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ABSTRACT

Children attending two types of preschool education (educationally- or care-oriented) in Bahrain were compared to a home control group and to each other with regard to intellectual, social, and behavioral development. Preschools were classified based on teachers' attitudes and management practices. A conditional, quasi-experimental design with pretest and posttest measures over one academic year was used. The following measures were administered in Arabic: (1) Stanford-Binet; (2) Wechsler Preschool and Primary Scale of Intelligence; (3) Draw-A-Person; (4) Preschool Scale of Perceived Competence and Social Acceptance (PSPCSA); and (5) Preschool Behavior Checklist. Subjects were 96 children attending 4 educationally oriented and 4 care oriented preschools for at least 3 months, and a control group of 44 children reared at home. A conditional regression model, followed by a within-group analysis, indicated that on all measures, children attending educationally-oriented preschools scored significantly higher than children attending care-oriented preschools and those reared at home. Boys scored higher than girls on the Stanford-Binet and the Draw-A-Person, and had higher percentages of emotional problems both at pre- and posttesting. On the PSPCSA, older children in the educational group had higher scores than younger children in the same group. (Contains 86 references.) (KDFB)

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The Effects of Educational or Care Orientation in Day Care on Children's Developmental Progress in Bahrain

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Further details and discussion of this study are contained in a Ph.D. dissertation submitted by the first author to the University of London, Institute of Education in September, 1994.

Abstract

The effects on children's performance (N=140) in three different preschool settings (care-oriented, educationally-oriented and home) was measured using a profile of assessments: Stanford-Binet (Terman & Merrill, 1961), The Wechsler Preschool and Primary Scale of Intelligence (Wechsler, 1963), Draw-A-Person (Harris, 1963), The Preschool Scale of Perceived Competence and Social Acceptance (Harter & Pike, 1984) and The Preschool Behaviour Checklist (McGuire & Richman, 1988).

A conditional regression model, followed by a within-groups analysis indicated that children attending educationally-oriented preschools significantly out-performed children attending care-oriented preschools and at home on all the measures. Individual analysis for each assessment showed that several family background variables were not significantly related to outcomes (child's age, mother's years of schooling, mother's age, months in preschool at entry, and father's occupation). Gender had a positive effect, with boys scoring higher than girls on some outcome measures. On a single performance outcome (PSPCSA) age was an influencing factor associated with higher scores for older children.

The Effects of Educational or Care Orientation in Day Care

on Children's Developmental Progress in Bahrain

The debate about the effect of preschool education has changed considerably over the years and continues to do so (Ball, 1994; Campbell & Ramey, 1994; Meisels & Shonkoff, 1990; Reifel, 1993; Schweinhart, Barnes & Weikart, 1993; Zigler & Styfco, 1993). These changes have been influenced by many factors: academic, social, political, economic, familial and cultural.

For decades research has centered around whether preschool care is harmful for children (Ainsworth, 1973; Bowlby, 1969; Belsky, 1988; Clarke-Stewart, 1988; Zigler & Hall, 1988). Many studies were carried out by comparing small samples of children in center-based preschool with children at home using problematic methods and design models. Some of the studies central to this research have focused on the need to investigate "systematically alternative models of influence to account for the putative link between early day care experience and subsequent child functioning" (Richters & Zahn-Waxler, 1988, p. 324). Examples have included studies which have probed the effects of (a) age differences of children at study entry (Andersson, 1989; 1992; Cochran & Gunnarson, 1985; Gullo & Burton, 1992; Howes, 1990; Haskins, 1985; Vandell & Corasaniti, 1990); (b) duration of time spent in intervention i.e., preschool treatment (Andersson, 1989; Beller, 1983; Campbell & Ramey, 1994; Fuerst & Fuerst, 1993; Reynolds, 1994); (c) the role of working mothers (Baydar, N. & Brooks-Gunn, J., 1991; Belsky & Rovine, 1988; Clarke-Stewart, 1988; Goldberg & Easterbrooks, 1988) (d) and the different types of preschool intervention (Howes & Olenik, 1986; McCartney, Scarr, Phillips, Grajek, Schwarz, 1982; Vandell, Henderson & Wilson, 1988; While, Jacobs & Schliecker, 1988) on child development.

