Ruopp and Travers offered a "perspective" on the 1979 NDCS report and noted that their research showed that, "Parents influence the quality of care received by their children by direct and indirect participation in operation of the facility (e.g., serving on governing boards, working as volunteers, exchanging information and suggestions with caregivers)."[72]

Organizational and structural considerations. Center administrators must consider (1) the space available in the center because this limits how many children may be enrolled, (2) the

adult/child ratios, and (3) the number of children in one group or classroom.

The Hawaii DSSH licensing rules specify maximum adult/child ratios based on the age of the children in a certain class or group with more adults required for younger children. Group size is not a factor for regulation as long as the adult/child ratios are observed. Physical facility standards have set limits which regulate enrollment capacity and which may have an effect on group size. For example, the regulations state that in the enclosed areas, "There shall be thirty-five square feet per child of unencumbered instructional or play area exclusive of bathrooms, kitchens, cupboard space, and hallways."[73]

The empirical data collected and analyzed in this study were selected because all have been given attention by either accepted practice, laws, regulations, and/or findings of previous studies. For example, child care centers in Hawaii rely on a variety of financial resources, i.e. tuition paid by the parents, subsidies from governmental agencies, and private in-kind services and gifts. Moreover, the agency which licenses all group child care programs sets standards which define the use of space, adult-child ratios, and the training and education required of the adults who work in the centers.

In addition to current practice and governmental supervision the data sources were a product of accepted child development and early childhood research. The findings from a national study of child care centers affirm the value of appropriately trained teachers and directors in a high quality program. In addition, the hours parents

spend helping in the classroom or with administrative tasks appears to add to the successful functioning of the program.

Each of the major data sources may be viewed as either independent of the others, or as a number of interactive variables. In sum, the variables were selected because they describe the practical world of child care administration in Hawaii.

Theoretical Rationale for Approach to the Problem

The contribution of a coherent theory to research efforts was succinctly noted by Richard Pratte when he wrote, "All subject matter, including education, is a combination of data held together by theoretical constructs."[74] A theory which describes child care as a subsystem which is part of the many environments in which children grow and develop, which supports the family, and which both depends upon and contributes to the community opens the way for a more comprehensive view of the subject. It also serves as a research tool which may be used for explaining observable phenomenon and perhaps, predicting what may happen.

A theory is not simply a model but models are ". . . intimately related to theory . . . models allow us to characterize the phenomena in which we are interested in such a fashion that we can 'see' most of the components, their interrelationships, and functions."[75] The ecological model upon which this study was based helps to "see" the impact environments have upon children and how those environments or subsystems become more complex and interdependent as the child grows.

This study was based on a social systems theory developed by Cornell professor Uri Bronfenbrenner and described comprehensively in

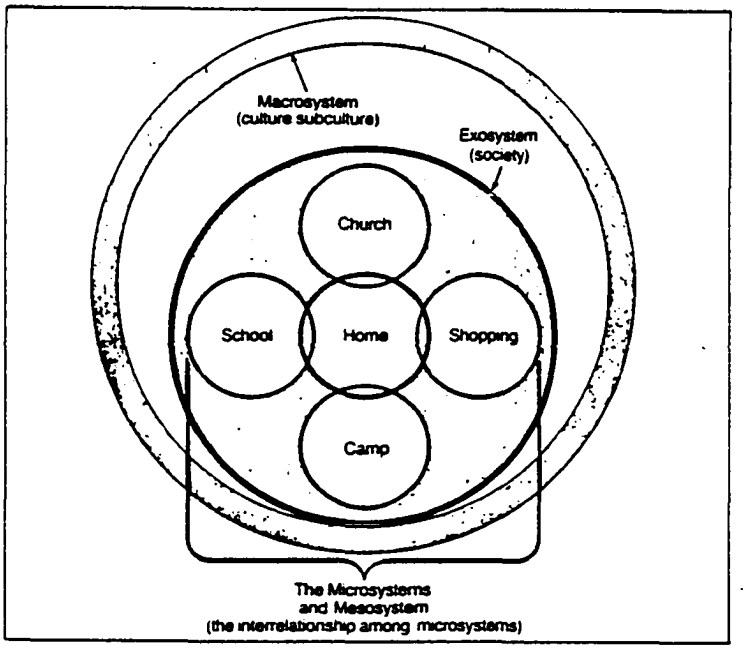
his book, The Ecology of Human Development.[76] Bronfenbrenner began his book by referring to the "classic equation" of Kurt Lewin postulated in 1935 in which Lewin, ". . . asserts that behavior evolves as a function of the interplay between person and environment."[77] Even though Lewin's equation, expressed as B=f(PE) is ". . . almost a commonplace in behavioral science,"[78] Bronfenbrenner noted that researchers and behavioral scientists have continued to focus on either the individual or the environment when they have implemented studies of human behavior. Psychologists have investigated and produced ". . . concepts and data without end dealing with the qualities of the person."[79] So-called "environmental" studies have focused on what Lewin has labeled class-theoretical terms, for instance comparing race, age, marital status, and education to explain the behaviors studied. Bronfenbrenner continues by citing research efforts in which social psychologists have recorded observations and engaged in controlled experiments to study the processes of interaction between and among humans in a single setting while anthropologists have offered detailed anecdotal descriptions of their research which has tended to lead to ". . . the interpretation of causal influences . . . which may be highly subjective and inferential."[80]

In an attempt to establish ". . . a point of convergence among the disciplines of the biological, psychological, and social sciences,"[81] Bronfenbrenner has suggested that human development might be studied in a human context and that this "ecology of human development" is a

> Progressive, mutual accommodation between an active, growing human being and the changing properties of the immediate

setting in which the developing person lives, as this process is affected by relations between those settings, and by the larger contexts in which the settings are embedded.[82]

The physical settings or environments are described by Bronfenbrenner as "nested environments" which tend to influence human behavior and appear to interact and influence one another. The child moves in and out of his or her ". . . ecological environment . . . conceived topologically as a nested arrangement of concentric structures, each contained within the next."[83] Figure 3 is a pictorial representation of the nested environment.[84]



Bronfenbrenner's Nested Environments

Figure 3. Bronfenbrenner's nested environments.

Bronfenbrenner has built his theory on a systems view of the human developmental process as well as the settings in which that development occurs. The nested environments in which humans live, work, and play must ". . . function effectively as a context for development" and those settings are likely to interconnect and depend on one another.[85]

The most immediate environment of the child is labeled as its microsystem. The child is an active participant in these single settings and takes on roles and engages in activities that become increasingly complex. Settings such as home, child care center, school, neighborhood, and church are the microsystem settings of that child.

Bronfenbrenner has characterized the second concentric circle as a mesosystem which is made up of ". . . the relationships among and between these microsystems."[86] Attributes of the microsystem such as roles and activities of the developing child also exist in the mesosystem but now ". . . these processes take place across setting boundaries."[87] As a child moves from the home to the child care center she/he makes an "ecological transition."[88] New roles and relationships begin as the child's mother helps in the classroom or the child brings home friends to play. Other network processes begin across boundaries as the information-sharing and interaction processes either help or hinder the child's developmental process and, of equal importance, may help or hinder the development of the mesosystem itself. For example, the family and neighborhood may help the child care center and the center may contribute to the development of both. Bronfenbrenner suggests that:

> From the perspective of our theoretical model, the alienation of children and youth and its destructive developmental sequelae are mesosystem phenomena. They reflect a breakdown of the interconnections between various segments of the child's life-family, school, peer group, neighborhood, and . . . the world of work.[89]

The next circle or exosystem is made up of several settings and is a more formal structure or society which occurs outside the child's daily environment but which may have an effect on the child's development. For example, decisions made in laboratories, board rooms, and political arenas and implemented in the market place may support or hinder roles and relationships from the most intimate microsystem to the more complex mesosystem.

The final and largest circle is the macrosystem which is the unique human culture composed of the beliefs and customs shaped and transmitted from one generation to the next. The macrosystem encompasses the micro-meso-exosystem settings although each have their own boundaries, roles, and activities with common participants. The settings tend to relate to one another within the macrosystem but not to those in other macrosystems. For example, the Soviet Union and the United States are macrosystems with consistent internal home, school, and work subsystems but it is difficult for them to connect across their macrosystem boundaries because of different political, social, and religious values. Bronfenbrenner presents evidence that within a culture (macrosystem) the environments in which the child moves tend to

remain similar almost as if there was a "blueprint" for the structure for the different levels.

It should be emphasized that the environmental influences on human behavior are not unilateral processes which begin with the more complex system and gradually filter down to the smallest environment. Bronfenbrenner illustrates how systems interrelate when he addresses the issue of the cost of child care, "Parents' evaluations of their own capacity to function, as well as their view of their child, are related to such external factors as flexibility of job schedules, and adequacy of child care arrangements."[90]

Several researchers and educators have written about the usefulness of the Bronfenbrenner theory. In his 1983 book, Early Childhood Education: A Human Ecological Approach, David Day suggested that explanations for human behavior ought to be looked at differently. "The search for primary explanations of behavior in the culture, the personality, the cognitive or emotional state of a person may be somewhat misdirected. It may be far more productive for us to study the milieu in which the behavior occurs."[91] Day is careful to differentiate the Bronfenbrenner theory from the behavioristic theories which hold that human behavior is shaped totally by the environment. "Rather, behavior settings establish the conditions under which person-environment interaction can occur."[92]

Another author, Emmy Werner, urged that future researchers adopt ". . . a conceptual framework that would bring order into the accumulated empirical data," and that the Bronfenbrenner "systems approach" may be a useful way to examine the impact of various systems

on one another as they interact with one another.[93] For example, the impact of work schedules, the mass media, and child welfare agencies may have on the developing child and how national and local legislation, divorce and tax laws may affect child care programs.

Belsky and Steinberg have proposed ". . . that future day-care researchers adopt a more ecological perspective . . . conceptually guided by Bronfenbrenner."[94] Questions about the views society has toward the care of young children and the economic influence day care availability has as more mothers choose to work outside the home are inquiries about the macrosystem. The exosystem level might be investigated through research which studies ". . . the impact of day-care experience . . . on the marital relationship, the world of work, and the structure and functioning of the neighborhood."[95]

In sum, the assumptions which have guided this study are that all systems have an effect on young children and their families, that those systems interact with one another, and that they depend on one another. The immediate environments of the young child may be the home, neighborhood, church, and child care center classroom. As single settings they seem to influence the immediate behavior of the child and, taken separately, are each a microsystem in which that person participates. For example, the development and behavior of the child may be influenced by such classroom factors as curriculum, adult-child interaction, and the schedule of activities.

When the various microsystems are combined they become the mesosystem of the child and the impact they have on one another may be a result of how human and financial resources are shared. Those

resources in turn may be dependent upon systems in which the child is not an active daily participant as she/he is in the simple (micro) and multiple (meso) systems. That interdependency with larger nested environments is evident in the changes over the last twenty years as the values and customs (macrosystem) supporting child rearing practices and maternal roles have allowed people to make choices not open to them before now. Society (exosystem) has supported those changing values by private and public support programs, political efforts, and a wide variety of child rearing options.

As previously noted, professional child care is an important addition to the traditional social and educational structure of modern America. Child care programs merit study because they are part of the ecological system of interconnected and interacting subsystems which include family, neighborhood, and school. In them it is possible to examine the effect of external supports, such as the family, government, and community, upon a particular subsystem which is charged to provide care for young children in a high quality environment.

The Research Question

This study examined selected financial and human input resources which were available to Oahu child care center directors over a three-month period and attempted to determine the impact of those resources upon classroom environment. The research question was designed to assess (1) whether either fiscal or human inputs and/or selected school variables influenced the level of quality of the classroom environment as measured by the Early Childhood Classroom Observation (ECCO) instrument and (2) if a combination of those

variables interacting with one another influenced the classroom environment as measured by the ECCO instrument.

Hypotheses to be Tested

To operationalize the research question the following hypotheses were advanced:

1. There is no significant difference ($p=<.05$) among fiscal inputs and the ratings on the Curriculum sub-scale of the Early Childhood Classroom Observation (ECCO) instrument.

2. There is no significant difference among fiscal inputs when moderated by the amount of parent participation hours when measured on the Curriculum and Adult/Child Relationships sub-scales of the ECCO scale.

3. There are no significant differences among levels of (A) director education and experience, or (B) levels of teacher training and experience, when moderated by the state licensed center capacity, number of children (group size) and adult/child ratios in the observed group and the total ratings on the ECCO scale.

4. There is no significant difference among levels of (A) director education and experience, or (B) levels of teacher education and experience when adjusted by center capacity, number of children (group size) and adult/child ratios when measured on each of the sub-scale ratings of the ECCO scale.

5. There is no significant difference in the amount of parent/class interaction when moderated by teacher experience and measured on the Curriculum and Positive Adult/Child Relationships sub-scales of the ECCO scale.

Ancillary Questions

In addition to the proposed hypotheses the data were examined in an attempt to determine answers to the following four ancillary questions.

1. Were there any significant differences between the levels of teacher early childhood/child development units earned on the total ECCO ratings?

2. How much of the variance in selected financial resources may be explained by organizational components of food services, number of hours per day the center was open, adult/child ratios, group size, and ECCO ratings?

3. How much of the variance in group size may be explained by tuition, government and private funding resources or director/teacher years of experience?

4. Can the ECCO rating be predicted based on selected organizational factors or director/teacher years of experience?

Limitations, Assumptions, and Definitions

Limitation. Generalizations are limited to Oahu child care centers which are licensed to enroll more than 52 children. In addition, the ECCO measurements are limited to child care center classrooms or groups with pre-kindergarten children.

Assumptions. The observation measures such as the Early Childhood Classroom Observation scale, as well as the survey data were valid and consistent. After training, the variance in interrater differences were such that observation outcomes would not be affected.

Definitions.

a. Child Care Center: Part-day or full-day, pre-kindergarten group programs on Oahu in facilities licensed to enroll more than 52 children who are two through five years old.

b. Group: Children assigned to a staff member and occupying an individual classroom or well-defined physical space within a larger room.

c. Teacher(s): Adults who regularly implement classroom activities and who are responsible for the care and education of a group of children.

d. Director: Person most responsible for the on-site, on-going, daily supervision of the program and staff.

e. Parent: Legal custodian of the child in the classroom.

f. Fiscal resources: Financial inputs available to the director which include parent tuition, state and federal subsidies, resources from private organizations, and income from fund raising, gifts, or investments.

g. Human resources: Parents, teachers, and directors.

h. School variables: Center size, which is defined as the enrollment capacity allowed by DSSH licensing, group size, teacher/child ratios, operating hours, and food services.

i. Environment: Included curriculum components, physical factors, and adult/child interactions.

j. Adult/Child ratio: The number of teachers, assistants, and aides divided by the number of children; one adult and twelve children is a ratio of 1:12.

k. Quality: In this study the word quality was used to define the measurement levels on the instrument employed to rate the environment of child care center classrooms.

Summary

The historical perspective of early childhood may be summed up in one statement. "The history of child care in the United States is a history of diverse programs, offered under different auspices, to different populations, for different reasons."[96] The current child care situation has evolved out of a unique set of social and educational conditions which have tended to place the costs and responsibilities of out-of-the-home care in many hands. The research results and survey data gathered by corporate America, the federal government, unions, and women's groups have indicated that, among young working families, child care seems to be both an absolute necessity and a cause for concern as to its availability and affordability.[97]

Many parents, researchers, teachers, program directors, and policy makers believe that it is time to think about how both national and local communities can give intelligent, creative, fiscally responsible support to the children in elementary schools, high schools, colleges, and their pre-kindergarten siblings. The questions is not if American families require services for their very young, but rather, what kind of services,[98-101] and of equal concern, who will pay for those services?[102-106]

The central theoretical concept of this study was that human beings live in an ecological social system in which the subsystems are dependent upon and influence one another. Child care programs have

become an important addition to the more traditional subsystems of home, neighborhood, and school. They depend upon other subsystems for resources and contribute to those systems as more working parents require their unique services.

One example of support from other systems are the financial resources. Those many come either entirely from the home (tuition), or a combination of several resources which include the home, public agencies (governmental subsidies), and private organizations (non-profit and religious groups).

As more pre-kindergarten children have been placed in centers parents, educators, and policy makers have expressed concern as to the quality of those programs. Research findings have indicated that the growth and development process of the young child is enriched by adults who have been trained in child development and/or early childhood education. In addition to those human resources, certain organizational components such as adult/child ratios and group size may affect the quality of the classroom environment.

In this research the hypotheses were constructed by using data resources which reflect the "real world" of child care center administration. The data were operationalized and analyzed through hypotheses which stated that there were no differences in financial and human inputs on a scale measuring classroom environmental quality. Ancillary questions related to a combination of resources and organizational components as predictors of classroom quality were also investigated. Generalizations are limited to licensed centers on Oahu in which more than 52 children are enrolled.

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CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this chapter is to review some published studies which have examined what children need to grow and develop and how some group child care programs seem to have met those needs most effectively. In the chapter there are descriptions of specific environmental factors in group child care which have been reported by researchers and educators as related to positive child behaviors. Those factors included group size, a developmentally appropriate classroom environment, and teachers trained in child development and early childhood education. The review describes a theory which supports the proposition that subsystems surrounding the young child, child care centers, families and businesses, rely on one another. In the last section of this chapter there are some illustrations of that interdependency.

Literature Review Rationale

This study of child care center classrooms was built upon four major premises. The first is that researchers have validated early childhood as a critical foundation period in the human life span. The second premise is that researchers have established observable adult-child interactions and experiences which directly influence positive developmental processes in the early years.

The third proposition is that researchers have demonstrated that those influential interactions and experiences can be operationalized into measurable indicators which describe the quality of a child care

center classroom. The last premise is that all the interactions and activities are part of the social subsystems or environments in which the young child grows and develops and that those subsystems probably influence one another.

Therefore it seems logical to suggest that if the child care center classroom has a direct influence on the positive growth and development of the young child and if the classroom is part of the interacting subsystems around that child then the subsystems and their resource inputs may influence the quality of the child care center classroom. In this study an attempt has been made to assess the impact of financial and human resources upon the environmental quality of selected child care center classrooms in Hawaii.

The Context of the Research

Because child care centers are relatively new to the country, academic research which focuses on the collection and analysis of data about them is a recent addition to the field of educational inquiry in the United States. Generally speaking, before 1960 children under the age of five were kept at home and when young families were unwilling or unable to assume their parental responsibilities extended family members such as grandparents often took over child rearing. Young children who were abandoned or obviously deprived were cared for by public or private agencies and institutions.[1] In 1984 Greenman noted that

> Only two decades ago, day care, the care of children outside the home by a nonrelative, existed on the margins of society. A minor social welfare program for broken families or needy

> children, day care centers rarely attracted the attention or interest of anyone other than the families involved and social work professionals.[2]

While research about child care centers may have been relatively nonexistent, people concerned with child development were gathering and assessing data about how children grow and develop. Those processes were studied in different settings and attempts were made to identify what early childhood experiences seemed to nurture and challenge young children. In her 1986 annotated bibliography, Keeping Current in Child Care Research, Carollee Howes separated early childhood education research into pre- and post-1980 reports.[3] Howes noted that studies before 1980 tended to investigate how selected child care experiences affected selected children, both in short and long-term impacts, and to evaluate the efficacy of selected curriculum models. Research reports published since 1980 have attempted to identify indicators of high quality environments for young children, to investigate the impact on the family of child care policies, and to assess models of family, business, and agency cooperation in support of child care programs.

Early Childhood: Differing Perspectives

In the United States young children seem to have been "discovered" in the early 1960's when previously collected data about children under the age of eight began to appear in popular literature, clinical reports, and journals written for psychologists and educators. The data had come from several countries and disciplines and included the work of Arnold Gesell, a pediatrician who studied the physical records of hundreds of normal infants and children at the Yale Clinic of Child

Development,[4] Jean Piaget, a French biologist and psychologist whose meticulously recorded observations of young children provided new insights into their cognitive development,[5] and the work done by Jerome Bruner on the role of language development in learning.[6] Gesell offered concepts useful to understanding physical growth, Piaget developed a model to illustrate cognitive development, and Bruner integrated the language and thinking processes. Theorists including Sigmund Freud and his followers presented a psycho-sexual perspective of human development,[7] Erik Erikson expanded Freud's work to include the study of social influences on children,[8] and Carl Rogers postulated that developing a positive self-concept was a vital process essential to the well-being of the emerging human.[9]

Those scientists and educators attempted to illuminate the ways children grow and develop by detailing physical, intellectual, and social-emotional growth and development processes. Other scholars and educators had begun to focus on those separate processes particularly as they occurred in the early years and then tried to synthesize that information into the concept of the "whole child." Their research findings seemed to show a relationship between the growth and development process of the child and his or her environment and further suggested that early experiences had a powerful impact on what the child became as an adult. For example, J. McVicker Hunt in his classic 1961 book, Intelligence and Experience, rejected the concepts of fixed intelligence and predetermined development when his review of research findings indicated that intelligence may be influenced by external

factors.[10] He concluded that what happened to the child during the first five years of life could influence his/her later development.

It was the 1964 publication, Stability and Change in Human Characteristics by Professor Benjamin Bloom of the University of Chicago that was a landmark in early childhood research efforts and also served as a resource for policy makers.[11] Bloom analyzed longitudinal data from several child development research institutions which had observed and recorded how children change over ten years. He selected thirty measurable human characteristics such as physical measurements, mental levels, and language skills to review and analyze. Bloom noted,

> . . . that the half-development of general intelligence is achieved by age four, of height by age two-and-a-half, of aggressiveness in males by age three, and of dependence in females by age four. For all of these characteristics, in short, the most rapid period of development is in the first five years of life.[12]

His findings showed that there was a rapid early development which gradually slowed as the child reached pre-puberty.

The early years are the only years: implications and pitfalls. In the mid-1970's some educators and social scientists began to examine the implications of the earlier research about young children. In their 1975 book Early Experience: Myth and Evidence, British psychologists Alan and Ann Clarke expressed their skepticism about "outmoded theories," particularly on the popular and over-simplified view that the early years were exclusively all important to the process

of human development.[13] After an extensive review of research projects the Clarkes concluded that ". . . early learning is mainly important for its foundational character."[14]

Jerome Kagan noted that although Gesell, Piaget, Bruner, and Bloom may have provided well marked maps for those interested in human physical and cognitive changes, psychological development is less clearly charted. In his 1984 book The Nature of the Child, Kagan commented on the fact that while ". . . children have been scurrying under the watchful eyes of interested and intelligent adults for a very long time, we have a less satisfying explanation of human psychological development than of the life cycle of the fruit fly, which has been an object of study for less than one hundred years."[15] He noted that research studies about the importance of the early years had been reported so many times that ". . . most Americans believe that if the conditions of early rearing were improved and the proper environments engineered, our social problems would be eased."[16] Kagan urged a more reasonable approach to the early years combined with an understanding that psychological development is a lifelong process of change and adaption.

In 1986 David Elkind proposed that early childhood professionals ought to ". . . struggle to reveal the concepts of early childhood malleability and competence for what they are, namely distortions of how young children really grow and learn."[17] He observed that Bruner was offering a hypothesis, not a scientifically proven fact and that some curriculum writers (and parents) incorrectly took that hypothesis as a basis for defining the young child as a "consumer of skills."

David Elkind and Edward Zigler both cautioned against using the work of Benjamin Bloom to define ". . . early childhood as a magic period during which minimal intervention efforts would have maximal, indelible effects on children."[18] Elkind noted that when Bloom wrote that ". . . the half-development of general intelligence is achieved by age four,"[19] he did not mean that ". . . if a child attains an IQ of 100 at age 4 she or he would attain an IQ score of 200 at age 17."[20] What the Bloom findings indicated were that "From the test score a child attains at the age of 4 you can predict with some 50% accuracy what that child's test score will be at age 17."[21]

Leaders of the National Association for the Education of Young Children (NAEYC) have expressed a growing concern about the questionable practices in child care programs which seemed to have developed from the view that the early years were all that mattered. In a 1986 Phi Delta Kappan article the NAEYC author observed ". . . that many early childhood education programs are overemphasizing the achievement of narrowly defined academic skills and increasing their reliance on psychometric tests, rather than developing environments in which children can learn at their own pace."[22]

Twenty years after the "discovery" of young children it seems that researchers and practitioners have come to a more balanced view about how children grow and develop. Most early childhood professionals understand that there are as many individual differences among children over time and space as there are among the genes which define their individuality.[23] At the same time children tend to share common patterns of change. They increase in size (grow), move from the simple

to the complex in their ability to organize and control physical and psychological stimuli (mature), and they constantly interact with their environments (experience). "Human development results from changes in structure, thought, and behavior that are based on the interplay of growth, maturation, and experience."[24]

Influences Upon Positive Developmental Processes In the Early Years

Research has indicated that children tend to grow in an orderly process which is congruent with their biological heritage and complimented by their environment. Care for the physical needs of the infant is essential and it is a logical assumption that all through their lives humans have needs for food and shelter that must be met if they are to survive.

A comprehensive survey of the research on how the needs of children are met by child/family interactions in certain settings was published in 1977 under the auspices of the Carnegie Council on Children. Child Care in the Family by Allison Clarke-Stewart summarized the specific components of care which meet the psychological, language, cognitive, and social developmental needs of young children.[25] Clarke-Stewart observed that "One grand theme which emerges is that children's development is related to the care they receive--regardless of who gives it."[26]

Clarke-Stewart synthesizes the psychological needs as follows:

> Even though children themselves have a strong impact on their caregivers, and even though development is ultimately limited by biological and genetic factors--the clear consensus that emerges from the review of the research on child development

> and family interaction is that the child's psychological development is profoundly and significantly influenced by the kind of care he or she receives. Adult caregiving should provide children with appropriate stimulation, variety, acceptance, responsiveness, and affection.[27]

The Clarke-Stewart review of the research details specific adult activities and behaviors which influence how the child learns to express herself. "Language development is accelerated and facilitated by frequent verbal stimulation by an adult in one-to-one interaction with the child when the adult's speech is varied, relevant to the child's activity, and appropriately complex."[28] Language is part of the more sophisticated processes which occur as the intellect of the child unfolds. The author asserts that ". . . cognitive development is enhanced by the caregiver's frequent looking, talking, playing,--and later teaching and reading--as this stimulation is adapted and responsive to the child's needs, abilities and expressed desires."[29] The theme of positive interactions between adult and child is replayed when "Social development depends first on frequent affectionate and responsive interaction with primary caregivers, and later, on opportunities for interaction with peers and other people."[30]

The Clarke-Stewart review suggests that there are some very clear indicators as to what constitutes a high quality family environment for children. She generalizes from the research and offers the following guidelines; "For the development of overall competence in children . . . the qualities of adult care that seem to be important are stimulation (from things and people), appropriateness (level and schedule adapted

to the individual child), variety (in language, people, toys), acceptance (reasonable limits, firmly but gently enforced), responsiveness (prompt, consistent, elaborative responses to the child's behaviors), and affection (expressed verbally, facially, physically)."[31]

Indicators of a High Quality Child Care Center Classroom

Since the late 1960's several early childhood researchers and practitioners have attempted to define the concept of "quality" so that measurable indicators of that concept would be available.[32] While researchers identified ". . . appropriate stimulation, variety, acceptance, responsiveness, and affection,"[33] as indicators of positive adult-child interactions, some early childhood professionals searched for a broader concept. That concept would be useful for assessing and improving child care programs and would accurately reflect the overall environment of the child at the center. Harms and Clifford noted that environment may be narrowly defined as the "physical elements of the settings," or the word may have a more comprehensive definition to include the ". . . physical variables, program components, and interactions among people in the setting."[34]

It is the latter definition most researchers have used in their attempts to explore what factors might be used to measure the level of quality in a child care center classroom, and further, to relate the variance in levels of quality to the behavior of the children in that classroom. In a 1985 final project report from the Pennsylvania Office of Children, Youth, and Families, authors Richard Fiene and Susan Kontos noted that "The issue of variation in day care quality and its

influence on children has only rarely been addressed empirically."[35] At the same time they maintained that while the empirical data have been slim the findings have been consistent in establishing a "relationship between the quality of a day care environment and the development of children cared for in those environments."[36]

Ten years after the Clarke-Stewart survey of the research defining variables which appear to influence the overall competence of a child the NAEYC reviewed the research which focused on the needs of young children and how some center based programs have met those needs. In a 1986 landmark publication, NAEYC used the studies to present position statements on developmentally appropriate practices in programs for young children.[37] The research findings were also a basis for the development, testing, and publication of self-study and evaluation processes for child care programs designed to give a national accreditation for quality programs. The statements were based on the assumption that certain components of the physical environment which meet basic human needs should be present in high quality programs for young children.

The following statements and references are from the NAEYC position declarations and are directly quoted here because of their support of the observation instrument used to measure the dependent variables in this study. The NAEYC criteria were used to develop a valid, reliable observation scale which measures the degree to which the environment meets the needs of four and five-year-old children in a child care center classroom.[38] The instrument is called the Early Childhood Classroom Observation (ECCO) scale and it covers the

components of curriculum, adult-child relationships, and the daily schedule balance of a classroom.

Curriculum, Adult-child Relationship, Balanced Schedule:

1. A developmentally appropriate curriculum provides for all areas of a child's development: physical, emotional, social, and cognitive through an integrated approach. (Almy, 1975; Biber, 1984; Elkind, 1986; Forman and Kuschner, 1983; Kline, 1986; Skeen, Garner and Cartwright, 1984; Spodek, 1985).
2. Curriculum planning emphasizes learning as an interactive process. Teachers prepare the environment for children to learn through active exploration and interaction with adults, other children, and materials. (Biber, 1984; Fein, 1979; Forman and Kuschner, 1983; Fromberg, 1986; Goffin and Tull, 1985; Griffin, 1982; Kamii, 1985; Lay-Dopyera and Dopyera, 1986; Powell, 1985; Sponseller, 1982).[39]
3. Adults provide opportunities for children to choose from a variety of activities, materials, and equipment; and time to explore through active involvement. Adults facilitate children's engagement with materials and activities and extend the child's learning by asking questions or making suggestions that stimulate children's thinking (Elkind, 1986; Forman and Kuschner, 1983; Goffin and Tull, 1985; Kamii and Lee-Katz, 1979; Lay-Dopyera and Dopyera, 1986; Sackoff and Hart, 1984; Skeen, Garner, and Cartwright, 1984; Sparling, 1984).[40]

4. Adults provide a balance of rest and active movement . . . child-initiated, child-directed, teacher-supported play . . . outdoor experiences for children . . . throughout the day (Cratty, 1982; Curtis, 1986; Frost and Klein, 1979; Hendrick, 1986; Herron and Suton-Smith, 1974; Stewart, 1982; Willis and Ricciuti, 1975).[41]

Operationalizing the concept of classroom quality has been a challenge to early childhood educators. They have responded to the challenge by a careful selection of criteria which included a developmentally appropriate, integrated curriculum with a variety of materials and equipment, and a careful balance of time and space. Initial research has indicated a relationship between those components and a high quality environment in which the needs of children are met, i.e. language competencies or social development. The research has also served to establish some other elements which seem to influence child behaviors; among those are input factors such as teacher training and structural factors such as class size.

Teaching training and experience. The most comprehensive and scientifically analyzed data to date have come from the 1979 National Day Care Study (NDCS) conducted by Abt Associates who had been commissioned by the federal government to engage in a four-year data collection and analysis of the costs and effects of 57 federally supported child care centers.[42] That data established that higher gains on test scores as measured by the revised Peabody Picture Vocabulary Test (PPVT), more socially active behaviors, and more verbal initiative and involvement by the children were a function of the child

development or early childhood education training of the teachers.[43] Child outcomes did not change as the result of the number of years of formal training the teacher had.[44] Millie Almy observed that "Oddly enough, however, those who had more than minimal training did not seem to be more effective than those who had only the minimal."[45] The NDCS findings did not establish that the years of teaching experience were related to child outcomes and in fact found that "Caregivers with more years of experience engaged in less social interaction and cognitive language stimulation and had higher ratings of child apathy and potential danger."[46] In a 1980 study of a 303 family day care homes in which preschoolers were enrolled Stallings and Porter found no relationship between adult-child behaviors and the years of experience of the caregivers but, in the opinion of the authors of the study, when the adults had "more years of child-related education" the children received higher quality care.[47] In their 1984 reports, Clarke-Stewart and Gruber associated increased levels of child cognitive competence to the caregivers with child development training and knowledge.[48] Berk found that college-educated people with a child-related major were more likely to support language growth in children.[49]

Some studies have attempted to measure teacher behaviors (rather than child outcomes) as a function of their child-development or early childhood education training.[50] High quality adult-child interactions were more likely to take place in a child care center classroom when the teacher had some training in early childhood curriculum and/or child development. In 1967 Prescott and Jones observed 50 randomly selected centers in the Los Angeles area and found that individual

teacher performance was a function of their training. Caldwell wrote that Prescott had provided evidence that the better trained teachers were more likely to be engaged in a child oriented program in which attention was given to verbal skills, consideration, and creativity rather than control, restraint, and rules of social living.[51]

Adult-child ratios. The 1981 Smith and Connolly study of nine British centers in which adult-child ratios varied from 1:4 to 1:10 found that ". . . increasing the number of children per adult decreased verbal interaction--conversations were shorter more routine, and contained more prohibitions. Staff rated more children per adult as more exhausting."[52] Bruner observed that in centers with low adult-child ratios children were more likely to play creatively and talk comfortably with adults.[53] Other researchers have reported relationships between low adult-child ratios and an increase in verbal and fantasy play, more interaction of children with their peers and an increase in both the quality and quantity of verbal interactions.[54-56] In the NDCS researchers found that ratios were not related to the gains in child test scores as measured by the revised PPVT.[57] The NDCS did find that when there were fewer children per caregiver, adults used less controlling, commanding, and correcting language.[58] Stephanie Feeney reviewed the 1977 Maslach and Pines and 1980 Whitebook and Howes studies and identified high adult-child ratios as being among the variables related to teacher burnout.[59]

Center/class size. Prescott reviewed studies which explored center size as an contributor to child behaviors. The review included the 1967 Prescott and Jones findings that in larger centers (over 60

children) more emphasis was placed on "rules and routine guidance."[60] Children in the larger centers were more age-segregated and did not mix with older or younger children. The programs also seemed to offer fewer opportunities for children to initiate their own activities. Prescott also noted that both the 1972 Abt and the 1971 Fitzsimmons and Rowe findings indicated that although ". . . larger centers cost a little less per child, they seem to find it harder to provide quality child care."[61] Work done by Reddy in 1980 indicated that in the larger centers children spent more time in waiting and moving about activities.[62] Prescott added that in the 1980 findings very large centers (over 100) were often of higher quality than the medium size ones because ". . . some very large centers . . . having smaller self-contained units . . ." overcame the size problems.[63] Also in 1980 Bruner suggested that children in larger centers were more likely to limit their play to physical activities while children in smaller centers engaged in more creative play activities.[64] In an infant and toddler study, Cummings and Beagles-Ross pointed out that in larger centers the toddlers had more problems separating from their mothers and were reluctant to enter the classroom.[65] Clarke-Stewart and Gruber investigated child social competence and adult-child behaviors among 80 children in center and family day care and found those in larger centers were less able to engage in outgoing social interactions with their peers.[66]

The NDCS study findings identified ". . . group size as an important predictor of differences in quality."[67] All the children in this large study who were in smaller groups (range of 8 to 36) were

more cooperative, innovative, and showed higher gains on the Preschool Inventory and the PPVT. The authors continued "An important dimension of this finding is that group size and staff-child ratio are, in the real world, inextricably linked. When center directors . . . set a ratio, they must also set an associated group size as a multiple of the selected ratio . . . an adult child ratio of 1:5 is associated with group sizes in multiples of 5."[68]

Howes determined that when children were in large groups, with a range of 4 to 34, there was less social stimulation and responsivity.[69] In a report from Smith and Connolly, they pointed out that they compared the same child in different size groups and found that when the child was in a smaller group (11-14) she/he tended to know the other children better and engage in more creative play.[70]

In 1983 Nurss and Nough observed that there is a difference between the needs of infants and toddlers and four and five-year-old children. The very youngest require more physical care from adults, (diapering, feeding) and ". . . adult-child ratio is more important than group size." With older children ". . . a group of 15 to 20 children with two adults is more likely to produce positive group interaction and to foster cognitive growth than is a larger group."[71]

Combination of variables. As noted, except for the NDCS, most of the cited research findings were conservative in that limited dependent variables such as child creativity or play activities were related to limited dependent variables such as adult-child ratios. The several components which make up the total classroom environment have been explored in three empirical studies. The NDCS was the first and most

comprehensive and this was followed by the findings reported in a 1982 Ph.D. Yale University dissertation by Kathleen McCartney. McCartney pointed out that the results of her work documented ". . . for the first time in the day care literature the importance of the quality of the day care environment."[72] McCartney rated environmental levels among nine child care centers in Bermuda to ". . . determine whether quality of the environment as indexed by a wide range of attributes, predicts children's language development."[73] Her work was especially useful since her centers were "representative" of child care centers and were not project-enriched, heavily funded programs.

McCartney used the Early Childhood Environment Rating Scale (ECRS) designed by Harms and Clifford at the University of North Carolina. The 37 item scale is organized into the following subscales: "(1) Personal Care Routines, (2) Furnishings and Display, (3) Language-Reasoning Experiences, (4) Fine and Gross Motor Activities, (5) Creative activities, (6) Social Development, and (7) Adult Needs."[74] In overall high quality centers children scored higher gains on intellectual and language development measures and were rated more considerate by their teachers. She found that the overall quality of a center tended to influence test scores rather than single variables such ". . . parent involvement, amount and variety of play equipment, or director training or experience," which were not related to higher test scores.[75]

In a 1983 study Vandell and Powers classified six centers as high, medium, and low based on adult-child ratios, early childhood education background of the teachers, and the availability of appropriate toys.

They found that "Children in high quality centers were more likely to engage in positive behavior, positive interaction, and total interaction with adults. Children in low and moderate quality centers were more likely to engage in solitary or unoccupied behavior."[76]

Child Care as a Social Subsystem: Resources and Returns

The findings from several researchers have established that the immediate child care environment of the young child can have an effect on his/her behavior, growth and development. Other educators and researchers have attempted to show that in order to maintain high quality environments for children, child care centers must interact with and often depend upon other social subsystems which also serve the child.

The reality of interactions and interdependence among social systems is a subject well noted in systems research findings. In his 1977 book The Ecology of the Human Environment, Bronfenbrenner proposed the concept of "nested environments."[77] As noted in chapter one he labeled them (1) a microsystem, the immediate settings in which humans live and have direct or indirect influences on the behavior of that person; (2) a mesosystem, which are the systems of interrelationships between the immediate environments in which the child participates; (3) an exosystem, or the informal and formal structures in which the child usually does not participate directly; and (4) the macrosystem, or system of information, ideology, and custom which make up a culture or subculture.[78]

Bronfenbrenner noted that his perspective ". . . leads us off the beaten path for it requires looking beyond single settings to the

relations between them. I shall argue that such interconnections can be as decisive for development as events taking place within a given setting."[79] He warned that if there were no connections or if that those which did exist were disapproving or offered only minimal resources then the rejected or ignored settings were less likely to support human growth and development in positive ways. As an example of his theory in practice, Bronfenbrenner suggested that perhaps the ". . . rising rates of homicide, suicide, drug use, and delinquency for children of school age" may be a reflection of the ". . . breakdown of the interconnection between the various segments of the child's life--family, school, peer group, neighborhood. . . ."[80]

Child care: resources from the community. The resources Bronfenbrenner referred to are also important to child care programs. A review of the literature indicates that in order to maintain quality environments in which adults respect and support young children, child care programs depend on human and financial supports. The major human resources have been reviewed in the cited literature regarding teacher training and experience. The classroom teacher is the most important human resource with a clear relationship between appropriate teacher training and high quality classroom experiences for young children.

Parents of the children enrolled in the center are another potential human resource. Ruopp and Travers suggested that by ". . . direct and indirect participation in the operation of a facility . . . parents influence the quality of care received by their children."[81] Researchers have documented the often minimal human support parents give to the centers. Zigler and Turner reported a

70-day study of 50 children in a university-based all day center in which the question central to the research was ". . . how much time is spent by parents in a day care center that is heavily committed to the principle of parental involvement."[82] The findings were that those parents spent an average of ". . . 7.4 minutes per day . . . approximately 10% of the parents did not even enter the center with their children in the morning, even though an unenforced regulation stipulated that a parent must remain until his child received a health check."[83]

The major support provided child care centers comes from parents in the form of tuition paid for their children. A 1980 University of Michigan, Institute for Social Research analysis placed ". . . total expenditures for care among working families . . . in excess of $6 billion in 1978 . . . 24% for center care."[84]

Other financial supports for child care programs come from federal and local governments.[85] The major funding source for public pre-kindergarten programs comes from the federal government. Those expenditures include child-parent centers, immigrant and Indian children, and the Head Start program with 1,200 centers and FY 1985 funding at over $1 billion. Title XX of the Social Security Act is the legislative authority for other child care funds which are available through the Social Services Block Grant and is jointly administered by federal and state agencies. The Department of Agriculture food program helped provide nutritious meals to children in child care programs with FY 1983 funds at $328.8 million. In addition to direct funding, tax credits under the Economic Recovery Act of 1981 are a form of support

for centers as well as parents because the credits allow tuition paying parents to pay fewer taxes.

Many local governments have actively supported program for young children. For example, "In 1986, 22 states spent a third of a billion dollars to provide early childhood programs, especially for children living in poverty, while in 1984 only 8 states spent half as much in the aggregate, these programs are about one third the size of the national Head Start program."[86] Several cities such as New York, Chicago, Philadelphia, and Washington, DC have made active financial contributions to early childhood. For example, "In FY 1986 the Chicago school system spent $35 million on 12,548 children."[87]

Community based support also is evident in other ways such as in-kind services, volunteer fund raising, and zoning exemptions to allow for programs in residential neighborhoods. Churches are major supporters of child care, particularly in the use of church buildings for a variety of programs. In a National Council of Churches survey of almost 88 thousand parishes, churches were noted as most heavily involved in supporting child care as ". . . 98 percent of the child care programs offered in church buildings are open to members of the community."[88]

Child care: returns to the community. The Bronfenbrenner concept of interacting and interdependent social subsystems lends itself to the assumption that good child care programs need to be supported by human and fiscal resources, and further, that they offer support to their community. Those returns may be measured in financial terms or they

may be seen in the impact of available, affordable child care on young working families.

Some studies have documented the financial return to the business community when there is an investment in programs for young children. A 1984 cost-benefit analysis of three Texas companies determined ". . . the impact on productivity and profit of child care assistance to employees."[89] The researchers demonstrated that when arrangements for child care were made by a textile manufacturing company the cost-benefit analysis showed that ". . . for every $1 spent, the yield is $6 in cost constraint."[90] In a policy statement the Committee for Economic Development (CED) which is composed of chief executive officers of the major American companies agreed that early education was a good investment.

> The success of education reform will depend not only on <u>how much</u> we invest in education but also on <u>how wisely</u> we invest our resources. We are convinced that the earliest stages of educational development are where we will receive the best return on our investment in education."[91]

The taxpayer also receives a return from wisely invested tax dollars. The Carnegie Corporation funded cost-benefit analysis of the long term economic return of a preschool program for low income children used the longitudinal data from the High/Scope Perry Preschool Project. The value of the program investment showed a positive return to taxpayers and participants.

> . . . major benefits to taxpayers were reduced costs of about $5,000 per preschool participant for special education

> programs, $3,000 for crime, and $16,000 for welfare assistance. Participants were expected to pay $5,000 more in taxes because of increased lifetime earnings resulting from their improved educational attainments.[92]

The research cited has demonstrated how child care systems, or the lack of them, have an impact on families and businesses. A 1978 Belsky and Steinberg critical review of the effects of day care noted little empirical evidence as to how child care may impact the family in ways other than those noted when studying family/work situations.[93] A Pennsylvania study in the early 1970's suggested that ". . . as satisfaction with substitute child care increased, so did marital and employment satisfaction."[94] The use of ecological "models" was explored in a University of Massachusetts study.