Related investigations, often using models with combined demographic, social and familial factors have probed the more complex and subtle interactions which

influence children's developmental abilities and behaviors e.g., parent functioning (Belsky & Rovine, 1988; Burchinall et al., 1995; Howes & Olenik, 1986), marital stability and distress (Gotlib & Hooley, 1988) and peer status (Hart, DeWolf, Wozniak & Burts, 1992).

By far, the most extensive amount of research on preschool effectiveness has focused on a select samples of children identified as either socially or economically disadvantaged. One of the central questions surrounding the early developmental risk research has been whether preschool attendance fosters the acceleration of intelligence (IQ) which has often been shown to be good predictor of later attainment. While several studies provided an abundance of evidence supporting important "short-term benefits" (White, 1985, p.408) other well publicized results showed inconclusive findings. The impact of preschool participation on cognitive measures faded with time, showing little, if any significant differences between treatment and control groups. The reasons for the fading are complex and often mediated through a web of several different cultural and social factors e.g., the nature and quality of alternative child care arrangements, the sampling of disadvantaged groups, etc. (Bronfenbrenner, 1974; Lee, Brooks-Gunn & Schnur, 1988; Zigler & Valentine, 1979).

The decisive evidence on the benefits of preschool attendance at settings of high quality comes from studies using longitudinal designs and/or meta analysis (Andersson, 1989, 1992; Burchinal, Lee & Ramey, 1989; Kagitcibasi, Sunar & Bekman, 1988; Campbell & Ramey, 1994; Lazar, Darlington, Murray, Royce & Snipper, 1982; Lee, Brooks-Gunn, Schnur & Liaw, 1990; McKey, Condelli, Ganson, Barrett, McConkey & Plantz, 1985; Osborn & Milbank, 1987; Reynolds, 1994; Schweinhart et al., 1993; Zigler & Styfco, 1993). Here, the results from experimental studies show positive long-term benefits for children who receive preschool education compared with control groups. These advantages are not necessarily higher intellectual gains (IQ scores) but rather a wide range of social life-functioning skills and

abilities such as, getting a job, fewer criminal offences, fewer pregnancies, less divorce, more independence financially and socially, and better health records (Schweinhart et al., 1993). Furthemore, the benefits of quality preschool education are cost-effective and provide a sound, economic investment for society (Barnett & Escobar, 1990).

Quality preschool experience offers increased benefits to children and may even be a 'protective factor' in the development (cognitive, social) of children, particularly those from families experiencing disadvantage (Caughy, DiPietro & Strobino, 1994; Weikart, 1994; Werner, 1990). The evidence reviewed also supports the contention that different types (care or educationally oriented) of early learning environments make a difference in children's performance (Ball, 1994; Meisels & Shonkoff, 1990; Reifel, 1993; Zigler & Styfco, 1993). Where programs have been rigorously designed (e.g., includes cultural and parental input and matched control groups) the beneficial impact seems to be clearly related to the quality of provision and the consideration with many different aspects of development, not a single outcome measure. This study from Bahrain provides further evidence to support these findings.

Bahrain: The Focus of This Investigation

Currently, there is no research to demonstrate the effects of preschool education on child development in Bahrain. Previous research has focused mainly on health related concerns, such as combating early childhood diseases, maternal education and support programs for childbearing (Morsi, 1990; Unesco, 1993).

Two questions were posed for investigating the differential effects of children's performance in two types of preschool settings (care and educationally-oriented): (a) Is attendance at preschool centers associated with higher scores on child performance measures when compared to a home control group? and (b) Is attendance at educationally-oriented preschool associated with higher measures when compared with care-oriented centers?

The preschools selected for this study are representative of the majority (%) of national preschools in Bahrain. All preschools are privately owned and provide childcare to families from middle and lower working class backgrounds (Hadeed, 1994; Central Statistical Abstracts, State of Bahrain, 1988). Other comprehensive, foreign/private preschools were not included in this study due to difficulties in controlling for varying characteristics e.g., tuition rates, teacher training, family income, parent education.