> The findings were interpreted as supporting an ecological model of substantial intersection and cross-influence between home and day care settings . . . nineteen matched pairs of center and noncenter children were followed for eight months. Center homes were more child-centered with respect to play, safety, and dinner arrangements."[95]

In a report describing "forced choices" often made by females who were the sole family providers, researchers found the mothers often accepting less than adequate after school care for their children. Limits imposed by their low income, lack of transportation, and restrictive employers seemed to place the women (and their children) in a position where child care arrangements "violated their own goals and values.[96]

"The need for day care is at the core of the new relationship between the corporation and the family. It is the fourth largest item in many family budgets, after taxes, housing, and food."[97] That statement written by authors Naisbitt and Aburdene in their 1985 book Re-inventing the Corporation, has been validated in several recent studies. A 1986 report for AT&T prepared by Ellen Galinsky of Bank Street College noted that in a "Portland State University survey of 8,121 workers in Portland, working mothers bore most of the responsibility . . . when the child care arrangements fell apart, and thus were absent more frequently."[98] When controlled for income level and ages of the children, stress due to inadequate child care was shared by "47 percent of the women employees and 28 percent men employees with children under 12."[99]

Two major corporations on the East Coast reported "The instability of child care . . . as a more significant predictor of ill health for women with children under the age of 18 than most other aspects of their jobs . . . it was the second best predictor of ill health . . . for men."[100] A 1986 survey of 5000 employees in 5 companies uncovered a considerable range of problems those employees related to inadequate and unreliable child care. Those included deciding against accepting promotions or job relocations, forced absenteeism, and morale problems.[101]

Summary

A review of the literature has shown that children share common patterns of growth and development and that those processes can be influenced by their environment. Child care classrooms are part of the

environment of the young child and the quality of those environments may be enhanced by a developmentally appropriate curriculum, positive adult-child interactions, and a balanced schedule of activities. Other factors which seem to explain child behaviors are adult-child ratios and group size. Professional child care supports and interacts with other social subsystems and requires resources from those systems. Support may be human such as appropriately trained teachers and the time parents give to centers, and/or financial such as the tuition paid by parents, government funding, and in-kind, community generated help.

Notes

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CHAPTER 3

METHODOLOGY

The purpose of chapter three is to identify and describe the research processes used in this study. The population and the sample are described along with the sample selection techniques which were used, the data gathering procedures, observer training process, and observation and interview instruments. An explanation of the research design and the statistical programs which were employed to test the hypotheses and ancillary questions is followed by a summary of the research methodology.

Population and Sample

The population of this study consisted of the child care centers on Oahu which are licensed to enroll fifty-two or more pre-kindergarten children and which have areas or classrooms specifically designed for four and five-year-old children. The number fifty-two was selected because it is slightly larger than the number mandated by the licensing agent, Department of Social Services (DSSH), in its rules and regulations for a center with a non-teaching director, e.g. "In a center with fifty or more children the director may teach but shall not be included in the staff-child ratio."[1] In most centers the director or principal will take over a class in an emergency and in some centers may conduct regular activities such as a daily music time. For the most part the director is usually the on-site person directly responsible for decisions which relate to the daily curriculum and schedules, staff-child needs, and the availability and appropriateness

of equipment, materials, and supplies. There were ninety child care centers on Oahu licensed to enroll more than fifty-two pre-kindergarten children. That number was obtained from a 1986 DSSH computer printout listing all licensed centers and their licensed capacity to date.

To select a sample the center names were numbered and a 1970 Krejcie and Morgan formula developed for the National Education Association was used to determine that a sample size of seventy-three would meet the .95 confidence level.[2] A table of random numbers from Borg and Gall (1983) was employed to pull the required sample size of seventy-three.[3] Two more randomly selected centers were added to the mailing list in case of postal errors and to allow for the possibility that a center was no longer functioning even though it was on the DSSH 1986 printout.

Each of the sampled centers had at least one class or group of children who were scheduled to enter kindergarten in September 1987. If there was more than a single class in the center, then a coin flip was used to choose the group to be observed.

The results of this study may be generalized to child care centers on Oahu which are licensed to enroll more than fifty-two children and which have separate classes or groups for pre-kindergarten children.

Instrumentation

Quality of classroom environment. The instrument used to measure classroom environment was the Early Childhood Classroom Observation (ECCO) scale which was developed by the National Association for the Education of Young Children (NAEYC) staff (see Appendix A). Content validity was established over a three-year period as the NAEYC staff

reviewed fifty evaluation documents and the research literature on the effects of various early childhood program components on children. Criteria were then developed and reviewed by 186 early childhood specialists. In its journal, Young Children and during an annual national conference, the NAEYC invited its 50,000 members to respond to the proposed criteria. The NAEYC staff then generated observation procedures and a 75 item ECCO instrument was designed to record the levels of selected criteria in child care center programs.

The instrument was field tested in a three-step process:

a. A list of potential center sites was put together by early childhood education leaders;

b. Centers were contacted and a list of cooperating groups compiled;

c. A cluster random sample was drawn (California, Florida, Minnesota, Texas) and classes were randomly selected.

All participating directors and teachers were given the scale and trained in its use. Thirty-one highly qualified early childhood professionals were also trained to use the scale.

After teachers and directors had rated the classrooms, the professionals or validators were assigned to make on-site visits. All centers were visited at least one time; 23 received two independent visits. In 31 classroom among 18 centers different validators observed the same classroom on different days.

The ECCO reliability was assessed by item analysis and factor analysis on the data received from teachers, directors, and the outside

validators. The data from the three groups were collapsed into one after an analysis of variance showed no observer effects in scale use.

The internal consistency of the instrument was tested by performing an item analysis to obtain product moment correlations between total score and individual items. The curriculum component, daily schedules, and management of routines were the items that correlated highest with the total score. A standard coefficient of reliability, coefficient alpha which is a conservative instrument reliability computation was .70 (could be higher but not lower than .70).

The relationships among items within an instrument is another internal consistency indicator. Although the purpose of the instrument is to assess the quality of a child care center classroom environment, which is a single concept, different components are observed. In the ECCO a factor analysis through a series of correlation coefficients establishing obvious item relationships, reduced the original 75 items to 26 items.

Three factors accounted for 48% of the score variance. The strongest factor covered nine items including preschool materials and appropriate curriculum activities. The second factor identified items connected with positive interactions among staff and children. A cluster of five items relating to the daily schedule made up the third factor. Further factor analyses across the three groups (teachers, directors, validators) indicated that the three factors were highly stable across all three groups, i.e. "The correlation between preschool curriculum factors for teachers and directors was .95; between the

teachers and validators, .99; and between directors and validators, .96."[4]

NAEYC researcher Sue Bredecamp reported that

> The literature on program quality provides evidence that the most important indicator of quality is the nature of the adult-child interaction. Similarly, research supports the need for planned and organized curriculum activities. The finding that items related to curriculum and interactions were the most influential determinants of total scores on the scale is evidence that the scale is a valid measure of the quality of an early childhood classroom environment.[5]

The three factor, 26 item ECCO instrument was divided into sub-scores along factor lines: (1) preschool curriculum; (2) positive adult-child interaction; (3) balanced schedule. Each item is rated (1) Not Met, the statement does not accurately describe the classroom; (2) Partially Met, there is some observable evidence that the statement accurately describes the classroom; (3) Fully Met, there is a great deal of observable evidence that the statement accurately describes the classroom. The case scores could range from a low of 26 if all of the items were scored Not Met to a high of 78 if all items were scored Fully Met.

Group size and number of adults. The observers who rated the ECCO scale also noted the number of children in the observed group and adults directly interacting with them during the three-hour observation.

The researcher interviewed each director after the center classrooms had been observed and rated. Directors were asked if they were sponsored by a church, other non-profit group, or a private owner. Information was also gathered about the ownership of the center facilities, how many children the center was licensed to serve and what meals were included in tuition charges.

Human resources: teacher and director experience and education. Each director and the teacher(s) responsible for the children in the observed group was asked to fill in a one-page questionnaire listing the number of years they had worked with young children and their educational degrees or certificates. The early childhood backgrounds of director, and teacher, were assessed by a staff qualification chart prepared by the NAEYC in 1985 for its national accreditation process. Every 16 hours or one semester hour spent in early childhood education or child development courses (ECE/CD) was recorded as one unit. The units represented college level courses, vocational-technical courses, or in-service training. Directors were also asked to note the number of years they had been a director and if they had either a degree or course work in business administration.

Human resources: parent hours. The researcher asked each director and teacher to estimate the number of hours parents spent either helping the teacher in the classroom, field trips, and/or social events, or assisting the director with administrative tasks. Those could include fund raising, helping to select staff, or serving as administrative advisors. The two-section questionnaire was based on those developed for the NAEYC accreditation process.

Financial resources. The director was provided with a one-page questionnaire; the first section requested information about the quarterly per-child income received from parent tuition, government and private sources, fund raising, gifts, and investment profits. The second section related to in-kind services such as free rent and/or support personnel. Directors were asked to check if they paid no rent or full charges and if any staff people, i.e. secretary, custodian were paid from funds not received or controlled by the director.

When in-kind services for rent were reported the researcher consulted the May 1987 commercial and industrial leasing guide which is a supplement to the Hawaii Investor. This guide is available through the Chamber of Commerce of Hawaii and lists rental prices per square feet in 26 zones on Oahu. The rules and regulations specify that the enrollment capacity of a child care center is determined by allotting 35 square feet per child plus whatever other space might be needed for program and storage purposes. The per-child number would be the minimum space requirement and was used to estimate the in-kind services. For example, if a director reported that a child care center with a capacity of 100 children in the downtown Honolulu zone paid no rent then the in-kind service provided that center would be the commercial rental market value of 3500 square feet.

A similar format was followed to estimate any personnel in-kind services; if a director reported that the sponsoring church paid for custodial services of ten hours per week then the in-kind was minimum wage times ten. All the in-kind resources were entered under private financial resources.

Data Gathering Procedures

In the second week of March, 1987 each of the seventy-five randomly selected centers was contacted by letter congratulating them on having been chosen to participate in the research. The letter explained the reason for the research, what would be required of each center and offered a quid pro quo of feedback and consultant time from the researcher. The letter of explanation also noted that all information would be confidential. A cover letter signed by several respected early childhood professionals on Oahu pointed out the value of competent research to the profession and encouraged the center directors to participate. Also included in the first mailing was a copy of the questions to be asked about the number of parent participation hours and a self-addressed-stamped return card indicating that the center would cooperate.

As the returns came in each was recorded by date on a master sheet which identified the general area (Kahuku, Waianae), and included the center name, address, telephone number and the name of the director. If a center had not responded by two weeks after the original mailing, then memos and telephone calls were made to ask that center to participate in the data collection. The final sample size was 52 classrooms located in all areas of Oahu, and represented a response rate over 71%.

Classroom environment information. In the second week in March 1987 letters were mailed to 10 early childhood professionals on Oahu who had been trained by the National Association for the Education of Young Children (NAEYC) to use the Early Childhood Classroom Observation

(ECCO) instrument as part of their validator training for a national child care center credentialing program. Four responded and agreed to observe classrooms for the study. More early childhood professionals were then contacted and four more agreed to cooperate. All but two had advanced degrees in early childhood education and all had been preschool teachers; four were administrators, three preschool teachers, and one of the observers a college instructor.

In order to preserve interrater reliability, observers were trained using the guidelines outlined by Borg and Gall.[6] For the four observers not trained by the NAEYC in the use of ECCO a special two-hour training session was arranged. The trainer had been instructed by the NAEYC and was registered with the National Academy of Early Childhood Programs as a program validator. A videotape and work sheets supplied by NAEYC were used for the observer training and observers spent time on each part of the instrument and practiced rating using the NAEYC tape.

All observers were then supplied with a videotape developed by the Honolulu Community College (HCC) for its early childhood education students which showed about twenty minutes of indoor and outdoor activities during a regular day at the HCC laboratory school. Each observer was asked to watch the tape and rate what they saw on a sample ECCO with eleven items to be observed. In order to insure back-up in case of observer illness the researcher also watched the video and rated the items on the sample ECCO. Of the eleven items on the ECCO, 100% of the observers agreed on nine of the items. On the item, "Staff encourages respect for cultural diversity," two observers circled

"Not met," and seven decided that the criterion was, "Partially met," with a 77% agreement. On the item "Staff enhances physical development," 89% agreed that the criterion was "Fully met," and one person or 11% circled "Partially met."

None of the observers were told any of the research details, such as hypotheses, design, or research questions. Observers were provided observation guidelines which included cautioning them against interacting with either children or teachers during their observation or discussing the ECCO with directors and teachers. The hours of observation were to take place during the classroom morning schedules and last about three consecutive hours.

After the reliability session, the observers selected the centers they were able to observe. The observers were asked to do their own telephoning to the center directors for appointments to observe and to begin the observations as soon as possible so that observer skills would be intact. After the centers were assigned each director received a postcard noting the name of the observer and that she/he would be telephoning soon for an appointment.

All observers were paid twelve dollars per visit, plus a mileage reimbursement of thirty cents a mile and any miscellaneous costs such as postage and parking. The ECCO forms were mailed to the researcher as soon as possible after the visit and payment was made promptly. The observations began the first week of April 1987 and ended the last week in May 1987.

Demographic data. After the classrooms had been observed and before the ECCO results had been recorded, the researcher made an

appointment and visited each of the fifty-two center directors. Each interview lasted approximately half an hour and had two parts. First, the director was asked to answer some general questions, such as who sponsored the program, what food services were provided as part of the tuition, and the licensed capacity of the center. During the second half of the interview the researcher explained the three follow-up questionnaires and carefully reviewed each page with the director. The information to be gathered was about direct income received, in-kind services, the number of early childhood or child development units earned by directors and teachers, their degrees, and their experience teaching young children. The director was asked to estimate the number of hours parents of the children in the observed class helped with administrative tasks. In addition, the researcher asked that the teachers of the children in the observed classroom estimate and note the hours parents helped in the classroom. The parent hour estimations were to cover the time frame of five months, January through May, 1987.

After the interview the director was given a stamped, self-addressed envelope and asked to return the completed questionnaires by the second week of June. Most were returned within a week of the interview; some information, such as financial resources, came from the business managers or accountants of the center. All questionnaires from the fifty-two centers were returned by the middle of July, 1987.

Design of Study

The ex post facto causal-comparative design used in this study was defined by Borg and Gall as a ". . . method . . . and . . . accepted research technique . . . comparing samples that are different on a

critical variable but otherwise comparable."[7] The ex post facto design allows the researcher to examine the ". . . causes . . . after they have presumably exerted their effect on another variable."[8] Issac and Michael noted that a strength of the design is that "It yields useful information concerning the nature of the phenomena: what goes with what, under what conditions, in what sequences and patterns."[9] The method is useful in educational research situations where strict controls and manipulations consistent with experimental designs are impractical.

This ". . . particular way of analyzing . . . relational data"[10] was used to test null hypotheses which stated that there were no significant differences among the groups of financial or human resources when measured on an instrument which established classroom environment quality levels. The instrument, the Early Childhood Classroom Observation (ECCO), provided the dependent variable scores for a total ECCO as well as three sub-scale factors.

Selected factors, i.e. funding sources, were examined separately and then combined to examine interaction effects. In addition to testing for differences among group ECCO scores, there was an assessment of whether relationships and/or ECCO test scores might be predicted.

Statistical Analysis

The data which were collected from interviews, questionnaires, and observation were entered into the IBM 370/158 computer via terminals at the University of Hawaii Computer Center. Statistical analyses were executed by using the SPSSx Statistical Package. The probability that

the differences found in the sample would also be found in the population was established at the p=<.05 level for the hypotheses. The F probability was changed to .10 as the removal criterion for the regression analyses of three ancillary questions. The questions were not defined in the null hypothesis form and were generated as a means of exploring the data; therefore the less restrictive F was chosen.

The SPSSx sub-program Frequencies generated an initial descriptive analysis of interval data in terms of central tendency and measures of variability. In addition, tables of frequencies, cumulative totals, and percentages of all the variables were obtained. The means, ranges, and standard deviations were used to calculate the distribution of cases into groups for analysis of variance tests.

The statistical process which tested the five null hypotheses that the multiple samples came from the same population was the analysis of variance. The variance was analyzed by means of an F ratio which is a ratio of the variance among sample means to the variance within sample means. The formula may be represented as

$$F = \frac{\text{MS estimate of variation between groups}}{\text{MS estimate of variation within groups}}$$

The Mean square (MS) is obtained by dividing the SS (sum of squares) by degrees of freedom (df). When the variance between the groups is greater than the variance within the results are tested that the F value reaches the F probability of p=<.05.

The ANOVA procedure was able to calculate the required sum of squares even though the number of cases in each cell were not the same.

This "nonorthogonal" situation is resolved by calculations falling under a "classic experimental approach" so that the outcomes are as follows:

Source of variation	Sum of Squares
(1) SS due to A and B	SS A,B,AB
(2) SS due to A and B	SS A,B
(a) SS due to A adjusted for B	(SS A,B-SS B)
(b) SS due to B adjusted for A	(SS A,B-SS A)
(3) SS due to AxB interaction	(SS A,B,AB-SS A,B)
(4) SS residual	SS y-SS A,B,AB[11]

For each hypothesis a Bartlett=Box probability test for the assumption of homogeneity was generated. When the results of the one-way ANOVA of the first ancillary question indicated that the F probability reached p=<.05 on a posteriori Scheffe Contrast test was run. "The groups are divided into homogeneous sub-sets, where the differences in the means of any two groups in a sub-set is not significant at some prescribed level. The procedure is based on the test

$$[x_i - x_j] \quad R\ (\text{alpha}, g, f)^* S_{\bar{x}}$$

where R(alpha,g,f) is a range based on a significance level (alpha), the number of groups in the sub-set (g), and the degrees of freedom (f) in the between-groups sum of squares. $S_{\bar{x}}$ is the standard error in the combined sub-set."[12]

The one-way analysis of variance used to test the first hypotheses in which the differences between the financial resources which were

received by child care center directors over one quarter were examined on the Curriculum sub-scale ratings. The n-way ANOVA was used to test the next four hypotheses. In the second hypothesis the ANOVA tested for differences between groups of financial resources when adjusted for the effect of hours of parent participation when measured on the ECCO rating.

The third and fourth hypotheses were tested by assessing differences among director and teacher variables when moderated by organizational factors such as capacity, group size, and adult/child ratios and measured on both total ECCO ratings and three sub-scale ratings. The fifth hypothesis determined the effects of parent participation adjusted by the effects of teacher experience upon two of the sub-scale ratings.

In addition to the five hypotheses, four ancillary questions were proposed. In the first question, differences between three levels of teacher ECE/CD training when measured on the ECCO scale was tested with the one-way analysis of variance.

The second question was generated to examine whether variance in either tuition, government, or private income might be explained by organizational components (food services, operating hours, group size, adult/child ratios), or the ECCO scale ratings received by the classrooms.

In the third question the variance in the number of children in a class (dependent variable) was examined by the financial resources, adult/child ratios, and director/teacher experience. The last ancillary question was proposed in an attempt to develop a prediction

equation for the ECCO ratings using the (1) group size and adult/child ratios and (2) director and teacher experience.

All ancillary questions were examined by the MULTIPLE REGRESSION subprogram. Multiple regression was used to evaluate the overall dependence of (1) income, (2) class size and (3) total ECCO ratings upon independent variables operating jointly as well as the contributions of particular predictor variable with the influence of the other independent variables controlled.

The analysis allowed the use of one dependent variable and two or more independent variables. "The general form of the (unstandardized) regression is

$$Y' = A + B_1 X_1 + B_2 X_2 + \ldots + B_k X_k .$$"[13]

In the formula the estimate for the dependent variable (Y) is represented as Y'. A (the constant for each case) is the Y intercept, and the "B_i are regression coefficients. Selection of the least-squares criterion implies that the correlation between the actual Y values and the Y' estimated values is maximized, while the correlation between the independent variables and the residual values (Y-Y') is reduced to zero."[14]

Three types of information are supplied the researcher with the multiple regression procedure. The first is the multiple regression prediction equation in which X (criterion variable) equals predictor variables which have been selected by the researcher. The independent variables were entered on a stepwise basis with the strongest

predictor first and the other variables either left out or entered in sequence.

A correlation matrix of those factors which entered the analysis is produced. Each correlation is of interest. Represented by an R, it is the coefficient of multiple correlation and the better predictors have the largest R. R is a measure of the magnitude of the relationships and R squared ". . . expresses the amount of variance in the criterion variable that is predictable from a predictor variable or combination of predictor variables."[15]

The third level of information refers to beta weights which are used in the development of prediction equations. Because the predictor variables are not on the same scale of measurement, regression coefficients are converted into beta weights, ". . . as if the predictor variables were equal in terms of means and standard deviations;"[16] the largest beta weight is the best predictor.

Summary

The purpose of Chapter 3 was to review the methodology used in this study. The population consisted of child care centers on Oahu which had been licensed to enroll fifty-two or more pre-kindergarten children and which had areas or classrooms specifically assigned for four and five year old children. A sample of fifty-two centers was obtained; if there was more than one class of four and five-year-old children the observed classrooms were identified by a flip of the coin. The study findings may be generalized to similar child care centers on Oahu.

The design of the study was ex post facto causal-comparative. That design allowed the researcher to examine selected human and financial resources (independent variables) which were available to child care center directors over a three-month period and to test for differences when measured on a classroom environment scale (dependent variables).

The instrument used for classroom observations had been developed from a review of the research by the National Association for the Education of Young Children and refined into a valid and reliable 26 item Early Childhood Classroom Observation (ECCO) scale. Observers were trained in the use of the instrument and an interrater reliability test indicated that observers agreed on their ECCO scale ratings.

After the observations were completed, the researcher interviewed each director to collect information about center variables such as food services and hours of operation. Questionnaires filled out by directors and returned to the researcher provided financial and human resource data such as how much tuition, governmental, and private funding was received, and the amount of teacher and director education and experience.

The SPSSx statistical package was used to analyze the data. The initial frequencies analysis provided information about central tendencies, totals, means, standard deviations, and percentages. The dependent variables in the hypotheses included ECCO total and sub-scale ratings, levels of director and teacher education and experience, the amount of income received from several sources, and the amount of parent participation. Differences between groups at the $p=<.05$ level

of significance were examined by both the one-way and n-way analysis of variance programs. The Bartlett-Box tested for the assumption of homogeneity and the Scheffe post hoc was employed to identify which groups were significantly different.

The first of the four ancillary questions was proposed in order to assess the effect of differences in the three levels of ECE/CD training reported by the teachers when measured on the ECCO rating. The one-way analysis of variance and the Scheffe were used to analyze those data. The other ancillary questions which dealt with variance in center income, group size, and the ECCO ratings were analyzed by using the multiple regression procedures.

Notes

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[4] Sue Bredekamp, "The Reliability and Validity of the Early Childhood Classroom Observation Scale for Accrediting Early Childhood Programs," Early Childhood Research Quarterly 1, no., 2 (1986): 114.

[5] Bredecamp, 116.

[6] Borg and Gall, 477-480.

[7] Ibid., p. 530.

[8] Ibid., p. 533.

[9] Stephen Issac and William B. Michael, Handbook in Research and Evaluation (San Diego: Edits Publishers, 1979), 22.

[10] Borg and Gall, 532.

[11] Jae-On Kim and Frank J. Kohout, "Analysis of Variance and Covariance: Subprograms ANOVA and Oneway," Statistical Package for the Social Sciences 2nd. ed. (ed.) Norman H. Nie et al. (McGraw-Hill New York, 1975), 406.

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[13] Kim and Kohout, p. 328.

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[15] Borg and Gall, 600.

[16] Huck, 155.

CHAPTER 4

FINDINGS

The purpose of chapter four is to present the findings of this study. Frequency distributions and descriptive statistics of the demographic variables are presented first. Each null hypothesis is then restated; respective statistical tests and resultant findings are followed by a statement as to whether or not the null hypothesis will fail to be accepted. Findings which resulted from the statistical analysis of the ancillary questions are then examined; in the last section there is a narrative summary of the findings.

Descriptive Information: Independent Variables

Child care centers. The sample represented centers on the island of Oahu in communities from Kahuku to Waianae, Waipahu to Waikiki. The major provider of facilities was religious organizations with over 69% of the programs housed in church buildings. Non-profit organizations other than churches controlled 23% of the facilities and the remaining 8% were privately owned.

Responsibility for administration rested with religious groups in 56% of the centers; of that percentage, 48% were Protestant, with the remaining 8% divided between Catholic and Buddhist sponsors. Non-profit organizations sponsored 40% of the programs and 4% were under private ownership.

The licensed capacity of the centers in the study ranged from 52 to 261 children. Licensed capacity refers to the licensing regulations in Hawaii which dictate how many children a center may enroll. In the

sample, 50% of the centers could care for no more than 105 children; only 6% could enroll more than 150. The mean capacity was 106 and the standard deviation 37.49.

Food services varied according to the particular meal. Table 1 illustrates the numbers obtained when directors were asked to list the regular meals provided which were included as part of the tuition paid by parents.

Table 1

Frequency and Percentage of Food Services Provided by Centers and Included in Tuition Charges

Food Services	Breakfast	AM Snack	Lunch	PM Snack
Frequency				
Yes	22	28	34	46
No	30	24	18	6
Total	52	52	52	52
Percentage				
Yes	42	54	65	88.5
No	58	46	35	11.5
Total	100	100	100	100

The table shows that the afternoon snack was served in over 88% of the centers with lunch available in 65% of the programs. The morning meal was served less often with 58% reporting that no breakfast was provided as part of the services paid for by tuition. The morning snack was served in 54% of the centers while 46% did not give the children a mid-morning snack.

Classroom components. The observer who rated the classroom on the ECCO scale also noted the number of children who were in the observed group. The number and percentages of children in a classroom or group is represented in Table 2.

Table 2

Frequency and Percentage Distribution of Each Category of Group Size Based on the Number of Children Per Class in the Sample

Number of Children in Observed Group	Frequency	Percentage
10-15	13	25
16-20	17	33
21-25	9	17
26-30	11	21
31-36	2	4
Total	52	100

Mean = 20.61 Standard Deviation = 6.28
Median = 20 Range = 26 Minimum = 10 Maximum = 36

Table 2 shows that the number of four and five-year-old children in the sample groups ranged from a low of 10 to a high of 36. Large groups were rare (4%) while a group size of 16 to 20 children was most common with 33% of the cases in that category. The next largest group size was the 10-15 range (25%), followed by 21% with 26-30 children and over 17% with 21-25 children. The mean group size was 20.61 with a standard deviation of 6.28.

The adult-child ratios recorded in the observed and rated classrooms are presented in Table 3. The first number represents the

teachers, assistant teachers, and/or aides who were interacting with the children while the observer was present. Observers noted that some of the adults may not have been working directly with the children all

Table 3

Frequency and Percentage Distribution of Ratios Between the Number of Adults and the Number of Children in the Observed Groups

Ratio Between Adults and Children	Frequency	Percentage
1:5 - 1:8.5	10	19
1:9 - 1:10.5	14	27
1:11 - 1:13.5	14	27
1:14 - 1:20	14	27
Total	52	100

the time, i.e. an aide or assistant may have been setting up for painting or snack time. If the adult was in the immediate vicinity of the children, she/he was counted in the ratio. The second number in the ratio represents the number of children. The table shows that the adult/child ratios ranged from a low of one adult for every five children to a high of one adult for every 20 children. The fractional ratio numbers, i.e. (1:10.5), occurred when an uneven size group such as 21 had 2 adults present. Nineteen percent of the cases had ratios of less than 1:9; a major percentage (54%) had at least 9 but less than 14 children in the care of 1 adult, and larger ratios of 1 adult for every 14 to 20 children occurred 27% of the time.

Resources

Human resources:

Parents. An assessment of the number of hours parents spend in their child's classroom, accompanying the class on field trips, attending parent/teacher conferences, and/or center social events was calculated over a five-month period. In the sample 83% of the parents helped with curriculum or participated in social activities no more than two hours over those five months. Parents helped with administrative activities such as fund raising and staff selection rarely, with over 63% never involved with center administration. Almost 35% of the parents helped with center management tasks from two to six hours over five months.

Directors Education: Degrees. The frequency and percentage distribution of the educational backgrounds of the child care center directors in the sample is displayed in Table 4.

Table 4

Frequency and Percentage Distribution of Center Directors' Educational Background Divided into Categories Showing Those With Early Childhood/Child Development Degrees, Those With Other Degrees, and Those With No Degree

Educational Background of the Directors	Frequency	Percentage
Early Childhood/ Child Development	15	28.9
Other	32	61.5
None	5	9.6
Total	52	100

Most of the directors held degrees in fields other than early childhood or child development with over 61% reporting a wide range of educational backgrounds which included degrees in liberal arts as well as those who were elementary or high school education majors. It is of interest to note that director education relating to business administration was nearly non-existent; one director out of the fifty-two had a degree in business administration. Table 4 also indicates that almost 10% had no advanced degrees.

Directors Education: Early Childhood Education/Child Development. In addition to questions about the formal degrees which were earned, directors were also asked to estimate the number of units they had received in early childhood and/or child development (ECE/CD). The ECE/CD units have been established and described by the National Association for the Education of Young Children. One unit equals sixteen classroom hours or one college semester hour of study in early childhood education and/or child development. Units could also be earned through non-credit courses, vocational-technical courses, or other forms of in-service training. Directors had a choice of noting whether they had no units, one to six units, seven to twelve units, or more than thirteen units, and this breakdown is reported in Table 5. The table shows a bimodal distribution with almost 52% of the directors reporting that they earned more than 13 units or over two hundred hours in education and training relevant to their profession. The other mode had 25% with fewer than 6 units earned, while less than 10% said they had no ECE/CD units, and over 13% noted they had 7 to 12 units in ECE/CD.

Table 5

Frequency and Percentage Distribution of Early Childhood/Child Development Units* Reported Earned by Directors in the Sample

Number of ECE/CD Units	Frequency	Percentage
1-6	13	25
7-12	7	13.5
More than 13	27	51.9
None	5	9.6
Total	52	100

*Note: 1 unit = 16 hours

Directors Experience: Working With Young Children. The number of years directors have worked with young children is presented in Table 6. The phrase "working with young children" included any teaching experiences with children under the age of eight.

Table 6

Frequency and Percentage Distribution Showing the Number of Years Directors in the Sample Had Worked With Young Children

Number of Years	Frequency	Percentage
0-2	7	13.5
3-8	12	23
9-13	12	23
14-17	9	17
18-25	7	13.5
19-38	5	10
Total	52	100

Mean = 12.36 Standard Deviation = 9.09
Median = 10 Range = 38 Minimum = 0 Maximum = 38

The table shows the mean number of years directors in the sample had worked with young children was over 12 with a 9.09 standard deviation. The two largest groups were those who had reported three to eight years experience (23%) and those with nine to thirteen years (23%). The next largest group was above the mean with 17% noting that they had worked with young children fourteen to seventeen years. Thirteen percent had two years or less experience and 13% had eighteen to twenty-five years with the smallest group of 10% reporting twenty-six to thirty-eight years.

Directors Experience: As A Child Care Center Director. The number and percentage of directors who had administrative experience operating a child care program is shown in Table 7.

Table 7

Frequency and Percentage Distribution Divided into Categories Showing the Number of Years Directors in the Sample Had Been Directors of a Child Care Center

Number of Years as Child Care Center Director	Frequency	Percentage
1-3	19	36
4-8	15	29
9-15	13	25
16-26	5	10
Total	52	100

Mean = 7.5 Standard Deviation = 6
Median = 5 Range = 25 Minimum = 1 Maximum = 26

The table indicates a positively skewed distribution below the mean with 65% reporting that they had been directors one to eight years.

Twenty-five percent had been administrators from nine to fifteen years and 10% sixteen to twenty-six years.

Teachers Education: Degrees. The degrees earned by the adults working in the observed classrooms is displayed in Table 8. The adults in each group were asked to note if they had majored in

Table 8

Frequency and Percentage of the Type of College Degrees Held by Teachers in the Observed Classrooms

Degrees held by Teachers	Frequency	Percentage
Early Childhood/ Child Development		
More than 50%	9	17
Less than 50%	6	12
Elementary Education		
More than 50%	12	23
Less than 50%	3	6
Other degrees		
More than 50%	9	17
Less than 50%	6	12
No degrees	7	13
Total	52	100

elementary education, early childhood and/or child development, or "other" which could include any degree not related to education. If there were two adults in the group and one had a degree in early childhood and the other a degree in journalism, the case was placed in the "at least 50%" group (at least half of the adults had an early childhood major). If two adults had degrees in history and the other

person in that group had no degrees, than the case was assigned to "other" in the "more than 50%" category. Some of the teachers and aides noted that they had some college credits either at a community college or university and those cases were listed under "no degrees." Table 8 shows that a total of 29% of the classes were supervised by one or more adults who had degrees in Early Childhood or Child Development (ECE/CD). One or more teachers with degrees in other than ECE/CD or elementary education were in 29% of the classrooms and elementary education majors were in 29% of the classes. Thirteen percent of the groups were taught by teachers who had no degrees.

Teachers Education: Early Childhood Education/Child Development. The teachers were asked to estimate the number of units they had earned in early childhood and/or child development. Teachers had a choice of noting whether they had no units, one to six units, seven to twelve units, or more than thirteen units. As indicated in Table 5 each unit equals 16 classroom hours in a college course, vocational-technical classes, or in-service training classes. Table 9 illustrates the average units of each group. For example, if there were three adults in a group and each checked that they had earned from one to six units, the average would be in that category. The bimodal distribution shows that 44% of the groups were supervised by adults whose mean number of units in training or education relating to young children was from one to six. Thirty-three percent of the classrooms had teachers with a mean of more than 13 units (over 200 hours) while 19% averaged seven to ten units. Less than 4% of the groups were made up of adults who noted no ECE/CD units.

Table 9

Frequency and Percentage of Classrooms Divided into Categories Showing Mean of Teacher's Early Childhood/Child Development Units*

ECE/CD Units	Frequency	Distribution
None	2	3.8
1-6	23	44
7-12	10	19.2
More than 13	17	33
Total	52	100

*1 unit = 16 classroom hours

Teachers Experience: Working With Young Children. Table 10 illustrates the results of the questionnaire in which each teacher was asked to estimate the number of years they had taught children who were under the age of eight. If there was more than one adult working with a class, the average number of years working with young children for that group was calculated by dividing the number of years reported on the questionnaires by the number of adults in that class. For example, if a group of children had two teachers, one of whom reported 8 years experience and the other 6 years, the number shown in Table 10 would be 7. The numbers were placed into categories above and below the mean and used the standard deviations. In Table 10 the positively skewed distribution indicates that the largest percentage (61%) of the groups were supervised by adults who reported working with young children from four to nine years. Twenty-one percent of the classrooms had teachers

Table 10

Frequency and Percentage Distribution of Classes Divided by Categories Showing Mean Teacher Years Working With Young Children

Mean Number of Years Working With Young Children	Frequency	Percentage
2-3	4	8
4-9	32	61
10-15	11	21
16-23	5	10
Total	52	100

Mean = 8.6 Standard Deviation = 4.87
Median = 7.50 Range = 21 Minimum =2 Maximum = 23

with a mean of ten to fifteen years experience. Ten percent had sixteen to twenty-three years and 8% two to three years.

Financial resources:

Tuition. The money received by the centers is represented by the figures displayed in Table 11. Directors were asked to calculate a per-child average over any three-month period from September 1986 to June 1987. The data were placed into groups generally divided into standard deviations away from the mean. Table 11 shows that the range of dollars received by the centers over a three-month period went from no tuition (one center) to a high of $960 (one center). The mean tuition was $578.38 with a standard deviation of $177.16. The distribution was positively skewed (-.750) and had a kurtosis of 17. Fifty percent received at least $375 but less than $667 while 17% collected from $668 to 755 tuition over the quarter.

Table 11

Frequency and Percentage Distribution of Per-Child Tuition Received by Child Care Center Directors Over a Three-Month Period

Per-child Tuition	Frequency	Percentage
$ 0-375	5	10
376-488	7	13
489-576	13	25
577-667	13	25
668-755	9	17
756-960	5	10
Total	52	100

Mean = $578.38 Standard Deviation = $177.16
Median = $588.50 Range = $960 Minimum = $0
Maximum = 960

Government. Directors used the same three-month period for reporting money received from public agencies as they had when reporting tuition. Table 12 displays those figures which were divided into three categories. The first group received no money from a governmental source, the second had a three to sixty-six per-child dollars over the quarter, and the third collected several hundred dollars. No attempt was made to separate federal, state, or county funding sources. Table 12 shows that the mean is $51.51, the standard deviation $173.05, and there is an asymmetrical distribution which is positively skewed at 4.26 with a peaked kurtosis of 17.64. The effect of that was to show both a median and mode of zero dollars. The centers which received no public funding are the largest group (52%) followed by 42% of those collecting from $3 to $66. Six percent of the

Table 12

Frequency and Percentage Distribution of Per-Child Dollars Received from Governmental Agencies by Child Care Center Directors Over a Three-Month Period

Per-child Dollars Received From Government	Frequency	Percentage
$ 0	27	52
3-66	22	42
441-861	3	6
Total	52	100

Mean = $51.51 Standard Deviation = $173.05
Median = $.000 Range = $960 Minimum = $0
Maximum = $861

centers had large per-child subsidies, collecting from $441 to $861 over the quarter.

Private. The figures in Table 13 represent a combination of numbers received from directors and those calculated by the researcher. As noted in Chapter 3, when directors reported that no rent was paid for center facilities, a formula based on fair market rental value was computed. That dollar value was then added on to the one provided by the director. This provided a total per-child dollar value which represented both actual dollars received by the directors as well as in-kind financial resources such as free rent. The categories displayed in Table 13 represent figures above and below the mean in standard deviations.

Table 13

Frequency and Percentage Distribution of Per-Child Income from Private Sources Received by Child Care Center Directors Over a Three-Month Period

Per-Child Income From Private Sources	Frequency	Percentage
$ 0	9	17
1-52	5	10
53-98	13	25
99-147	11	21
148-200	10	19
201-567	4	8
Total	52	100

Mean = $100.05 Standard Deviation = $93.63
Median = $95.00 Range = $567.00 Minimum = $0
Maximum = $567.00

The figures in Table 13 indicate a mean of $100 and a standard deviation of $93.00 with a normal curve of 75% of the centers receiving from one to two hundred dollars from private sources over a quarter. Seventeen percent had no private funding resources and 8% received more than $200.

Gifts, donations, funding-raising profits. The money received over the reported quarters which came from gifts and/or fund-raising efforts is reported in Table 14. The directors were asked to note any large fund raising which may have occurred in a quarter other than that selected for reporting. No directors reported such events; some said that although a money-raising event may have occurred two or three months earlier, the money would have been budgeted over a

Table 14

Frequency and Percentage Distribution of Per-Child Money from Donations, Gifts, and Fund-Raising Profits Received by Child Care Center Directors over a Three-Month Period

Per-Child Income From Gifts and Fund-Raising Profits	Frequency	Percentage
$ 0	28	54
1-63	22	42
100-160	2	4
Total	52	100

period of time so that it would be included in the figures provided the researcher. The figures were divided into three categories with the first including those reporting no gifts, the second those who collected from one to sixty-three dollars over the quarter, and the third those with over one hundred dollars in income from that source. Table 14 displays an asymmetrical, positively skewed distribution of the resources with 54% receiving no dollars from donations or fund raising profits. Forty-two percent collected under sixty-five dollars per child over the quarter and 4% from one to two hundred dollars.

Investments. The money reported by directors as coming from bank interest payments or other investments is reported in Table 15. Table 15 shows that most center directors have little investment income with over 63% reporting no investment resources. Nineteen or almost 37% noted that they received anywhere from one to twenty-two dollars per child over the reported quarter.

Table 15

Frequency and Percentage Distribution of Per-Child Investment Income Received by Child Care Center Directors Over a Three-Month Period

Per-Child Income From Investments	Frequency	Percentage
$ 0	33	63.5
1-22	19	36.5
Total	52	100

Descriptive Information: Dependent Variables

Total Early Childhood Classroom Observation (ECCO) and three sub-scale ratings. In Table 16 the results of the classroom environment rating is displayed. Observers rated each of the fifty-two classrooms using the ECCO instrument. With 26 items on the scale, the highest possible total rating could have been 78 and the lowest 26.

In the first sub-scale of Curriculum each observer rated nine items which were indicators of curriculum quality, i.e. developmentally appropriate materials were used in a variety of cognitive, physical, social, and creative activities; the lowest rating could have been 9 points and the highest 27.

The second subscale was a rating of the positive relationships between staff and children. Twelve items were on the scale and the total subscale score could not have exceeded 36 or been less than 12.

Table 16

Mean, Standard Deviation, Median, Range, Maximum, and Minimum Values of 52 Classes on Total ECCO and Three Subscales: Curriculum, Positive Relationships Between Staff and Children, and Balanced Schedule

	Mean	Standard Deviation	Median	Range	Minimum	Maximum
Total ECCO	64.03	9.78	66	38	39	77
Curriculum	20.53	3.8	21	13	13	26
Relationships	30.80	4.7	31	20	16	36
Schedule	12.69	2.5	13	9	6	15

The third subscale reported in the table were the five items measuring how well the daily schedule provided a balance of activities, i.e. indoor/outdoor, teacher initiated/child initiated activities. The highest rating could have been 15, the lowest five.

In Table 16 the total ECCO ratings are shown to have had a mean of 64 with a 9.78 standard deviation, a range of 38 and minimum and maximum ratings of 39 and 77 respectively. The total ratings were negatively skewed (-.680) indicating that scores were slightly skewed toward the high end of the scale.

Curriculum ratings had a range of 13 points with no classroom receiving the lowest points (9) and none at the high point of 27. The near perfect match of mean (20.53) and median (21) indicated a symmetrical distribution of rating points. The standard deviation was 4 and 68% of the classrooms had curriculum ratings between 17 and 25.

Ratings for Adult/Child Relationships show a range of 20 points with the highest points at 36 which was a perfect rating, and the lowest at 16. The median of 31 shows that half the classes were rated above that number and half below; the mean of 31 portrays a situation in which a high percentage of the classes received high ratings. The ratings were negatively skewed (-.927) and with the standard deviation of almost five points about 80% of the ratings fell between 26 and the top rating of 36.

Balanced Schedule ratings ranged from a high of 15 to a low of five. Half the ratings were over 13 and half under 13 (median); the mean point was also almost 13. The standard deviation of 2.5 places over 70% of the points in the 11 to 15 range.

Hypothesis 1

The first hypothesis was constructed to ascertain whether differences in financial resources would contribute to differences in the Curriculum sub-scale rating of the Early Childhood Observation (ECCO) scale. The Curriculum sub-scale was chosen because it is an assessment of the developmentally appropriate materials and equipment and their use in curriculum activities which help children develop a positive self-concept, learn to reason and question, respect cultural diversity, engage in creative expression, and develop fine and gross motor skills. It is evident that supplies, materials, and equipment which are necessary to create the curriculum component of a high quality classroom environment must be purchased either by using money from tuition, governmental, private resources, fund-raising profits,

and investments, or provided through donations and gifts. That rationale drove the first hypothesis, which stated in the null form, was:

There is no significant difference (p=<.05) among fiscal inputs and the ratings on the Curriculum sub-scale of the Early Childhood Classroom Observation (ECCO) instrument.

The hypothesis was tested by using separate one-way analysis of variance procedures with the Curriculum sub-scale rating as the dependent variable and each of the financial resources as the independent variables. There were five Bartlett-Box tests and all results fell within the normal curve of probability which indicated homogeneity of variance. The hypothesis would fail to be rejected if differences among the various groups of fiscal resources were not significant at the p=<.05 level.

Table 17 displays the results of the one-way analysis with Curriculum rating as the dependent variable and tuition income as the independent variable. Tuition levels were calculated and grouped according to standard deviations away from the mean.

The per-child tuition income received by child care center directors over a period of three months ranged from a low of no dollars to a high of $960. In the table the tuition range for each group has been listed next to the mean Curriculum ratings for that group. The F ratio resulted in a F probability of .33 which indicated that the differences between the tuition groups were not significant at the p=<.05 level. Although the data from the sample cannot be generalized to the population one may note that the lowest tuition income group

Table 17

Analysis of Variance of the Curriculum Ratings
By Six Levels of Per-Child Tuition Income Received by Child
Care Center Directors Over a Three-Month Period

Source	D.F.	Ss	F Ratio	F Prob
Between Groups	5	85.66	1.18	.3314
Mean S.D. Tuition				
1. 22.60 3.97 $ 0-375				
2. 22.14 3.57 376-488				
3. 19.92 4.07 489-576				
4. 19.38 3.64 577-667				
5. 19.66 3.96 668-755				
6. 22.40 3.20 756-960				
Total mean 20.53 $576.38				
Within Groups	46	665.25		
Total	51	750.92		

received the highest Curriculum rating and there was no linear increase in rating as the tuition income increased.