The eight preschools decribed in this study were classified in a previous empirical investigation as either care-oriented or educationally-oriented. The designation of 'orientation' is based on a comparative analysis between the management practices and teachers attitudes in the different preschool settings (Hadeed, 1993). An adapted version of The Revised Child Managment Scale (King, Raynes & Tizard, 1971) and The Staff/Foster Parent Attitude Scale (Cawson & Perry, 1977) comprised a 41 item teacher questionnaire which was back-translated from Arabic (Brislin, Lonner & Thorndike, 1973) and checked for content validity (inter-juror agreement, $r=.67$, $p<.05$ kappa coefficient). Internal consistencies established acceptable reliabilities for each scale i.e., correlation coefficients were .83 ($df=22$, $p<.001$, two-tailed) for the Structure Management Scale and .55 ($df=22$, $p<.02$, two-tailed) for the Staff Attitude Scale. Two teachers from each center ($n=12$) were selected and interviewed. Two trained interviewers (the first author and a Bahraini college graduate) administered the questionnaire in a structured interview, comparing responses from the interviewees. Seventy per cent of the teachers were between the ages of 21-29 years with 54% married and 96% high school graduates. Only eight per cent had received any teacher training and nearly one-third had taught preschool for 1 - 5 years. The other two-thirds had either taught over six years or less than a year, equally.

Separate analysis for both scales showed that the two types of preschool practices discriminated significantly (Structure Management Scale, z [N =12] = 2.07, $p<.05$, two-tailed and Staff Attitude Scale, z [N =12] = 2.0, $p<.01$, Mann-Whitney-U test). More flexible, child-oriented approaches were found in educationally-oriented centers and more institutional-type practices were found in the care-oriented centers.

As the results will show, different preschool practices had significant effects on children's performance.

Design & Methods

This study uses a conditional, quasi-experimental design with pre and post measures over one academic school year period (Plewis, 1985). The essential question was whether the preschool intervention had any effects i.e., Was one treatment more effective than another? The procedure for the conditional model follows (a) an analysis of variance with a focus on main effects, (b) a multiple regression analysis (full and concise model), and (c) a within-groups analysis where differences between preschools in each orientation (care and educational) are considered. This particular statistical model attempts to provide a causal explanation of the comparison of net changes while attempting to eliminate all relevant initial differences between the groups.

Before analyses, frequency distributions showed symmetrical distributions for the pilot, pretesting and post testing scores (Hadeed, 1994). Furthermore, considerable attention was given to previous research findings using these same instruments in similar, Arab-speaking populations in the region (Abu Alam, 1989; Al-Jasser, 1990; Faraj, 1986; Kagitcibasi, Sunar & Bekman, 1988; Kapci, 1990). The psychometric focus of some of the outcome measures was the result of the need to use assessments which had been used before in the Middle East and were familiar to the research community there as well as policymakers.

Sample

The procedure for the selection of children from preschools followed two stages. The first stage focused on classifying preschools as either care or educationally-oriented (Hadeed, 1993) followed by a subsample selection for recruitment of children to the outcome research design. Eight preschools (four care-oriented and four educationally-oriented) were selected for investigation and matched on the following background variables: number of children served per center (80-110), age range of children served (3-6 years), teacher's monthly salary range (75-85 Bahraini Dinar), monthly tuition fees (25-30 Bahraini Dinar), operating hours (27.5 hours per week), language of instruction (Arabic), and nationality (100% Bahraini).

Ninety-six children attending preschool centers for at least three months (n=48 in each group) participated in the study. For the control group 44 children were pre-screened and selected from homes with the assistance from the Ministry of Social Affairs and Labour. Attempts were made to match all children (N=140) on the following background variables: child's age, sex, parent's age, parent education levels and father's occupation. The children's mean ages at study entry were 49.7 months for the preschool groups and 47 months for the home group. Nine months later at post testing, there was some attrition of children: one child from the educational group and four children from the care centers. The home sample size (n=44) did not change at post testing.

Child, family and teacher background characteristics

Descriptive statistics about the children, families and teachers are presented in Table 1

(insert Table 1)

An analysis of variance on initial intake data shows significant differences between groups on two factors: child's age (F (2, 140)=13.33, p<.000) and mother's education (F (2, 140)=5.48, p<.005). Children at care centers were significantly

older than children at educational centers (t (2, 140) =7.47, p<.01) and children at home (t (2, 140) =11.89, p<.001). Additionally, mothers of children in the educational group had significantly more years of schooling than mothers in the home group (t (2, 140) = 5.48, p<.01).