In Table 18 the Curriculum sub-scale rating was the dependent variable and the three levels of governmental funding the independent variable. Funding from public agencies included any money either federal, state, or county which was paid directly to the center administrators.

The data about per-child government funding which was received from child care center directors were divided into three groups. The first group (52%) received no money from any governmental source, the second (42%) collected from three to sixty-six dollars over the quarter, and the third group (6%) received anywhere from four hundred

Table 18

Analysis of Variance of the Curriculum Rating
By Three Levels of Per-Child Governmental Funding Received By
Child Care Center Directors Over a Three-Month Period

Source	D.F.	Ss	F Ratio	F Prob
Between Groups	2	10.33	.3420	.7120
Mean S.D. Tuition 1. 20.96 4.09 $ 0 2. 20.04 3.52 3-66 3. 20.33 4.72 441-861 Total mean 20.53 $ 51.51				
Within Groups	46	740.58		
Total	51	750.92		

and forty-four to eight hundred and sixty-one dollars. The results of the ANOVA show an F ratio of .3420 with a .7120 probability that no groups of governmental funding varied significantly. The F probability which did not reach the p=<.05 level precludes the possibility that the results may be generalized but it may be noted that the centers in the sample which received no support from governmental agencies did not differ significantly from those whose income was four to eight hundred dollars per child.

Table 19 presents the results of the analysis of variance of Curriculum rating upon six groups classified by the amount of per-child private financial resources available to the center directors. The groups were categorized by dividing the funds on the basis of standard deviations above and below the mean.

Table 19

Analysis of Variance of the Curriculum Ratings
By Six Levels of Per-Child Private Funding Received By
Child Care Center Directors Over a Three-Month Period

Source	D.F.	Ss	F Ratio	F Prob
Between Groups	5	70.10	.9474	.4597
Within Groups	46	680.81		
Total	51	750.92		

	Mean	S.D.	Tuition
1.	19.22	3.96	$ 0
2.	22.80	3.96	1-52
3.	21.07	3.20	53-98
4.	19.81	4.49	99-147
5.	19.90	3.10	148-200
6.	22.50	5.19	201-567
Total mean	20.53		$100.05

The figures displayed on Table 19 show the groups of private financial resources listed next to their respective mean Curriculum ratings. Although there was a large difference in the dollar range between the six groups the F ratio of .9474 with a resultant F probability of .4597 indicated that there was no significant effect on the scores on the Curriculum scale. While the data may not be generalized to the population, the results present an interesting point about the sample and that is that the group which received no private resources was able to achieve a mean on the Curriculum scale which did not vary significantly from the others.

The following table continues the testing of the first hypothesis with Curriculum as the dependent variable and three groups of financial

resources categorized as gifts, donations, and fund-raising profits. In Table 20 the independent variable was divided into group one (54% of the sample) in which no money was received from that source, group two (42%) in which directors collected one to sixty-three dollars, and

Table 20

Analysis of Variance of the Curriculum Rating By Three Levels of Per-Child Fund-Raising Income Received By Child Care Center Directors Over a Three-Month Period

Source	D.F.	Ss	F Ratio	F Prob
Between Groups	2	42.25	1.450	.2419
Mean S.D. Tuition 1. 19.71 3.92 $ 0 2. 21.30 4.09 1-63 3. 21.72 3.03 100-160 Total mean 20.53 $ 13.36				
Within Groups	49	708.66		
Total	51	750.92		

group three (4%) in which one hundred to one hundred and sixty dollars came in over the reported quarter.

The analysis displayed on Table 20 shows an F probability of .2419 which indicates that differences in the amount of fund-raising income received when measured by the ratings received in the Curriculum sub-scale was not significant at the p=<.05 level. The results need to be interpreted carefully since a large percentage of the sample (54%) received no money from that source. Given that and the fact that the results cannot be generalized, it may be noted that Curriculum ratings

for centers which received no money from gifts and donations did not vary significantly from those receiving over one hundred dollars per child over the quarter.

The final analysis for Hypothesis 1 is shown on Table 21 and deals with the financial resource of investment income which directors may receive as part of their total per-child income. The data collected

Table 21

Analysis of Variance of the Curriculum Rating
By Two Levels of Per-Child Investment Income Received By
Child Care Center Directors Over a Three-Month Period

Source	D.F.	Ss	F Ratio	F Prob
Between Groups	1	29.21	2.024	.1610
Mean S.D. Tuition 1. 19.26 3.97 $ 0 2. 21.52 3.47 1-22 Total mean 20.53 $ 2.51				
Within Groups	50	721.70		
Total	51	750.92		

from the child care center administrators indicated that investment dollars were not collected in over 63% of the cases. The analysis was made with two groups, those with no investment income and those with one to twenty-two dollars for the quarter.

The .1610 F probability in the analysis exhibited on Table 21 means that there was no significant difference between the centers who received no investment income and those who collected some per-child income on the Curriculum sub-scale ratings. The same caveat noted

about fund raising income applies to the investment income data; 63% of the center directors did not have that as a financial resource and thus the analysis was limited to two groups.

Summary of the findings for Hypothesis 1. The results from the five one-way analysis of variance tests of Curriculum rating with six groups of tuition money, three groups of governmental funding, six groups of private funding, three groups of fund raising income, and two groups of investment income focused on some interesting extremes in funding. For example, as noted in Table 12, 52% of the centers received no money from public agencies and their Curriculum scale ratings (Table 19) did not differ significantly from those receiving from four to eight hundred dollars for each child over a quarter. The range of differences in tuition money was equally wide with parents charged anything from nothing to nine hundred and sixty dollars per quarter and yet the differences on the Curriculum rating scale were not significant between those groups.

Analysis of the data indicated that differences among groups of fiscal resources were not significantly different on the Curriculum sub-scale ratings. Therefore, Hypothesis 1 which stated that there is no significant difference among fiscal inputs on the Curriculum sub-scale of the ECCO instrument would fail to be rejected.

Hypothesis 2

The second hypothesis was developed to examine whether differences in financial resources and the number of hours that parents helped with classroom activities would contribute to differences in the Curriculum and Positive Adult Child Relationship sub-scale ratings on the ECCO

scale. The second subscale of Adult/Child Relationship was added to the Curriculum scale which was described in Hypothesis 1 (see page 114). The second scale measured human interrelationships such as affection, respect, and responsiveness, as well as adult activities which demonstrated positive approaches to discipline, flexibility, the support of pro-social behavior among the children, and the encouragement of child initiated activities. Parent participation was added as the moderating variable because, according to the literature, it is an important component of high quality child development programs. In the study the participation was measured in classroom activity hours which were defined as time parents spent in the classroom and/or on field trips, parent/teacher conferences, and social events, such as an Easter or May Day celebration. The null hypothesis was:

There is no significant difference among fiscal inputs when moderated by the amount of parent participation hours when measured on the Curriculum and Adult/Child Relationships sub-scales of the ECCO scale.

The hypothesis was tested by using five analysis of variance (ANOVA) procedures with Curriculum and Positive Relationships as the dependent variables with each of the financial resource categories of tuition, government, private, fund raising, investments, and two groups of parent hours as the independent variables. Parent hours represented only those parents of the children in the observed and rated classrooms. The groups were divided according to (1) those who had participated in center activities two hours or less over a five-month

period from January through May in 1987, and (2) those who had been similarly involved at least three to six hours over that same period.

A Bartlet-Box test was used to test for the assumption of homogeneity of variance. In all cases there was no violation of that assumption. Table 22 shows the results of the 4x2 ANOVA procedures. The tuition data were divided into groups representing the lowest (group one) and the highest (group four) with group two and three one standard deviation below and above the mean.

The results of the ANOVA which are displayed in Table 22 indicate that the effect of tuition on the Curriculum ratings when adjusted for the effects of parent participation hours produced an F probability which was not significant at the p=<.05 level. The same was found for the main effects of parent participation hours which did not differ significantly between the two groups on the scale when adjusted for the effects of tuition income. The interaction effects were also not significant at the F probability of .504.

The ANOVA with Positive Adult/Child Relationships as the dependent variable produced F probabilities with outcomes similar to those obtained with the Curriculum variable. The differences between the levels of tuition income were not significant at p=<.05 when adjusted for parent participation. Both main effects of parent participation with the F probability of .354 and the interaction between the two independent variables with the F probability at .424 indicated no significant differences among the groups on the sub-scale ratings.

The following table shows the results of a 3x2 ANOVA with the two subscales as the dependent variables and three levels of funding from

Table 22

Analysis of Variance of the Curriculum and Positive Adult/Child Relationships Ratings By Four Levels of Per-Child Tuition and Two Levels of Parent Participation Hours

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. CURRICULUM					
Main Effects		4	81.72	1.46	.228
Tuition		3	35.48	.851	.474
Total Mean = 20.54					
	1. 22.60 3. 19.50				
	2. 20.70 4. 22.40				
Parent Hours		1	18.90	1.35	.250
	1. 20.14 2. 22.75				
2-Way Interactions		3	57.35	1.37	.263
Explained		7	139.07	1.42	.218
Residual		44	611.84		
Total		52	750.92		
B. POSITIVE Adult/Child Relationships					
Main Effects		4	59.81	.646	.633
Tuition		3	40.14	.578	.633
Total Mean = 30.81					
	1. 32.00 3. 29.68				
	2. 31.35 4. 32.40				
Parent Hours		1	6.25	.270	.606
	1. 30.55 2. 32.25				
2-Way Interactions		3	55.11	.793	.504
Explained		7	114.92	.709	.665
Residual		44	1019.14		
Total		51	1134.07		

governmental sources and two levels of parent participation hours as the independent variables. The levels of governmental dollars received are the same as those used in Table 18. No rating means of parent hours were included in Table 23 since they were the same as those shown in Table 22.

Table 23

Analysis of Variance of the Curriculum and Positive Adult/Child Relationships Ratings by Three Levels of Per-Child Governmental Funding and Two Levels of Parent Participation Hours

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. CURRICULUM					
Main Effects		3	48.40	1.080	.367
Government		2	2.16	.073	.930
1. 20.96 2. 20.05 3. 20.33					
Parent Hours		1	38.07	2.547	.117
2-Way Interactions		1	.002	.000	.991
Explained		4	48.41	.810	.525
Residual		47	702.51		
Total		51	750.92		
B. POSITIVE Adult/Child Relationships					
Main Effects		3	42.82	.623	.604
Government		2	23.16	.505	.607
1. 30.93 2. 30.95 3. 28.67					
Parent Hours		1	28.22	1.231	.273
2-Way Interactions		1	13.93	.608	.439
Explained		4	56.76	.619	.651
Residual		47	1077.31		
Total		51	1134.07		

The table displays the ANOVA outcomes which show that when the effect of differences between amount of governmental funding upon Curriculum rating is adjusted for parent participation effects the .930 probability was not significant at the p=<.05 level. The difference between the two groups of parent participation hours also were not significant when adjusted for governmental support. The two-way interactions had a high F probability of .991 and thus no significant differences could be found.

The Adult/Child Relationship sub-scale ratings were not significantly different among funding levels when parent participation was the moderating factor. The pattern noted with the curriculum ratings continued as the difference between the two groups of parent hours when adjusted for by governmental income was .274 or not significant at the p=<.05 level. Interaction results between the levels of the two variables also did not have significant differences.

In Table 24 the sub-scale ratings as dependent variables remain the same as in the previous two tables, with the income factor changed to include support which came from private resources. The three levels of private funding used in the ANOVA were centers receiving one hundred dollars or less (group one), those receiving from one hundred to one hundred and ninety-four dollars (group two), and those receiving more than one hundred and ninety-five dollars. The mean for the per-child private funding over one quarter was ninety-four dollars. The means for the two groups of parent hours was the same as those shown on Table 22.

The results of the ANOVA shows that when the effects of parent participation were controlled the effect of different levels of private resources upon either Curriculum or Adult/Child Relationships did not differ significantly at the p=<.05 level. An F probability of .079 was obtained for the effects of parent participation upon Curriculum ratings, and of .270 upon Adult/Child Relationships when adjusted for the effects of private funding which indicated that in both instances the differences between the groups were not significant. When the two

Table 24

Analysis of Variance of the Curriculum and Positive Adult/Child Relationships Ratings by Three Levels of Per-Child Private Resources and Two Levels of Parent Participation Hours

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. CURRICULUM					
Main Effects		3	73.95	1.685	.183
Private		2	27.72	.947	.395
1. 20.78 2. 19.86 3. 22.50					
Parent Hours		1	47.28	3.231	.079
2-Way Interactions		2	3.78	.129	.879
Explained		5	77.74	.810	.525
Residual		46	673.17		
Total		51	750.92		
B. POSITIVE Adult/Child Relationships					
Main Effects		3	83.10	1.265	.298
Private		2	63.43	1.448	.246
1. 31.74 2. 29.57 3. 31.00					
Parent Hours		1	27.35	1.249	.270
2-Way Interactions		1	43.28	.988	.380
Explained		5	126.38	1.154	.346
Residual		46	1007.69		
Total		51	1134.07		

variables were tested for interaction effects upon the two dependent variables, the F probability was not significant.

In Table 25 a 3x2 ANOVA is displayed. Data about the gifts, donations, and fund raising profits received by child care center directors over a quarter were divided into the same three groups used in Table 20. Group one included those who received no money, group two those who collected one to sixty-three dollars, and the third group those who received from one hundred to one hundred and sixty dollars.

Table 25

Analysis of Variance of the Curriculum and Positive Adult/Child Relationships Ratings by Three Levels of Per-Child Fund Raising Profits and Two Levels of Parent Participation Hours

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. CURRICULUM					
Main Effects		3	96.55	2.30	.089
Fund Raising		2	50.31	1.80	.176
1. 19.71 2. 21.31 3. 21.73					
Parent Hours		1	54.30	3.89	.055
2-Way Interactions		2	12.46	.44	.643
Explained		5	109.01	1.56	.190
Residual		46	641.90		
Total		51	750.92		
B. POSITIVE Adult/Child Relationships					
Main Effects		3	25.25	.358	.784
Fund Raising		2	5.58	.119	.888
1. 30.57 2. 31.31 3. 30.82					
Parent Hours		1	20.43	.868	.356
2-Way Interactions		2	26.01	.553	.579
Explained		5	51.27	.436	.821
Residual		46	1082.80		
Total		51	1134.07		

When parent participation was adjusted for, the three levels of fund raising income produced no significant differences on either of the sub-scale ratings. The same was true when fund raising was controlled and the effects of parent participation hours were analyzed. Interactions between the two independent variables did not produce F probability levels of p=<.05 and differences which were measured on the two sub-scale ratings were not significant.

It may be noted that parent participation as a main effect did have a .055 F probability when fund raising income was controlled for

in the analysis. The results need to be reviewed with care because the cases showed an asymmetrical and positively skewed distribution. Group one (those who received no money from gifts and donations) included 54% of the sample and only 4% collected over one hundred dollars.

In the last ANOVA for Hypothesis 2 shown in Table 26 the same subscales were the dependent variables and parent hours was one independent variable and investment income received by center director the second independent variable. The income data was divided into two groups, those who received no investment money (group 1) and those who collected one to twenty-two per-child dollars over a quarter.

The two groups of investment income did not have a significant effect upon either of the sub-scale rating results when the effects of parent participation were adjusted for. The F probability for the main effects of parent participation upon Curriculum when adjusted for investment income was p=<.052 which was close but did not reach the p=<.05 level of significance. Neither of the two-way interactions produced significant F ratios. The limit noted about the fund raising analysis applies here also; over 64% of the center directors reported no investment income and the balance noted that no more than twenty-two dollars per child were received from that source over one quarter.

Summary of the findings for Hypothesis 2. The results from the five ANOVA procedures which tested for differences among four levels of tuition, three levels of governmental funding, three levels of private funding, three levels of fund raising income, two levels of investment income, and two levels of parent participation hours upon the two ECCO subscales of Curriculum and Positive Adult/Child Relationships have

Table 26

Analysis of Variance of the Curriculum and Positive Adult/Child Relationships Ratings by Two Levels of Per-Child Investment Income and Two Levels of Parent Participation Hours

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. CURRICULUM					
Main Effects		2	83.84	3.045	.057
Investments		1	37.60	2.731	.105
1. 19.71 2. 21.53					
Parent Hours		1	54.62	3.967	.052
2-Way Interactions		1	6.13	.446	.508
Explained		3	89.98	2.17	.103
Residual		48	660.94		
Total		51	750.92		
B. POSITIVE Adult/Child Relationships					
Main Effects		2	50.65	1.12	.334
Fund Raising		1	30.98	1.373	.247
1. 30.27 2. 31.74					
Parent Hours		1	24.80	1.10	.300
2-Way Interactions		1	.641	.028	.867
Explained		3	51.29	.758	.523
Residual		48	1082.78		
Total		51	1134.07		

been shown on Tables 22 through 26. The differences among the effects of governmental, fund raising, and investment income levels upon Curriculum when adjusted for parent participation produced ANOVA results which were similar to those obtained when Hypothesis 1 was tested. Tuition and private resources were not the same because the levels were changed to eliminate empty cells in the analyses of funding/participation two-way interactions. Therefore, the hypothesis which stated that there is no significant difference among fiscal inputs when moderated by the amount of parent participation hours when

measured on the Curriculum and Adult/Child Relationships sub-scale ratings must fail to be rejected.

Hypothesis 3

The third hypothesis was developed to examine whether differences in human resources and child care center organizational components such as center capacity, number of children (group size) and the adult/child ratios in the rated class contribute to differences in the total Early Childhood Classroom Observation (ECCO) ratings. It may be noted that the first two hypotheses focused on fiscal resources and their impact on curriculum ratings and, in combination with parent hours, their contribution to curriculum and adult/child relationships. The third hypothesis focused on human resources such as director and teacher training and experience and center factors which have been identified in the early childhood research as contributing to the level of quality in a child care center classroom. The total ECCO rating was used as the dependent variable in the hypothesis because it was an overall, general assessment of classroom quality. The effects of the director, teacher and organizational factors upon the more specific subscales were examined in testing for the fourth hypothesis. The null hypothesis was:

There are no significant differences among levels of (A) director education and experience, or (B) teacher training and experience, when adjusted for by the state licensed center capacity, number of children and adult/child ratio in the observed group and the total rating on the ECCO scale.

The hypothesis was tested by using the ECCO ratings as the dependent variable and in the first series of analyses, director education and experience with capacity, group size, and ratios as the independent variables. The second series tested the main and interactions effects of teacher variables and the organizational factors. The analysis of variance (ANOVA) results for the director variables are shown in tables 27 and 28 and for teacher factors in tables 29 and 30. The Bartlett-Box test was used for the assumption of homogeneity of variance. On all cases there was no violation of the assumption.

In Table 27 the ratings for the dependent variable are shown under the mean column. The first of the five independent variables displayed is the director education factor with the first group including those who had not earned a degree, group two included those with degrees in elementary education and/or other fields and the third group was made up of directors with degrees in early childhood education or child development (ECE/CD). The second independent variable is director education measured in the number of ECE/CD units the directors reported earning (see Table 5). Group one included directors with six or fewer units, group two those directors who earned from seven to twelve units, and group three those with over thirteen units. One unit equals sixteen hours of college classroom or workshop training in ECE/CD.

The three remaining independent variables are those described as organizational factors. The first of those factors was center capacity and the cases were divided into two groups. Group one included all centers whose capacity was below the total mean (106 children) and

Table 27

Analysis of Variance of the Total ECCO Ratings by Three Levels of Director Degrees, Three Levels of Director ECE/CD Units Earned, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. Director Degrees		2	446.351	2.55	.089
	1. 59.00 2. 65.34 3. 62.93				
Center Capacity		1	137.24	1.574	.216
	1. 65.42 2. 62.65				
Group Size		1	594.87	6.820	.012*
	1. 66.84 2. 61.44				
Adult/Child Ratio		3	226.47	.866	.466
	1. 63.80 2. 62.86				
	3. 65.77 4. 63.80				
Main Effects		7	1046.29	1.714	.131
Residual		44	3837.62		
Total		51	4883.92		
B. Director ECE/CD Units		2	193.62	1.041	.361
	1. 62.67 2. 68.57 3. 63.78				
Center Capacity		1	72.98	.785	.380
	1. 65.42 2. 62.65				
Group Size		1	411.24	4.42	.041*
	1. 66.84 2. 61.44				
Adult/Child Ratio		3	179.00	.642	.592
	1. 63.80 2. 62.86				
	3. 65.77 4. 63.80				
Main Effects		7	793.57	1.21	.313
Residual		44	4090.35		
Total		51	4883.92		

*Significant at the p=<.05 level

group two included the centers whose capacity was above the mean. The same division was made for the second organizational factor of group size. The mean for the number of children in the observed and rated classrooms was 21. Group one was made up of all the cases in which group size fell below the mean; group two included all those above the

mean. The final variable displayed on Table 27 was the adult/child ratio measurement in the observed and rated class. The four levels are noted on Table 3.

In Table 27 the analysis was intended to examine the effect of each variable after there was an adjustment for the effects of the other variables. The differences between directors who held no degrees (group one), those with elementary or other degrees (group two), and those with ECE/CD degrees (group three) did not produce a significant effect ($p=<.05$) on the total ECCO rating when the other factors were adjusted for; similar F probabilities which were not significant at the $p=<.05$ level were obtained for main effects of center capacity and levels of adult/child ratios. The results shown in the table indicate that group size reached the $p=<.012$ level of significance when director degrees and other center components were adjusted for; the below mean group was rated higher (66.84) than the group which included all above mean classrooms (61.44).

The second measure of director education noted in Table 27.B shows the differences among the three levels of earned units with the ECCO ratings listed under the mean column. The main effects of director ECE/CD education and/or training when the effect of the three center factors was adjusted for was not significant at the $p=<.05$ level. The group size factor effect was at the $p=<.041$ level with the below mean group rated as highest on the ECCO. The two-way interactions in the analysis shown in Table 27 were suppressed because of the number of empty cells in the sample data.

In the following table (Table 28) the dependent variable of ECCO rating and the three organizational factors remain the same as those on Table 27. Instead of director education, two measurements of director experience have been analyzed. The first director factor was the mean number of years directors reported that they had taught young children who were under the age of eight. Group one included directors who had taught less than the total mean of twelve years; group two included those who had more than twelve years teaching experience. The second measure used in the analysis of directors was that of the number of years experience as directors of child care centers. The two groups were divided into those below the total mean of seven and one-half years experience and those above that mean.