Further data was obtained from a Family Background Questionnaire/ Interview (Hadeed, 1994) administered to parents (e.g., household structure and size, play provisions, parent child-rearing attitudes, etc.). Family size ranged from a single-child nuclear family to a ten-member extended family group with an average size of five members in the preschool groups and six members in the home group. Extended families were more prevalent in the home group (40%) when compared with the preschool groups (27%). Ninety-two percent of the fathers and 42% of mothers worked (government related jobs, military and clerical) outside the home of which two-thirds (70%) employed domestic live-in help to assist in household tasks and childminding. All parents expected their children to go to college and a majority (87%) expected their children to be independent (dress themselves, bathe, help with household chores) and help them physically/financially in their old age (81%). All children lived with their natural parents and there were no divorced or separated parents in the sample.

Families belonging to the preschool groups (care and educational combined) significantly differed on several characteristics were compared with families in the home group. While the preschool groups accounted for higher percentages of working mothers (χ^2 (2, N =140) =25.1, p<.001), domestic help in the home (χ^2 (2, N =140) = 8.4, p<.01), time mothers spent playing with the child per day (χ^2 (2, N =140) =14.2, p<.01) and time mothers spent reading (χ^2 (2, N =140) = 12.3, p<.01) and telling stories (χ^2 (2, N =140) =10.1, p<.01) the home group had more children watching television on a daily basis (χ^2 (2, N =140) = 23.8, p<.01). Differences between preschool groups (care vs educational) did not vary and there were no

changes in results at post testing. Despite these differences at intake, neither child nor family background characteristics made a significant contribution on most children's outcome measures when entered in the later regression analysis.

Specific variables related to teachers included: (a) level of teacher's education, (b) length of teaching experience, and (c) teacher's age (Table 1). Data regarding the teachers' reported attitudes, pedagogical orientations, management practices was drawn from interviews conducted for the procedure used to classify preschools groups (Teacher Questionnaire/Interview, Hadeed, 1993).

Instruments used to assess outcomes

Six instruments were selected to create a rounded profile of child outcomes. All instruments were translated into Arabic, checked for accuracy (Brislin, Lonner & Thorndike, 1973) and pilot tested for cultural acceptability. Three psychometric assessments were used to measure cognitive function and abilities: (a) Stanford-Binet, Form L-M (Terman & Merrill, 1961) used in measuring IQ, perception, sensory-motor and language; (b) Wechsler Preschool and Primary Scale of Intelligence (WPPSI): Arithmetic and Block Design subtests (Wechsler, 1963) for assessing classification abilities, seriation, discrimination of size, quantity; and (c) the Draw-A-Person test, DAP (Harris, 1963) used in assessing intellectual maturity. Two instruments were used to assess social and emotional development: The Pictorial Scale of Perceived Competence and Social Acceptance For Young Children, PSPCSA (Harter & Pike, 1984) which provides a self concept and confidence measure; and The Preschool Behaviour Checklist, PBCL (McGuire & Richman, 1988) which screens subjects identified with emotional and behaviour problems.

It was considered important that the instruments selected for this study be culturally adaptive, as few instruments used to assess cognitive ability in young children have been standardized in Arab-speaking cultures. The three psychometric measures used in this study (Stanford-Binet, WPPSI and Draw-A-Person) have been

widely used in the region (Egypt, Kuwait, Lebanon, UAE, Saudi Arabia) with reliabilities similar to those studies based in English-speaking countries (Abu Alam, 1989; Hanoora & Misri, 1987; Faraj, 1986). Their familiarity was seen as a distinct advantage in terms of future considerations on preschool policy and teacher training in Bahrain. Also, its widespread application in several countries demonstrates its ability to assess faculties of mental constructs in different cultural contexts, despite its widely debated limitations, e.g., cultural bias, psychometric measurement, and 'weighted' imbalances of tasks items (Ceci, 1991; Gardner, 1993; Herrnstein & Murray, 1994; Woodhead, 1985). The instruments chosen to assess social and emotional development (PSPCSA and PBCL) have not had the same broad use in the Middle East region and therefore, caution is needed in the interpretation of the findings.