The analysis of the main effect of the number of years directors had taught young children upon the ECCO ratings when the effects of center factors were adjusted for indicated that there was a significant difference at the p=<.014 level. Directors who had taught fewer than twelve years (group one) were directors of centers in which the observed classroom received a significantly higher mean ECCO rating (66.10) than did group two which included all directors who had taught more than twelve years (61.00). The second significant difference was that of group size. The F probability of p=<.08 indicated that when all other factors were adjusted for, the smaller groups (below mean of 21) of children were rated higher on the ECCO scale than the groups above the mean. Although there were two variables which were significantly different beyond the p=<.05 level none of the six sets of two-way interactions which were obtained indicated that the joint

Table 28

Analysis of Variance of the Total ECCO Ratings by Two Levels of Director Years Experience Teaching Young Children, Two Levels of Director Experience as Directors, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. Director Years as Teacher		1	585.92	6.77	.014*
	1. 66.10 2. 61.00				
Center Capacity		1	105.39	1.21	.278
	1. 65.10 2. 62.65				
Group Size		1	696.94	8.05	.008*
	1. 66.84 2. 61.44				
Adult/Child Ratio		3	260.30	1.00	.404
	1. 63.80 2. 62.86				
	3. 65.77 4. 63.80				
Main Effects		6	1185.86	2.28	.059
2-Way Interactions		12	843.93	.813	.248
Explained		18	2029.79	1.30	.248
Residual		33	2854.12		
Total		51	4883.92		
B. Director Years as Director		1	118.16	1.29	.280
	1. 65.09 2. 62.06				
Center Capacity		1	81.63	.882	.353
	1. 65.42 2. 62.65				
Group Size		1	450.83	4.87	.032*
	1. 66.84 2. 61.44				
Adult/Child Ratio		3	192.00	.691	.562
	1. 63.80 2. 62.86				
	3. 65.77 4. 63.80				
Main Effects		6	718.11	1.293	.280
Residual		45	4165.81		
Total		51	4883.92		

*Significant at the p=<.05 level

effects of one or more of the variables contributed to a better understanding of the main effects results. Therefore only the summary interaction results have been included in the table.

The F ratios for center capacity and adult/child ratios did not produce probability levels above the p=<.05 and were not significant when analyzed with either factor of director experience. The two-way interactions for director years likewise were not significant; interactions for 28.B were suppressed because of the empty cells in the sample.

Table 29 shows the results when the education of teachers was analyzed for differences in their levels of training as well as with the same center factors tested and reported in Tables 27 and 28. The first education measure assessed ECE/CD degrees held by the teachers. Group one included all the cases in which 50% or more of the teachers in the observed classroom held degrees in ECE/CD; group two included cases in which less than 50% of the teachers held those degrees. The second education factor refers to the ECE/CD units the teachers reported that they had earned. In group one the mean number of units earned by the teachers in the observed and rated class did not exceed six; in group two the mean units were from seven to twelve units, and in group three, over thirteen units. The ECCO means for center capacity, group size, and adult/child ratios are the same as those on Table 28.B.

The F ratios obtained from the ANOVA of the effect of teacher ECE/CD degrees upon ECCO ratings when center factors were adjusted for indicated that the difference between the groups was not significant at the p=<.05 level. The same was true for the effects of center capacity and ratio differences when main effects of the other variables were adjusted for. The single factor of group size did prove to have an

Table 29

Analysis of Variance of the ECCO Ratings by Two Levels of Teacher ECE/CD Degrees, Three Levels of Teacher ECE/CD Units, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. Teacher ECE/CD Degrees		1	63.02	.548	.464
	1. 65.44 2. 63.74				
	Center Capacity	1	75.21	.654	.425
	Group Size	1	496.48	4.31	.046*
	Adult/Child Ratios	3	139.35	.404	.751
	Main Effects	6	662.96	.960	.467
	2-Way Interactions	12	424.42	.307	.983
	Explained	18	1087.38	.525	.925
	Residual	33	3796.53		
	Total	51	4883.92		
B. Teacher ECE/CD Units		2	377.39	2.12	.131
	1. 64.76 2. 56.70 3. 67.29				
	Center Capacity	1	8.94	.101	.752
	Group Size	1	205.89	2.31	.135
	Adult/Child Ratio	3	60.81	.227	.876
	Explained	7	977.34	1.57	.169
	Residual	44	3906.57		
	Total	51	4883.92		

*Significant at the p=<.05 level

F probability of .046 which means that when the analysis of variance procedure accounted for the other factors, the below mean group size (group one) received a higher ECCO rating than those above mean. There were six sets of first-order or two-way interactions, none of which were significant at the p=<.05 level. That being the case, the table shows only the summary interaction results. Higher order interactions were suppressed due to empty cells.

On Table 29.B differences between groups which included all classrooms in which the mean number of units earned by the teachers did not exceed six, classroom with teachers units at a mean of seven to twelve units, and classrooms with teachers who had thirteen or more ECE/CD units, were not significant at the point p=<.05 level. For that analysis, none of the factors had significantly different main effects upon the ECCO rating when adjusted for one another. The interactions were suppressed because of empty cells in the data from the sample.

The final analysis for Hypothesis 3 tested the effects of teacher experience when adjusted for by the organizational components. Group one of that factor included all rated classrooms in which the mean number of years teachers had taught young children was below the total mean of nine years, and group two included all classrooms in which the mean number of years teaching experience was above the total mean. The ECO means for center capacity, group size, and adult/child ratios remain the same as those shown on Table 28.B.

In the results of the ANOVA displayed on Table 30, when the effects of organizational components were adjusted for, the effects of teacher experience upon ECCO ratings were not significant at the p=<.05 level. The main effects of center capacity and adult/child ratios likewise did not reach the rejection level. Main effects of group size in the analysis of the variables reached the p=<.035 level of significance. There were six sets of two-way interactions, none of which proved to be significant at the p=<.05 level; the summary of the interactions analysis is shown in Table 30.

Table 30

Analysis of Variance of the ECCO Ratings by Two levels of Teaching Experience, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
Teacher Experience 1. 64.08 2. 64.00		1	15.69	.162	.690
Center Capacity		1	78.07	.807	.376
Group Size		1	470.35	4.85	.035*
Adult/Child Ratios		1	146.68	.512	.677
Main Effects		6	615.64	1.06	.406
2-Way Interactions		12	1073.97	.925	.535
Explained		18	1689.61	.970	.513
Residual		33	3194.30		
Total		51	4883.92		

*Significant at the p=<.05 level

Summary of the findings for Hypothesis 3. The analyses of variance which have been shown on Tables 27 through 30 examined the levels of director and teacher training and experience and the identified center factors. It may be of interest to note that the main effects of director degrees and ECE/CD units earned, director experience as a director, teacher degrees and ECE/CD units earned, when adjusted for center components did not have significant main effects upon the ECCO rating. The effect of director years as a teacher of young children on the rating was significant at the p=<.014 level when center characteristics were entered into the analysis. The group which included directors who had below the mean years experience as a teacher was rated higher on the ECCO than the group with above mean years experience.

Teacher degrees, training, and experience were analyzed for their effects upon the ECCO rating. When adjusted for other factors, the main effects did not produce significant differences. The number of ECE/CD units earned represented a range of hours from those who had sixteen to ninety-six hours in group one to those who had more than two hundred hours in group three, and yet, when center factors were adjusted for there were no significant differences between groups.

The center variables remained remarkably consistent with no significant differences in any case when center capacity and adult/child ratios were analyzed. Although the F probabilities did not reach the p=<.05 level and may be due to chance, it is interesting to note that the sampled below mean size centers always received higher ECCO ratings than those above the mean.

The effects of adult/child ratios were also not at the p=<.05 level and therefore the results may be due to chance. However, it may be of interest to note that despite the wide range of ratios from a minimum of one adult for every five to nine children in group one to one adult for every fourteen to twenty children in group four, the differences between those groups did not affect the ECCO rating at a p=<.05 significance level when any of the other factors were considered. In fact, the ECCO ratings for the lowest ratio group were exactly the same as for the highest ratio group and the highest ECCO ratings were received by classrooms in which the ratio was one adult to at least eleven but fewer than fourteen children.

The differences between the number of children in a classroom with group one including all cases in which class size was below the mean,

and group two made up of those above the mean, did have a main effect upon the ECCO rating when other factors were adjusted for when the dependent variables were director degrees, director ECE/CD units earned, director years of experience as a teacher and director, teacher degrees, and teacher years as a teacher. In each instance the below mean class size was rated higher on the ECCO scale. The number of children in a group did not have an effect when other factors were adjusted for when teacher ECE/CD units was the dependent variable.

The results of the ANOVA produced results which indicate that the main effects of human resources at the $p=<.05$ level of significance were limited to director years of teaching when adjusted for by group size, and no significant interactions were discovered for any of the factors. Although the effects of group size was a main effect when the other factors were adjusted for (except when teacher ECE/CD units became the dependent variable), the hypothesis had been developed to examine director and teacher levels of education and experience. Therefore, the hypothesis which stated that there is no significant differences among levels of director education and experience or teacher education and experience when adjusted for by the state licensed center capacity, number of children and adult/child ratios in the observed group and the total rating on the ECCO scale must fail to be rejected.

Hypothesis 4

The fourth hypothesis was generated as an extension of Hypothesis 3 which had as its focus the total ECCO scale ratings as the dependent variable with human resources and organizational components as the

independent variables. In the fourth hypothesis, the three ECCO subscales of Curriculum, Positive Adult/Child Relationships, and Balanced Schedule became the dependent variables. The first two subscales were explained when they were used to explore differences between financial resources (see pages 114 and 122). A rating for subscale three was given when the observer noted whether or not there was a balance of activities on several dimensions which included indoor/outdoor, quiet/active, large muscle/small muscle, individual/large group, and child initiated/staff initiated activities. The null hypothesis stated that:

There is no significant difference among levels of director education and experience or teacher education and experience when adjusted for by center capacity, group size, and adult/child ratios when measured on each of the sub-scale ratings of the ECCO scale.

Table 31 shows the results of an ANOVA with the three dependent variables of sub-scale ratings and director education factors and the center components as independent variables. Director education for this table was divided according to directors who had no degrees (group one), those with elementary or other degrees (group two), and those with degrees in ECE/CD (group three). Director ECE/CD units earned are grouped according to the levels noted on Table 27. A Bartlett-Box test was used to test for the assumption of homogeneity of variance. In all cases there was no violation of that assumption.

The results of the ANOVA which are displayed in Table 31 indicate that the main effect of director differences in the education on the three subscales when adjusted for organization factors was not

Table 31

Analysis of Variance of the Three ECCO Sub-scale Ratings by Three Levels of Director Degrees, Three Levels of Director ECE/CD Units Earned, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. Curriculum					
(1) Director Degrees		2	32.68	1.12	.333
1. 19.60 2. 21.00 3. 19.87					
Center Capacity		1	16.80	1.16	.287
1. 21.04 2. 20.04					
Group Size		1	60.31	4.16	.047*
1. 21.36 2. 19.78					
Adult/Child Ratios		3	44.62	1.02	.390
1. 20.00 2. 20.64					
3. 21.38 4. 20.07					
Explained		7	113.49	1.11	.368
Residual		44	637.42		
Total		51	750.92		
(2) Director ECE/CD Units		2	105.49	1.02	.426
1. 19.72 2. 22.00 3. 20.70					
Center Capacity		1	12.58	.858	.359
1. 21.04 2. 20.04					
Group Size		1	43.26	2.95	.093
1. 21.36 2. 19.78					
Adult/Child Ratios		3	37.52	.853	.473
1. 20.00 2. 20.64					
3. 21.38 4. 20.07					
Explained		7	105.49	1.02	.426
Residual		44	645.42		
Total		51	750.92		
B. Positive Adult/Child Relationships:					
(1) Director Degrees		2	130.73	3.21	.050*
1. 27.40 2. 31.22 3. 31.07					
Center Capacity		1	39.26	1.933	.171
1. 31.50 2. 30.12					
Group Size		1	104.88	5.16	.028*
1. 31.96 2. 29.74					
Adult/Child Ratios		3	32.44	.532	.662
1. 30.80 2. 29.71					
3. 31.15 4. 31.53					
Explained		7	240.49	1.69	.136
Residual		44	893.57		
Total		51	1134.07		

Table 31 (continued)

Source	Mean	D.F.	Ss	F Ratio	F Prob
(2) Director ECE/CD Units		2	44.82	1.00	.450
1. 30.94 2. 32.71 3. 30.22					
Center Capacity		1	16.01	.720	.401
1. 31.50 2. 30.12					
Group Size		1	65.16	2.92	.094
1. 31.96 2. 29.74					
Adult/Child Ratios		3	33.49	.502	.683
1. 30.80 2. 29.71					
3. 31.15 4. 31.53					
Explained		7	154.58	.992	.450
Residual		44	979.49		
Total		51	1134.07		
C. Balanced Schedule					
(1) Director Degrees		2	21.25	1.84	.170
1. 12.00 2. 13.13 3. 12.00					
Center Capacity		1	1.82	.316	.577
1. 12.88 2. 12.50					
Group Size		1	40.73	7.07	.011*
1. 13.52 2. 11.93					
Adult/Child Ratios		3	18.06	1.042	.382
1. 13.00 2. 12.50					
3. 31.23 4. 12.20					
Explained		7	69.66	1.72	.127
Residual		44	253.41		
Total		51	323.07		
(2) Director ECE/CD Units		2	17.01	1.45	.245
1. 12.00 2. 13.86 3. 12.85					
Center Capacity		1	.085	.168	.684
1. 12.88 2. 12.50					
Group Size		1	31.68	5.41	.025*
1. 13.52 2. 11.93					
Adult/Child Ratios		3	17.04	.970	.415
1. 13.00 2. 12.50					
3. 13.23 4. 12.20					
Explained		7	65.42	1.59	.162
Residual		44	257.65		
Total		51	323.07		

*Significant at the p=<.05 level

significant at the p=<.05 level for Curriculum and Schedule mean ratings. However, Positive Adult/Child Relationships mean ratings were higher for the group which included directors who had either elementary or "other" degrees (31.22) and lowest for the group in which directors had no degrees (27.40) at the p=<.05 level. The two-way interactions in the analysis were suppressed because of the number of empty cells in the sample data.

The amount of ECE/CD units earned varied from fewer than six to more than thirteen and those differences when adjusted for center organization components did not reach the p=<.05 level of significance on any of the sub-scale means noted in Table 31. Interactions were again suppressed because of the empty cells in the sample data.

The F ratio obtained for the group size variable indicated that except for the analysis of variance by director ECE/CD units earned, when other factors were adjusted for their were significant differences between the groups. The group mean ratings shown in the table were 21.36 for group one which included classrooms in which the number of children were below the mean and 19.78 for group two for those classrooms above the mean.

The following table displays the results of 2x2x2x2x4 ANOVA with director experience as the human resource component. The means for center capacity, group size, and adult/child ratios were shown in Table 31 and were the same for Table 32.

The outcomes from the analysis of variance tests which are shown in Table 32 indicate that the mean number of years the directors had taught young children when other variables were adjusted for did not

Table 32

Analysis of Variance of the Three ECCO Sub-scale Ratings by Two Levels of Director Experience Teaching Young Children, Two Levels of Director Experience as a Director, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. Curriculum					
(1) Director Teaching Experience		1	62.45	3.98	.054
1. 21.16 2. 19.62					
Center Capacity		1	15.46	.985	.328
Group Size		1	78.83	5.02	.032*
1. 21.36 2. 19.78					
Adult/Child Ratios		3	57.05	1.21	.321
2-Way Interactions		12	89.86	.477	.914
Explained		18	233.12	.825	.660
Residual		33	517.79		
Total		51	750.92		
(2) Director Experience as Director		1	9.65	.658	.421
1. 20.76 2. 20.11					
Center Capacity		1	12.29	.838	.365
Group Size		1	51.97	3.54	.066
Adult/Child Ratios		3	44.20	1.00	.400
Explained		6	90.46	1.02	.420
Total		51	750.92		
B. Positive Adult/Child Relationships:					
(1) Director Teaching Experience		1	132.01	7.99	.008*
1. 31.84 2. 29.29					
Center Capacity		1	26.63	1.61	.213
Group Size		1	107.65	6.51	.015*
1. 31.84 2. 29.29					
Adult/Child Ratios		3	45.45	.917	.443
2-Way Interactions		12	347.28	1.752	.100
Director/Capacity		1	76.70	4.64	.039*
Capacity/Adult/Child Ratios		3	146.93	2.96	.046*
Explained		18	589.06	1.98	.043*
Residual		33	545.01		
Total		51	1134.07		
(2) Director Experience as Director		1	36.21	1.64	.206
1. 31.41 2. 29.67					
Center Capacity		1	21.38	.974	.329
Group Size		1	61.56	2.80	.101

Table 32 (continued)

Source	Mean	D.F.	Ss	F Ratio	F Prob
Adult/Child Ratios		3	35.20	.534	.661
Explained		6	145.97	1.10	.373
Residual		45	988.10		
Total		51	1134.07		
C. Balanced Schedule					
(1) Director Teaching Experience		1	23.16	1.88	.114
1. 13.10 2. 12.10					
Center Capacity		1	1.37	.217	.644
Group Size		1	51.05	8.04	.008*
Adult/Child Ratios		3	17.03	.895	.454
2-Way Interactions		12	42.06	.552	.863
Explained		18	113.64	.995	.489
Residual		33	209.43		
Total		51	323.07		
(2) Director Experience as Director		1	3.04	.504	.481
1. 12.91 2. 12.28					
Center Capacity		1	.817	.135	.715
Group Size		1	38.15	6.32	.016*
Adult/Child Ratio		3	15.07	.832	.483
Explained		6	51.44	1.42	.228
Residual		45	271.62		
Total		51	323.07		

*Significant at the p=<.05 level

reach a significant F p=<.05 level for either Curriculum or Balanced Schedule ratings, although the Curriculum was at the p=<.054 level. The Positive Adult/Child Relationships rating means were higher for group one which included all directors whose years of experience were below the mean.

In addition to the main effects of director degrees, there were six sets of two-way interaction results obtained with each of the sub-scale analyses and one was significant at the p=<.05 level. The

summary interaction is shown for Curriculum and Balanced Schedule and the two significant factors which were significant at the p=<.05 level are noted. The sub-scale means were as follows:

	Capacity	
Director Experience	1 (below mean)	2 (above mean)
1. (below mean)	32.71	30.12
2. (above mean)	29.22	30.11

Directors with below mean teaching years of experience in below mean size centers were in the group in which mean ratings were significantly different at the p=<.05 level from directors with more experience in the above mean size centers.

The second significant interactions (p=<.046) were the two factors of capacity and adult/child ratios (A/CR). Sub-scale means were:

	Adult/Child Ratios			
Capacity	1	2	3	4
1.	30.33	32.20	31.50	32.00
2.	31.50	28.33	30.60	31.13

The interacting variables of below mean capacity centers and A/CR of 1:9 to 1:10.5 were the group which were rated highest. The same ratio with above mean size centers were rated lowest on the scale. The group which included the smaller centers generally were rated higher on the subscale shown in Table 32; however, there was no clear pattern of higher rating for smaller centers and lower A/CR.

Table 33 shows the results when the education of teachers was analyzed for differences in their levels of earned degrees as well as differences in their levels of ECE/CD units earned (see page 137 for description of groups). Center factors of capacity, group size and adult/child ratios were also included in the analysis.

The differences between teacher degrees when other factors were adjusted for did not have a significant effect at the p=<.05 level on any of the three sub-scale ratings. The results displayed on Table 33 also indicate that differences between teacher ECE/CD units earned did not reach a significant level of p=<.05 for Curriculum and Positive Adult/Child Relationships subscales. The p=<.038 level of significance was obtained for teacher ECE/CD levels on the third subscale with the groups in which teachers had earned over thirteen units (group three) rated the highest on that scale when other factors were adjusted.

For each of the subscales and teacher degree levels there were six sets of two-way interactions none of which were significant at the p=<.05 level. Since that was the case only the summary interaction results were displayed in the table. The interaction results for teacher ECE/CD units earned and the other variables were suppressed because of empty cells in the data from the sample.

The organizational factors when adjusted for other variables were not significant at the p=<.05 level on the Positive Adult/Child Relationships subscale. Group size was significant at the p=<.026 level with teacher degrees ECE/CD units earned on the Balanced Schedule ratings and .089 on curriculum sub-scale. In both ratings group one or

Table 33

Analysis of Variance of the Three ECCO Sub-scale Ratings by Two Levels of Teacher Degrees, Three Levels of Teacher ECE/CD Units, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. Curriculum					
Teacher Degrees		1	1.03	.059	.810
1. 20.56 2. 20.53					
Center Capacity		1	11.33	.644	.428
Group Size		1	54.06	3.07	.089*
Adult/Child Ratio		3	36.88	.698	.560
2-Way Interactions		12	88.11	.417	.946
Explained		18	169.96	.536	.918
Residual		33	580.95		
Total		51	750.92		
Teacher ECE/CD Units		2	55.80	1.99	.148
1. 20.16 2. 18.50 3. 22.29					
Center Capacity		1	4.15	.298	.588
Group Size		1	24.13	1.72	.195
Adult/Child Ratio		3	17.56	.419	.740
Explained		1	136.61	1.39	.230
Residual		44	614.30		
Total		51	750.92		
B. Positive Adult/Child Relationships:					
Teacher Degrees		1	31.49	1.28	.265
1. 32.11 2. 30.53					
Center Capacity		1	19.89	.812	.374
Group Size		1	73.93	3.02	.092
Adult/Child Ratio		3	23.41	.319	.812
2-Way Interactions		12	184.90	.629	.802
Explained		18	326.16	.740	.747
Residual		33	807.91		
Total		51	1134.07		
Teacher ECE/CD Units		2	61.46	1.40	.256
1. 31.64 2. 27.60 3. 31.47					
Center Capacity		1	3.35	.153	.697
Group Size		1	29.63	1.35	.251
Adult/Child Ratio		3	13.80	.210	.889
Explained		7	171.23	1.11	.369
Residual		44	962.84		
Total		51	1134.07		

Table 33 (continued)

Source	Mean	D.F.	Ss	F Ratio	F Prob
C. Balanced Schedule					
Teacher Degrees		1	1.70	.232	.633
1. 12.78 2. 12.50					
Center Capacity		1	.716	.097	.757
Group Size		1	40.07	5.43	.026*
1. 13.52 2. 11.93					
Adult/Child Ratios		3	14.50	.656	.585
2-Way Interactions		12	29.64	.335	.976
Explained		18	79.75	.601	.873
Residual		33	243.31		
Total		51	323.07		
Teacher ECE/CD Units		2	37.83	3.51	.038*
1. 12.96 2. 10.60 3. 13.53					
Center Capacity		1	.773	.144	.707
Group Size		1	15.94	2.96	.091
Adult/Child Ratio		3	13.09	.811	.495
Explained		7	86.23	2.28	.044*
Residual		44	236.84		
Total		51	323.07		

*Significant at the p=<.05 level

those with below mean number of children in the observed class were rated higher than the groups which included above mean group sizes.

The results of the ANOVA which are displayed in Table 34 included the last teacher factor for the hypothesis. The two groups of teacher experience were distributed according to those above and below the mean (see page 107 for a complete description). Center factors were the same as those shown in the previous table.

The effects of teacher experience when adjusted for the center factors were not significantly different on any of the three sub-scale ratings of the observed classrooms. There were six sets of two-way interactions, none of which were significant at the p=<.05 level.

Table 34

Analysis of Variance of the Three ECCO Sub-scale Ratings by Two Levels of Teacher Experience, Two Levels of Center Capacity, Two Levels of Group Size, and Four Levels of Adult/Child Ratios

Source	Mean	D.F.	Ss	F Ratio	F Prob
A. Curriculum					
Teacher Experience		1	1.34	.083	.775
1. 20.58 2. 20.50					
Center Capacity		1	11.88	.734	.398
Group Size		1	53.86	3.32	.077
Adult/Child Ratio		3	37.95	.782	.513
2-Way Interactions		12	134.66	.693	.746
Explained		18	216.81	.744	.743
Residual		33	534.10		
Total		51	750.92		
B. Positive Adult/Child Relationship					
Teacher Experience		1	2.00	.100	.754
1. 31.23 2. 30.38					
Center Capacity		1	16.86	.844	.365
Group Size		1	62.27	3.11	.087
Adult/Child Ratio		3	21.63	.361	.782
2-Way Interactions		12	363.07	1.51	.168
Explained		18	474.83	1.32	.238
Residual		33	659.24		
Total		51	1134.07		
C. Balanced Schedule					
Teacher Experience		1	17.78	2.78	.104
1. 12.27 2. 13.12					
Center Capacity		1	1.64	.258	.615
Group Size		1	41.69	6.54	.015*
Adult/Child Ratios		3	19.63	1.02	.393
2-Way Interactions		12	46.54	.608	.819
Explained		18	112.72	.982	.501
Residual		33	210.34		
Total		51	323.07		

*Significant at the p=<.05 level

Since that was the case only the summary results were noted in Table 34.

The only main effects of any of the center components were the differences between group size levels when the other factors were adjusted and the Balanced Schedule was the sub-scale rating. As with the results obtained in previous analyses which tested the hypothesis, the below mean groups were rated higher than those above the mean.

Summary of the findings for Hypothesis 4. The results of the analyses of variance which have been shown in tables 31 through 34 examined the differences between levels of director and teacher education and experience and the identified center factors. In each table the mean of each ECCO sub-scale rating was noted for the director and/or teacher main effects; the center factor means were shown on Table 31 and remain the same for the following three tables.

The ANOVA results show that the main effects of director degrees when adjusted for other factors did not differ between the three groups when measured by Curriculum or Balanced Schedule sub-scale ratings. When directors did not have a degree (group one) the low Positive Adult/Child Relationships mean ratings of 27.40 were significantly different at the $p=<.05$ level from the two groups which included directors with either elementary education or ECE/CD degrees.

The ECE/CD units directors had earned ranged from six or less (group one) to more than thirteen (group three). When adjusted by center factors no significant differences at $p=<.05$ were obtained on any of the three subscales.

The number of years directors had taught young children was the first experience factor analyzed. When divided into two groups distributed below and above the mean and analyzed with the center

variables there were no differences on the Curriculum and Balanced Schedule subscales. Positive Adult/Child Relationships were affected at the p=<.008 level of significance with higher mean ratings of 31.84 given to the centers in which directors had below mean number of years teaching young children. There were significant differences in the interaction effects. When main effects and other two-way interactions were adjusted for, the interactions between director experience and center capacity reached the p=<.039 level. The classrooms in the centers which were below the mean in the number of children they could enroll and with directors who had below mean number of years teaching experience were rated higher with a mean of 32.71 on the second subscale. Classrooms in larger (above mean centers) with more experienced directors received the lowest Positive Adult/Child Relationships ratings.

The number of years directors had been directors of child care centers was the fourth factor in the analyses of director variables. The difference between the two groups (below and above the mean) did not have a main effect on any of the sub-scale ratings.

Teacher education was analyzed both for the levels of ECE/CD degrees held by teachers in each classroom as well as the mean ECE/CD units earned by the teachers in the rated classes. When adjusted by the organizational components, the difference between group one which included all classes in which at least 50% of the teachers had ECE/CD degrees and group two in which less than 50% of the teachers held ECE/CD degrees was not significant at the p=<.05 level on any of the three subscale mean ratings. The effects of three levels of ECE/CD

units earned and adjusted by the other variables did not reach a p=<.05 level on either Curriculum or Positive Adult/Child Relationship scales. Balanced Schedule was affected by that factor with higher ratings given when teachers in the class had earned more than thirteen ECE/CD units.

Group size proved to be a significant main effect on all three subscales when assessed with director degrees and director teaching experience levels. With director ECE/CD units, group size was a main effect only on the Balanced Schedule scale and not on the other two scales. The pattern was repeated when director experience as a director was the factor; group size was significant at the p=<.05 level only with the Balanced Schedule scale ratings.

Curriculum and Positive Adult/Child Relationships ratings were not affected by differences between the two levels of group size when either teacher degree, teacher ECE/CD units, or teacher experience were the factors analyzed. Group size did have a main effect upon the Balanced Schedule rating with teacher degrees, teacher ECE/CD units, and teacher experience.

The main effects upon Curriculum and Balanced Schedule of different levels of director and teacher education and experience when adjusted by center variables were not significant at the p=<.05 level. Director degrees and director experience as a teacher when adjusted by center factors did reach the p=<.05 level when the subscale Positive Adult/Child Relationships was the measure. Although group size differences reached the p=<.05 significance levels, the hypothesis was generated to explore differences in selected human resources. Therefore, the hypothesis which stated that there is no significant

difference among levels of director education and experience or teacher education and experience when adjusted by center capacity, group size, and adult/child ratios when measured on each of the sub-scale ratings of the ECCO scale must fail to be rejected.

Hypothesis 5

The purpose of the fifth hypothesis was to examine the differences between levels of parent participation hours when the moderating variable was a measure of teacher experience working with young children. Parent participation was measured in the mean number of hours the parents in the rated groups took part in classroom activities, field trips, social events, and parent/teacher conferences over a five-month period. Teacher experience groups were calculated by adding up the number of hours each teacher in the observed group reported that she had been teaching children under the age of eight and dividing that figure by the number of teachers present when the classroom environment was rated. The null hypothesis was:

There is no significant difference in the amount of parent/class interaction when moderated by teacher experience and measured on the Curriculum and Positive Adult/Child Relationships subscale of the ECCO scale.

In Table 35 the ratings of the two subscales Curriculum and Positive Adult/Child Relationships are shown as the dependent variables with two groups of parent participation hours (1=0 to 2 mean hours over five months: 2=3 to 6 hours over the same period) and two groups of mean teacher years experience (1=below mean and 2=above mean) as the independent variables.

Table 35

Analysis of Variance of the Curriculum and Positive Relationships Sub-scale Ratings by Two Groups of Mean Parent Participation Hours and Two Groups of Mean Number of Years Teacher Experience Working with Young Children

Source	D.F.	Ss	F Ratio	F Prob
A. Curriculum				
Parent Hours	1	46.31	3.15	.082
Mean: 1. 20.14 2. 22.75				
Teacher Experience	1	.077	.005	.943
Mean: 1. 20.58 2. 20.50				
Main Effects	2	46.31	1.58	.216
2-Way Interactions	1	2.014	.138	.712
Explained	3	48.33	1.10	.358
Residual	48	702.59		
Total	51	750.92		
B. Positive Interactions				
Parent hours	1	19.66	.859	.359
Mean: 1. 30.55 2. 32.25				
Teacher Experience	1	9.30	.407	.527
Mean: 1. 31.23 2. 30.38				
Main Effects	2	28.97	.633	.535
2-Way Interactions	1	6.46	.282	.598
Explained	48	1098.63		
Total	51	1134.07		

The results of the ANOVA show that when the effects of teacher experience was adjusted for, the effects of parent participation upon the two subscales was not significant at the p=<.05 level. The two-way interaction results did not reach the p=<.05 level and since that was the case the interaction results were summarized in Table 35.

Hypothesis 5 was tested by the ANOVA and the results were that none of the F probabilities reached the p=<.05 level. That indicates that differences between the two groups of parent participation when moderated by teacher experience did not have an effect upon either of

the subscales. Accordingly, the fifth hypothesis must fail to be rejected.

Ancillary questions:

Findings for ancillary question one. The first ancillary question was generated in order to examine the differences between the levels of ECE/CD units teachers had earned when measured by the ECCO scale. The question was proposed because, as noted in Chapter Two, the findings from the National Day Care Study identified gains on the Peabody Picture Vocabulary Test scores, more socially active child behaviors, and more verbal initiative as a function of (1) group size and (2) teachers who had been trained in early childhood education and/or child development.

A one-way analysis of variance with a post hoc Scheffe was used to test the question; the dependent variable was the ECCO rating and the teacher ECE/CD units earned the independent variable. Table 36 shows the results of the analysis (see page 137 for description of groups).

The Bartlett-Box probability test for homogeneity of variance was $p=<.760$ which indicated that the assumption of homogeneity was satisfied. The F probability for the three groups indicated a difference at $p=<.0187$. A post hoc Scheffe test identified group two and three as significantly different at the $p=<.05$ level. Therefore the response to ancillary question one must be that there is a difference between levels of ECE/CD units teachers earn when measured by the ECCO ratings.

Findings for ancillary question two. The second question was concerned with linear relationships between financial resources and

Table 36

One-way Analysis of Variance of the ECCO Scale Rating by Three Levels of Teacher ECE/CD Units Earned

Source	D.F.	Ss	F Ratio	F Prob
Between Groups	2	731.73	4.317	.0187*
Mean ECCO S.D.				
1. 64.74 9.355				
2. 56.70 7.775				
3. 67.29 9.706				
Total Mean = 64.03				
Within Groups	49	4152.18		
Total	51	4883.92		

*Significant at the p=<.05 level.

organizational variables such as food services, adult/child ratios, and the number of children in the observed class. Regressions were run for each of the three income sources of tuition, government, and private independently against the food services, hours the centers were open, adult/child ratios and group size. In addition a regression was run with total per-child income received and total ECCO ratings, center capacity, and group size as the descriptive variables. The fund raising and investment income factors were not used in the analysis because less than fifty percent of the center directors received money from those sources (see tables 14 and 15).

In the stepwise regression model used in this analysis the variables were entered and removed on the basis of the probability of F-to-enter criteria (PIN) of p=<.10. As noted in Chapter 3, the less stringent probability level was chosen for the regression analyzes of the ancillary questions. The three independent variables were

described as hours of operation and included centers open nine hours, those open ten to eleven hours, and those open twelve hours a day. Those variables did not meet the entry or removal criteria of p=<.10 and therefore no variables were selected for that equation.

There were four adult/child ratio factors (see Table 5). None were selected for inclusion in an equation when government, private, or total per-child income were the dependent variables. For tuition one significant relationship was found. Low adult/child ratio (one adult for no less than five and no more than nine) was the only variable which remained in the stepwise regression at the p=<.10 level.

B	SEB	F	F necessary for .10
-111.9047	60.9380	3.372	.0723

The lowest ratio accounted for approximately six percent (R^2=.06318) of the variance in tuition income. The derived constant was $599.00 and the B constant was -111.90. That would mean that the lower ratio would be related to lower tuition.

The next descriptive factors were food services which included breakfast, morning snack, lunch, and afternoon snack. None of those variables were entered when tuition, private, or total per child were the dependent variables. In the stepwise regression of governmental funding the only significant relationship was found to be when breakfast was served.

B	SEB	F	F necessary for .10
-115.9424	46.2382	6.2875	.0155

The R^2=.11170 which means that over eleven percent of the variance in governmental funding was accounted for when breakfast was served to

the children. The constant was 2.2875 and the B was almost 116 which indicated that more governmental funding was related to that food service.

The total per-child income received was examined for possible linear relationships with the total ECCO ratings, center capacity, and group size. The variable which was identified as a significant at the p=<.10 level was group size.

B	SEB	F	F necessary for .10
9.3399	5.2275	3.1922	.0801

The R^2 of .06001 indicated that group size would contribute six percent to the variance in total per-child income. The constant was $552.81 and the B was a little over nine which means that there is a relationship between group size and total per-child income increases.

Findings for ancillary question three. The factor of group size has been identified both in the literature and in this study as having an effect on the quality of a child care center classroom. The third question was proposed in order to examine the impact of (1) tuition, governmental subsidies, and private resources, and (2) director and teacher experience upon the variances of group size. With group size as the dependent variable none of the three financial descriptive factors were entered into the equation at the p=<.10 level. The same was true for director experience as a teacher and as a director as well as teacher experience as a teacher.

Findings for ancillary question four. In this study the quality of the child care center classroom was rated on the Early Childhood Classroom Observation Scale and the fourth question was to

ascertain any linear relationships between the ratings and (1) organizational factors of group size and adult/child ratios, and (2) to determine if director or teacher experience could be valid predictors of the ECCO ratings. The adult/child factors may be found on Table 3; director years experience as a teacher ranged from none to thirty-eight, director years as a director ranged from one to twenty-six, and teacher number of years as a teacher ranged from two to twenty-three.

When ECCO was the dependent variable and five factors of group size and adult/child ratios were entered into the stepwise regression only group size remained.

B	SEB	F	F necessary for .10
-.37406	.213649	3.0654	.0861

The group size was found to determine almost six percent (R^2=.05777) of the ECCO rating. The constant of 71.7499 and the B of -.37406 indicated a relationship between increased group size and lower ECCO ratings.

The second regression analysis for the fourth question was the variance in ECCO ratings which might be related to the number of years directors and teachers had worked in the classroom and/or as administrators. No variables were entered or removed at the p=<.05 level and therefore no prediction equation could be found.

Summary of findings for the four ancillary questions. The one-way analysis of variance identified differences in teacher earned units of ECE/CD which reached the p=<.05 level of significance. The results of the Scheffe test indicated that the total ECCO ratings were significantly higher with a mean of 67.29 when teachers had more than

thirteen ECE/CD units than when teachers had seven to twelve units (mean=56.70). However, those with fewer than six units (group one) did not vary significantly from group one and two.

There were no predictor variables identified to account for variances in private fiscal resources. There was one predictor for dollars received from public agencies; when governmental funding increased breakfast was more likely to be served. For tuition income, the lowest adult/child ratio was related to lowered tuition. The question would have to receive a negative answer since the predictors were limited and no significant linear relationships were discovered beyond breakfast and government money and tuition and lowest ratios.

In the variables selected for the study the question regarding group size was analyzed to assess variances when both selected fiscal and human resources were the independent variables. No prediction equation was developed for group size variances for either descriptive factors. The response to question three was that the group size variances could not be predicted with the factors identified in this study.

The answer to question four which focused on ECCO rating variances would be that the regression analysis uncovered group size as a single predictor. However, director and teacher experience were not predictors.

Summary

In Chapter 4 descriptive summaries of the data were presented in tables 1 through 16. Among the descriptive data which were of interest was the fact that fifty-six percent of the centers in the sample were

administered by religious groups and almost seventy percent of the centers were housed in church buildings. Organizational factors such as group size and adult/child ratios showed a wide range among the observed classrooms.

The financial resources available to directors included a per-child quarterly mean of $578.00 from tuition, $52.00 from public agencies, and $100 from private sources. Fifty-four percent of the directors received no money from fund raising, gifts, or donations; over sixty-three percent had no income from investments. The ratings of classroom environment included a mean ECCO rating of 64.03, with subscale means at 20.53 for Curriculum, 30.80 for Positive Adult/Child Relationships, and 12.69 for Balanced Schedule.

Findings of the statistical analyses which tested the five hypotheses were presented in tables 17 through 35. The first hypothesis was constructed to ascertain whether differences in financial resources would contribute to differences in the Curriculum sub-scale rating of the ECCO scale. The levels of fiscal resources were tested with five one-way analysis of variance tests with tuition, governmental funding, private resources, fund raising, and investments as the independing variables and Curriculum ratings as the dependent variable. The level of significance was established at $p=<.05$ and although there was a wide range of income received none of the differences reached the $p=<.05$ level and the hypothesis would fail to be rejected.

The second hypothesis was developed to examine whether differences in financial resources and the number of hours parents helped with

classroom activities would contribute to differences in the Curriculum and Positive Adult/Child Relationships sub-scale ratings. The same financial factors as those identified for Hypothesis 1 were used in this hypothesis. Parent participation groups were divided into (1) those who had participated in center activities two hours or less over a five-month period from January through May, 1987 and (2) those who had been similarly involved at least three to six hours over the same period. The variables were tested by the ANOVA and no significant differences at the p=<.05 were reached in any of the results. The null hypothesis would also fail to be rejected.

Human resources were the independent variables identified in the third hypothesis which was proposed to assess differences between director or teacher education and training when adjusted for organizational components. Those components included center size and the number of children and adult/child ratios in the observed classrooms. The dependent variable was the ECCO rating. One effect significant at the p=<.05 level was the number of years directors had taught young children; the group which included directors who had below mean years experience as a teacher was rated higher on the ECCO scale than the group which included those with above the mean years of experience. When adjusted for the center factors no teacher education or experience levels reached the p=<.05 level of significance. Although the hypothesis would fail to be rejected because none of the effects of human resources upon the sub-scale ratings when other variables were adjusted for, it was interesting to note that the differences between group size were significant in all analyses except

when examined with teacher ECE/CD units earned. The group which included all classrooms with below the mean number of children was rated higher than the group which included those above the mean.

The purpose of the fourth hypothesis was to examine the differences in human resources when adjusted for center components and measured on all three ECCO subscales. Human resources were defined as director and teacher education and experience. Center components remained the same as those used in the third hypothesis. The ANOVA results showed that differences between director years experience as a director and director ECE/CD units earned did not reach the p=<.05 level on Curriculum and Balanced Schedule scale ratings. Positive Adult/Child Relationships scale ratings were affected by differences in director degrees and director experience as a teacher; directors who did not have degrees and had above the mean number of years experience were in the group which received lower ratings on the subscale.

Teacher education and experience group differences when adjusted by the other factors did not reach the p=<.05 level on any of the subscales. The major organizational factor identified as significant was group size. However, since differences between levels in five of the seven human resource factors did not reach the p=<.05 level of significance the hypothesis would fail to be rejected.

The last hypothesis was proposed in order to examine the differences between levels of parent participation hours when adjusted for teacher experience. The results of the ANOVA showed that no significant differences at the p=<.05 were obtained and the hypothesis must fail to be rejected.

The last section of Chapter 4 dealt with the ancillary questions. The first question had been proposed to explore differences in teacher levels of ECE/CD units earned when measured by ECCO ratings. The results of a one-way analysis of variance and the Scheffe test produced findings which indicated that there was a significant difference between teachers with more ECE/CD units than those with fewer units when measured by the ECCO scale.

The second ancillary question had been generated to explore variances in financial input. The stepwise multiple regression was run for each of the income sources independently against food services, hours the centers were open, adult/child ratios and group size. At the p=<.05 default level, government funding was related to one food service (breakfast) and the lowest adult/child ratio was related to lower tuition.

The financial resources and director and teacher experience were analyzed by stepwise regression in an attempt to develop predictors for the factor of group size. However, no variables were entered into an equation. This indicates that there was no relationship between the amount of tuition, government funding, and/or private financial resources and the number of children in the observed groups. Group size was not related to the number of years either director or teachers had taught young children.

The fourth ancillary question was developed to test for a prediction equation for the ECCO ratings. In the first analysis with ECCO ratings as the dependent variable and group size and adult/child ratios as the independent variables one variable was selected at the

p=<.10 level. The results indicated a relationship between increased group size and lower ECCO ratings. In the second stepwise regression with director and teacher experience as the independent variables no variables were entered or removed at the default level. On the basis of the single predictor (group size) it was judged not feasible to create a prediction equation for the ECCO ratings.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of Chapter 5 is to review the salient points of the history and context of the current child care situation as well as research findings relevant to this study. The methodology used to collect and analyze the data is summarized and the major findings noted. The chapter ends with conclusions which were drawn from the findings of the research and recommendations for further studies.

Summary

The context of the current child care situation. The purpose of this study was to explore the impact of financial and human resources upon child care center classrooms on Oahu. The question was generated out of a recognition that the quality, availability, and affordability of child care has become a matter for concern among consumers, policy makers, and businesses.

That concern is a relatively recent one. For the most part, until the 1970's the place of the pre-school child was home with mother. If mother could not stay home with her child because she had to work, charitable agencies tried to provide custodial care. Some middle-and-upper class mothers who wished to enrich the learning experiences of their children, chose to enroll them in part-time nursery schools.

That system seemed to be acceptable to most Americans until the 1970's when changing social and economic conditions began to affect the

demand for child care services. The reality of women working outside the home may have helped shape a change in values and expectations about the roles and responsibilities of women. As women became a larger part of the labor pool and thus no longer stayed home to care for their children, the responsibilities of out-of-the-home child care was placed in many hands. The choices available to parents of young children have ranged from friendly neighbors who "help out," to small play groups and church sponsored centers, to child care corporations that are occasionally large enough to be listed on the New York Stock Exchange.

In less than twenty years the child care situation seems to have evolved into a social concern as research findings continue to link work and family. For example, the corporate world has begun to recognize research findings in which low morale, high absenteeism, and loss of productivity, particularly for women who have young children, appear to be related to inadequate child care arrangements.