The content validation of each instrument was rated by a panel of experts (researchers and staff at the University of Bahrain) for acceptability and application. Some amendments were made to the translations, such as verbal instructions on task items (Stanford-Binet test) were changed from colloquial Egyptian dialect into classical Arabic for ease in adminstering to local Arab-speaking sample; a picture of a pig was changed to a fish; and pictures of women's apparel dressed (unveiled or dressed in short-sleeved garments) were altered to accommodate local cultural and religious customs (PSPCSA test). Expert agreement by independent raters (Likert scale) yielded a 100% on all assessments, except for the PSPCSA which gave a $r_s = .62$ ($p<.001$) agreement. Test, re-test reliability measures taken over a two week interval on 24 children (12 from each orientation group) yielded correlation coefficients, r, as follows: .99, Stanford-Binet; .98, WPPSI; .98, PSPCSA, .75, Draw-A-Person; and 1.00, PBCL. All instruments were piloted tested on a sample of 24 children under similar conditions (Hadeed, 1994).

Results

Results indicate that attendance at preschool centers (care and educationally-oriented) are associated with higher performance on almost all aspects of development when compared with children who stayed at home.

An Analysis of Variance:

An analysis of variance demonstrates significant differences on cognitive, social and emotional outcome measures for preschool attenders when compared to home children. The descriptive analysis of scores at pre and post testing (mean scores and standard deviations) are shown in Table 2.

(insert Table 2)

Children attending educationally-oriented preschools significantly outperformed their counterparts in care-oriented preschools and at home on all outcome measures. They had higher scores on cognitive outcomes, measures of self concept (school competence and social acceptance) and fewer emotional and behaviour problems than children at care-oriented centers i.e., prevalence rates were 36.4% for the care group and 0% for the educational group at post testing. Although this set of assessments includes only a fraction of all possible outcomes, there is a consistent pattern of significant findings, on measure after measure, in favour of children at educational centers.

Regression Analyses:

In order to estimate the effects of preschool experience and consider the extent to which the three groups varied on background characteristics, a full regression model considered several predictive child and family variables (and pretest scores). Those variables that did not make a significant contribution on outcome measures were deleted from the model. The subsequent regression analysis, known as a concise model (Table 3) yields a more precise account of those significant variable

effects on outcomes while allowing for statistical control over factors which may have resulted from the non-randomness of sampling (Plewis, 1985).

(insert Table 3)

The concise model of analysis provides the evidence that higher outcome scores at the end of the year are due to differential preschool effects. The beta values (Table 3) express, not only the degree to which groups vary, but also the relative change of group scores over the testing interval of time i.e. progress. Interpreted this means that children at preschool centers improved more than children at home and children attending educational settings showed the greater performance gains when compared with children other child care settings on all developmental outcomes measured.

Although social and family factors differed between the groups at outset, they did not make a significant contribution to children's progress (Table 2). Gender effects were found on some performance measures, with boys showing significantly higher scores on the Stanford-Binet test ($F = (4, 134) = 2.75$, $p<.007$), Draw-A-Person test (drawing of a woman, $F (4,134) = 2.03$, $p<.05$ and self, $F (4, 134) = 2.21$, $p<.03$) and higher percentages of emotional problems at pretesting (47.5% for boys and 24.1% for girls) and post testing (52.9% for boys and 25.9% for girls). Previous research coincides with these findings where boys are consistently identified as having more behavioural problems (conduct problems, aggressive behaviour, overactivity) than girls (Haskins, 1985; Richman, Stevenson & Graham, 1982; McGee, Silva & Williams, 1984; Ruller, 1982).

The results from the two WPPSI subtests (Arithmetic and Block Design) indicate that preschool effects were more pronounced on the arithmetic subtest (significant for both preschool treatments: care $p<.05$ and educational $p<.000$) indicating that preschool experience was more helpful on counting and verbal mathematical tasks than on spatial ability tasks when compared with children at home (Table 3). In part,

this may be due to the fact that children at home had fewer toys available to them, least of all manipulative tasks similar to those used in the WPPSI subtests. They were, however, given money regularly to purchase sweets from the local stores which could have meant they had some practice in counting, thus explaining high scores at pretesting. Nine months later at post testing, when task items measured verbal comprehension of simple addition and subtraction problems, children at home experienced more difficulty as post testing scores indicated. On the other hand, children at educational centers had freer access to a wider variety of manipulative toys (Hadeed, 1994) and teachers were more inclined to allow the use of educational toys (number games, puzzles, matching sensorial materials) when children requested them (Hadeed, 1993; Hadeed & Sylva, 1995 in preparation). The combination of these factors suggest that when children are involved in active learning at educational settings, they perform better than the children at care centers and at home.