The premise that interconnections and interdependencies exist between work and family has been conceptualized in a theoretical model developed by Urie Bronfenbrenner. His central thesis is that human beings live in an ecological social system made up of sub-systems which are dependent upon and influence one another. Based on child development research findings Bronfenbrenner postulated that each environment has an effect on the growth and development of a child. Those environments or social sub-systems begin with a primary mother-infant dyad and gradually expand to the extended family, the neighborhood, church, and school.

For many modern children, child care centers have become one of those social sub-systems which Bronfenbrenner has described. As single settings they influence the immediate behavior of the child, and, taken separately, are each a microsystem in which she/he participates. For example, the development and behavior of the child may be influenced by such classroom environmental factors as curriculum, adult/child relationships, and the schedule of daily activities.

The central research question which was generated was to assess the impact of fiscal and human resources upon the level of quality of a child care center classroom. The resource variables were examined as they operated singly or as they interacted with selected organizational factors, such as group size and adult/child ratios. The null hypothesis stated that there would be no significant differences among fiscal inputs, levels of director and teacher education and experience, parent hours in the classroom and the quality of classrooms measured by the Early Childhood Classroom Observation (ECCO) scale. The ancillary questions were proposed to assess the impact of teacher training upon the ECCO ratings, to note relationships between variances in income and center services, and to search for factors that might be predictors of ECCO ratings.

Research. A review of the literature has focused on research findings which have indicated that the early years are an important foundation period in the human life span and that young children need to have their physical, cognitive, and social needs met. Those needs are met when nurturing, responsive adults are willing and able to provide a variety of developmentally appropriate activities within a

balanced, flexible daily routine. In addition, researchers have identified center factors which seem to support positive child behaviors and learning. Those variables include classes or groups with a relatively small number of children in them and teachers who have been trained in early childhood education and/or child development.

As group child care programs become part of the social sub-systems which include home, neighborhood, and church, they are likely to support and interact with other social organizations. At the same time they may require resources from those systems. The support may be human such as appropriately trained teachers and directors and the time parents of children in care give to centers, and/or financial such as tuition paid by parents, funding from governmental sources, and in-kind community help.

Methodology. The data for this ex post facto causal-comparative study were collected by (1) observations and ratings of child care center classrooms by early childhood teachers and directors trained in the use of the Early Childhood Classroom Observation (ECCO) Scale and (2) interviews with directors to gather data on income and certain other demographics. The population to which the results of this study may be generalized consisted of ninety child care centers on Oahu licensed to enroll more than fifty-two children. There was a random selection of seventy-three centers and a response rate of 71% or fifty-two centers. All observations and interviews were conducted from April through May, 1987.

The instrument used to rate the classroom environment was the Early Childhood Classroom Observation (ECCO) scale which had been

developed by the National Association for the Education of Young Children (NAEYC). In addition to the information gathered about income amounts and sources, director and teacher education and experience, data about center size, sponsorship, food services, adult/child ratios, group size, and the number of hours parents participated in center curriculum activities and administration were collected.

To test the first hypothesis and the first ancillary question a one-way analysis of variance was used. The other four hypotheses were tested by n-way analysis of variance. A multiple regression program was used to search for relationships between criterion and predictor variables such as tuition income and organizational factors.

Findings. Descriptive data which provided information about ranges, means, and standard deviations when appropriate were generated. In addition, demographic factors such as sponsorship, food services, and levels of adult/child ratios were noted.

Among the descriptive data which were of interest were those defining center organizational factors. For example, fifty-six percent of the centers in the sample were administered by religious groups and almost seventy percent of the centers were housed in church buildings. The licensed capacity of the centers ranged from 52 to 261 with a mean of 106. Food services varied with afternoon snack the most popular (over 88% of the sample) and breakfast less often included as part of the tuition (42% served breakfast). The number of children in the observed groups ranged from 10 to 36 and the adult/child ratios ranged from one adult to five children to one adult to twenty children.

Income received by the center directors included a per-child quarterly total income mean of $745.00. There was a mean of $578.00 received from tuition, $52.00 from public agencies, and $100.00 from private resources. Fifty-four percent of the directors received no money from fund raising; over sixty-three percent had no income from investments.

The classroom environment ratings on the Early Childhood Classroom Observation (ECCO) scale were negatively skewed toward the high end of the rating. The total rating could not exceed 78 and the mean of the fifty-two centers was 64. The sub-scale Curriculum mean was 20.53 out of a possible 27; the mean for Positive Adult/Child Relationships was 30.80 out of a possible 36, and the mean for Balanced Schedule was 12.69 out of a possible 15.

The results of the one-way analysis of variance which was used to test the first hypothesis indicated that there were no significant differences ($p=<.05$) between levels of the five income sources of tuition, government, private organizations, fund raising profits, and investments when measured by ratings on the Curriculum sub-scale. The results of the n-way analysis of variance (ANOVA) which was used to test the second hypothesis revealed that when the income levels were adjusted by the number of parent participation hours and two sub-scales were measured (Curriculum and Adult/Child Relationships) no significant differences were found.

Human resources were the independent variables in the third and fourth hypotheses which proposed to test for differences between both director and teacher education and experience. The dependent variables

were the total ECCO rating in Hypothesis 3 and the three sub-scale ratings (Curriculum, Adult/Child Relationships and Balanced Schedule) in Hypothesis 4. When adjusted for organizational factors such as center capacity, group size, and adult/child ratios the results of the ANOVA indicated that there were no significant differences between levels of director degrees, director early childhood education and/or child development (ECE/CD) units earned, or director years as a director on the ECCO ratings. The single variable which appeared to have an effect upon the ECCO ratings when adjusted by other factors was the number of years directors had taught young children. The ECCO ratings were significantly different and higher for the group which included directors with below the mean of 12.36 years experience teaching young children.

Director experience as a director and levels of ECE/CD units they had earned did not have an effect upon any of the three sub-scales when the center factors were included in the analysis. Director years as a teacher were again significantly different and higher for the group which included directors with below the mean years of experience when Curriculum and Positive Adult/Child Relationships ratings were analyzed but not on the Balanced Schedule ratings.

The results of the ANOVA with teacher degrees and number of years experience teaching young children adjusted by center variables revealed no significant differences on either the ECCO or sub-scale ratings. When differences between levels of ECE/CD units which teachers had earned was analyzed with the center factors there were no significant F probabilities noted except for the sub-scale Balanced

Schedule. The Balanced Schedule rating was significantly different and higher for the group which included teachers with thirteen or more ECE/CD units than for the group with seven to twelve units.

When differences between levels of hours of parent participation were adjusted for teacher years experience as a teacher there were no significant differences at the p=<.05 level. The two sub-scales Curriculum and Positive Adult/Child Relationships were the dependent variables in the analysis.

The hypotheses which were proposed to study the impact of director and teacher education and experience when adjusted by center components failed to be rejected. However, a single organizational factor, class size, reached the p=<.05 level of significance in six of the seven tests when the ECCO rating was the dependent variable. The group which was composed of the cases which were below the mean of 21 children per classroom was significantly different and rated higher in each of the six tests. The smaller size was also significantly different from the larger group in six of the seven Balanced Schedule ratings and two out of seven on Positive Adult/Child Relationships and Curriculum.

The first ancillary question had been proposed to explore differences in teacher levels of ECE/CD units when measured on total ECCO ratings. The group which was composed of teachers who had earned more than thirteen ECE/CD units was significantly different and rated higher than the group which included teachers who had earned seven to twelve units.

The second question had been generated to explore variances in financial inputs. There were no indications of strong correlations

between the dependent variables of tuition, government subsidies, and private resources and the independent variables of food services, hours of operation, and group size. Total per-child variances were related to group size; that factor accounted for a six percent variance in total income reported by center directors.

A single factor accounted for one exception in public funding; as money from governmental sources increased it was more likely that breakfast would be served. There was also a single variable noted in the analysis of tuition and adult/child ratios; when the adult/child ratio was lowest (1:5 to 1:8.5) the tuition would be likely to decrease.

There were no variables entered into the stepwise regression analysis of group size and funding sources which indicated that there was no relationship between that factor and the amount of money directors collected. Furthermore, group size did not correlate with either teacher or director years of experience.

The fourth ancillary question was developed to test for a prediction equation for the ECCO rating. There were no correlations between ECCO ratings and adult/child ratios or director and teacher experience; there was a correlation between increased group size and lower ECCO ratings.

Conclusion

This study was organized to examine the differences among different levels of financial and human resources which were received by child care center directors over a three-month period and to analyze

the impact of those resources upon the quality of the classroom environment. The ex post facto causal-comparative design of the study was selected because it allowed the researcher to examine a number of factors that exist in a naturalistic setting. The conclusions which have been drawn from the findings relate to the impact of different levels of (1) financial and (2) human resources upon curriculum, adult/child relationships, and daily schedules of a center when examined with selected organizational factors. The conclusions of the study are presented in that order. Financial resources will be discussed in the next section. Following that, conclusions which were drawn about human resources and organizational components as they operated singly or interacted with one another are presented.

Financial resources:

Tuition. It may be concluded that the amount of tuition paid by parents may not be directly related to the quality of curriculum materials and activities in child care center classrooms. The implications of that conclusion are likely to be of particular interest to parents. Tuition costs vary from center to center for a number of reasons which were not explored in this study. The findings have revealed that Center A which may be less expensive than Center B may have high quality curriculum activities and positive adult/child relationships. Parents need to choose a child care environment which will meet the needs of their child. They can expect high quality care even as they can expect to stay within the family budget.

Furthermore, the findings of this study did not reveal any significant relationships between levels of tuition and the hours

parents spend in their child's classroom when Curriculum and Positive Adult/Child Relationships were employed as measurements of quality. The implications for parents are that while it may be important to establish a link between home and school, increasing the hours from two to six over a five-month period would not be likely to improve classroom environment.

Governmental funding. The central conclusion to be drawn is that the amount of public money which is provided a center is not related to curriculum quality as measured on the ECCO scale. As with the tuition factor, even with increased government money and more hours of parent participation, the ratings on the two sub-scales did not differ significantly from the centers which received no public support. One factor was related to funding differences and that was a food service. When centers received more money from the government they were more likely to serve breakfast. Eleven percent of the variance for that income was accounted for by that food service.

Legislators and those who debate public policies which deal with early education may find the research results of interest. It appears that clear expectations as to the outcomes when public money is provided might be a consideration. The findings in this study indicate that if a higher quality curriculum is a goal, then there may be factors other than funding and parent participation which could be important to review.

Private organizations as resources. The pattern which was noted in the previous income categories was repeated when support from churches, foundations, and charitable groups was studied. Increased

funding from those sources was not related to increased curriculum ratings. The same was true for parent participation and increased private resources when the two sub-scale ratings were noted. The implications are of concern to those who control and make decisions about the support of child care services. The programs might be analyzed carefully in light of the outcomes expected by the funding agency. Charitable contributions may be channelled into centers which require special support, for example, children with special needs.

Fund raising profits, gifts, and investment income. There was no evidence to support a premise that gifts, donations, and/or investment income were related to curriculum ratings. Increased parent participation and more income from those sources were not related to the ratings on two sub-scales. Directors did not see that as a major resource, in fact fifty-four percent of the directors got no money from fund raising and almost sixty-four percent had no investment income.

Child care center administrators may wish to review their efforts to raise money from those sources. One could conclude that if the goal of fund raising is to improve the curriculum and staff time is required, directors may wish to evaluate the efficacy of that practice.

In addition, individuals who wish to have their contributions go directly toward the purchase of curriculum materials may have other options. They might do well to support the child care centers in more general ways.

Summary of conclusions about income resources. There are two general conclusions which can be drawn from the findings of this study which were related to financial variables. The first is that the

amount of tuition, income from public and private agencies, and/or money from gifts, fund raising profits, or income which is received by a child care program is not related to high quality in the classroom as measured by the ECCO scale. Child care which meets the needs of young children may be found in programs in which tuition charges are both below and above the mean level of funding found in the community.

The second general conclusion is that parents are not necessarily required to pay high tuition and also spend many hours in the classroom to assure themselves that their child has curriculum materials and activities and positive teacher/child relationships of high quality. Instead, parents might investigate programs that they can afford and at the same time can expect that such programs will provide acceptable classroom environments.

Human resources. The findings did not support the premise that the quality of a classroom environment as measured by the ECCO scale is directly linked to a variety of director qualifications, such as the type of degree they hold, their ECE/CD training, or even the number of years they have been a director. Furthermore, there was no evidence that the amount of years that directors spent teaching young children was related to higher ratings on the ECCO scale. Instead, the group which included directors with fewer years teaching experience was rated higher on the total ECCO and two of the three sub-scales. Thus, education and experience of the directors may not be a pivotal indicator of whether or not the center has a high quality classroom environment.

A similar finding held true for teacher degrees and their years of teaching experience. While the qualifications of teachers may be related in some fashion, the measurements taken in this study do not reveal a direct link to the quality of the child care center classroom environment.

The training teachers have in early childhood education and/or child development was related to higher ECCO ratings. Directors may wish to give added weight to that special training when they staff the centers. In addition, parents might be advised to ascertain the early childhood background of teachers rather than relying solely on advanced degrees as an indicator of classroom quality.

Center components. The number of children who are assigned to each group or class has implications for directors, parents, and licensing agencies. At present, state rules and regulations tend to focus on adult/child ratios as an important indicator of a high quality child care program. Yet the findings of this study suggest that a greater weight might be given to the number of children in a group. The resolution of these differences will require additional study to determine policy implications.

In the mean time parents might be encouraged to monitor the number of children in the group to which their child is assigned. Furthermore, center administrators might review present space and staff arrangements to accommodate smaller numbers of children in the group.

Recommendations

In addition to the findings and conclusions of this study the following recommendations are offered. They have been divided into two

areas, the first refers to suggestions for further research and the second focuses on practice and policy considerations.

Further studies. There is a need for well funded and detailed studies of child care center administration. Instruments which may be sensitive to the many services child care programs provide need to be developed and validated. Studies which focus on other aspects of teaching responsibilities in early childhood settings should be undertaken. Further research which would analyze how the resources which have been identified in this study are used would be an important addition to the early childhood knowledge base.

Practice and policy considerations. In the light of the strong influence of religious organization on child care programs in Hawaii, any change to federal or state control of pre-kindergarten programs must be carefully analyzed. Policy studies might focus on at least two issues. The first is that public control of early education programs may be seen as an infusion into the work of the churches and therefore a possible violation of the first amendment. The second issue is related to the question of excessive entanglement when public money is used for programs housed in church facilities and/or administered by religious groups.

Any serious funding alliances between public agencies and child care programs as they exist today should require standardized accounting procedures and reporting to insure accountability.

New guidelines for helping parents choose child care centers may include research findings about financial and human resources as well as the center factors which were noted in this study. When classroom

environments are under consideration some popular myths that more money is related to higher quality may be questioned.

Efforts to assess quality in child care programs could be undertaken by licensing agencies. Rules and regulations might be reviewed as more research findings become available.

Careful consideration to the unique educational background and in-service training of teachers who work with young children ought to be given by the academic community. University and college courses may be reviewed so that teachers are assured of a wide range of early childhood and child development courses to help them prepare to become more competitive teachers.

APPENDIX A

EARLY CHILDHOOD CLASSROOM OBSERVATION

Number of children in observed group_____

Number of adults with observed group_____

Check where appropriate:

Teacher___ Assistant teacher___ Aide___

Person observing_____

Observation date_____and Time[from]_____[to]_____

Please review your NAEYC notes if necessary. You can check off the indicators that must be observed in items 1-10-11-12-13-14-18-19-21. I have told the directors that observers will not be asking questions of either teachers or children. If you cannot decide on a rating, please note your reasons and I'll try and pick up the info during my interview with directors. We may have to ask another observer to do a follow-up validation.
Notes:

APPENDIX A (cont'd)

CURRICULUM

Please *circle* the appropriate rating.

CRITERION	RATING		
1. Developmentally appropriate materials and equipment are available for children in observed group.	**Not met 1**	**Partially met 2**	**Fully met 3**
____Active play equipment for climbing and balancing.			
____Unit blocks and accessories.			
____Puzzles, manipulative toys.			
____Picture books and records, musical instruments.			
____Art materials [finger and tempura paints, crayons, scissors, paste].			
____Dramatic play materials [dolls, dress-up clothes and props, child-sized furniture, puppets].			
____Sand and water toys.			
2. Staff provides a variety of developmentally appropriate hands-on activities for children to <u>foster positive self-concept.</u> For example:	**Not met 1**	**Partially met 2**	**Fully met 3**
Allow time for children to talk about what they see, do, and like.			
Use children's names frequently in songs, games.			
Display children's work and photos of children.			
Encourage children to draw pictures, tell stories about self and family.			
3. Staff provides a variety of developmentally appropriate hands-on activities for children to <u>develop social skills.</u> For example:	**Not met 1**	**Partially met 2**	**Fully met 3**
Create space and time for small groups of children to build blocks together or enjoy dramatic play.			
Provide opportunities for sharing, caring, and helping, such as making cards for a sick child, or caring for pets.			

APPENDIX A (cont'd)

CRITERION	RATING		
4. Staff encourages children to think reason, question, and experiment. For example:	Not met 1	Partially met 2	Fully met 3
Activities are planned for labeling, classifying, sorting objects by shape, color,size.			
Discuss daily and weekly routines in terms of time concepts, season of the year.			
Observe natural events such as seeds growing, life cycle of pets.			
Create opportunities to use numbers, counting objects.			
Take walks around building or neighborhood.			
Plan trips to provide new learning experiences for children.			
Encourage water and sand play.			
5. Staff encourages language development. For example:	Not met 1	Partially met 2	Fully met 3
Read books, tell stories about experiences, talk about pictures.			
Provide time for conversation, ask child questions that require more than one-word answer.			
Answer children's questions.			
Add more information to what child says.			
Label things in room, use written words with pictures and spoken language.			
Use flannel board, puppets, songs, finger plays.			
6. Staff enhances physical development. For example:	Not met 1	Partially met 2	Fully met 3
Provide time and space for active play such as jumping, running, balancing, climbing, riding tricycles.			
Provide creative movement activity using obstacle course or activity songs and records.			
Provide fine-motor activities such as lacing cards and woodworking.			
7. Staff encourages and demonstrates sound health, safety, and nutritional practices. For example:	Not met 1	Partially met 2	Fully met 3
Cook and serve a variety of nutritious foods.			
Discuss good nutrition.			
Do activities to develop safety awareness in center and home.			
Encourage washing hands, brushing teeth, getting regular exercise and enough rest.			
Talk about visiting doctor and dentist.			

APPENDIX A (cont'd)

CRITERION	RATING		
8. Staff encourages respect for cultural diversity.	Not met	Partially met	Fully met
For example:	1	2	3
Cook and serve foods from various cultures.			
Celebrate holidays of various cultures.			
Read books, show pictures of various cultures.			
Invite parents and other visitors to share arts, crafts, music, dress, and stories of other cultures.			
Take trips to museums, cultural resources of community.			
9. Staff encourages creative expression and appreciation for the arts.	Not met	Partially met	Fully met
For example:	1	2	3
Do creative art activities such as brush painting, finger painting, drawing, collage, playdough.			
Provide time and space for dancing, movement activities, creative dramatics.			
Do musical activities such as singing, listening to records, playing instruments.			

POSITIVE INTERACTIONS AMONG STAFF AND CHILDREN

10. Staff interact frequently with children showing affection and respect.	Not met	Partially met	Fully met
____Staff interact nonverbally by smiling, touching, holding.	1	2	3
____Staff talk with individual children during routines, [arriving/departing, eating, activities].			
11. Staff are responsive to children.	Not met	Partially met	Fully met
____Listen to children with attention and respect.	1	2	3
____Respond to children's questions and requests.			
12. Staff speak with children in a friendly, courteous manner.	Not met	Partially met	Fully met
____Speak with individual children often.	1	2	3
____Speak with children at their eye level.			
____Call children by name.			
13. Staff uses positive approaches to help children behave constructively.	Not met	Partially met	Fully met
Guidance methods include:	1	2	3
____Redirection.			
____Planning ahead to prevent problems.			
____Positive reinforcement.			
____Consistent, clear rules explained to children.			
14. Staff do <u>not</u> use physical punishment or other negative discipline methods that hurt, frighten, or humiliate children.	Not met	Partially met	Fully met
	1	2	3

APPENDIX A (cont'd)

CRITERION	RATING		
15. Overall sound of group is pleasant most of the time. For example: Happy laughter, excitement, busy activity, relaxed feeling. Adult voices that do not dominate.	Not met 1	Partially met 2	Fully met 3
16. Children are generally comfortable, relaxed, and happy, and involved in play and other activities.	Not met 1	Partially met 2	Fully met 3
17. Staff help children deal with anger, sadness, and frustration.	Not met 1	Partially met 2	Fully met 3
18. Staff encourage prosocial behaviors in children such as cooperating, helping, taking turns, talking to solve problems. ____Adults model the desired behaviors. ____Adults praise prosocial behaviors.	Not met 1	Partially met 2	Fully met 3
19. Staff provide materials and time for children to select their own activities during the day. ____Several alternative activities are available for children to choose from. ____Staff respect the child's right not to participate in some activities. ____Teachers pick up on activities that children start, or interests that children show.	Not met 1	Partially met 2	Fully met 3
20. Staff are flexible enough to change planned or routine activities. For example: Staff follow needs or interests of the children. Staff adjust to changes in weather or other unexpected situation in a relaxed way without upsetting children.	Not met 1	Partially met 2	Fully met 3
21. Routine tasks such as toileting, eating, and sleeping are handled in a relaxed and individual manner. ____Routine tasks are used as opportunities for pleasant conversation and playful interaction to bring about children's learning. ____Self-help skills are encouraged as children are ready. ____Routines are tailored to children's needs and rhythms as much as possible.	Not met 1	Partially met 2	Fully met 3

APPENDIX A (cont'd)

BALANCED SCHEDULE OF ACTIVITY

The daily schedule provides a balance of activities on the following dimensions:

22.	Indoor/outdoor	Not met 1	Partially met 2	Fully met 3
23.	Quiet/active	Not met 1	Partially met 2	Fully met 3
24.	Individual/small group/ large group	Not met 1	Partially met 2	Fully met 3
25.	Large muscle/small muscle	Not met 1	Partially met 2	Fully met 3
26	Child initiated/staff initiated	Not met 1	Partially met 2	Fully met 3

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