In a similar manner, the results from the Draw-A-Person tests indicate positive and significant effects on children's outcome measures on all three drawings (A Man, A Woman, and The Self) for children at educational centers. They also significantly improved over the testing time when compared with children at care preschools and at home. Boys were affected more by treatment (preschool provision) when compared to girls (significant interactive effects were indicated for the variable, Sex x Care treatment : Drawing #1, t (6, 134) =3.36; p<.001; Drawing #2, t (6, 134) =2.09, p<.04; Drawing #3, t (6, 134) =2.75, p<.007.

Table 3 shows that the Draw-A-Person scores actually decrease as children get older which runs counter to the usual pattern of scores. While the lack of writing provision and child-size furnishings offered in the homes (pencils, paper, colours or writing provisions) may, in part, explain the lower scores for children in the home group, it does not account for the consistent decrease in mean scores at post testing for all groups. Casual observation suggest that possible religious/cultural factors may

have influenced the children's performance e.g., teachers discouraged children from drawing human figures for religious reasons (only flowers, trees, etc. were permissible). As a result, post testing scores reflected the reluctance of many children from making their 'best' pictures (Harris, 1963). If it is plausible that cultural and religious factors are mediated differently in preschool settings (educational environments had the advantage in this investigation) then it follows that there would be serious questions raised regarding the notion of assessing 'conceptual maturity' in terms of children's drawings . Further investigations, considering factors at home and at varying preschool settings are needed in order to draw firm conclusions.

The strength of the preschool effects on developmental outcomes in varying settings does not rest solely on any one measure, rather a collective and rounded assessment profile shows differences. Two important components for successful learning were measured: social behaviour (self concept and confidence) and emotional behaviour (conduct, concentration and social relations). The PSPCSA measured children's perceptions of competence (cognitive and physical abilities) and social acceptance (peer and maternal behaviors) in three independent preschool settings (care, educational and home). The analysis of variance which focused on main effects indicated significant differences between group scores on both measured domains (Competence domain: F (2, 134) =45.7, $p<.000$; and Acceptance domain, F (2, 134) =51.7, $p<.000$). An additional post hoc analysis (Scheffe F-test) indicated that the educational group accounted for the higher differences in mean scores on competence measures (educational vs care, $F=32.92$, $p<.01$; educational vs home, $F=33.92$, $p<.01$) and on acceptance measures (educational vs care, $F=46.9$, $p<.01$; educational vs home, $F=27.29$, $p<.01$).

A further regression analysis considering several explanatory variables and pretest scores (covaried) indicated that children at educational preschools significantly outperformed children at care preschools and home on competence and acceptance

measures. Furthermore, they made significant gains in outcome scores over the interval of time from pre to post testing when compared with the other groups. The concise regression models indicated age as a factor significantly related to outcomes on the competence scale (variable interaction, Age x Educational treatment, $F(6, 134) = 2.8, p < .005$)[1].

For all groups, the results show higher outcomes for the competence subscale when compared with the acceptance subscale. As Harter and Pike (1984) point out, this pattern may appear because judgements about one's competence may be more intimately related to one's appraisal of self, in contrast to judgements about social acceptance which may be influenced by others. Thus, higher scores on the competence scales reflect the tendency of young children to inflate their self appraisal (Stipek, 1984).

The final measure to complete the profile of child outcomes addresses the prevalence of behavioral/emotional problems identified in different preschool settings i.e., The Preschool Behaviour Checklist, PBCL. Head teachers completing the behavioral checklist were advised to familiarize themselves with the items and observe those children selected (96 at pretesting and 91 at post testing) for two-three weeks before actually recording. Only recent behavior was recorded on the children at the two types of preschool centers. The results showed overall prevalence rates of 18.8% (pretesting) and 17.6% (post testing) for children identified with emotional or behavioral problems. Similar prevalence rates are reported from other research in the region using Arab-speaking preschool samples e.g., 20% in Saudi Arabia (Al-Jasser, 1990). Higher prevalence rates have been reported in studies carried out in Turkey (29.2%, Kapci, 1990) and India (23.4%, Singh, 1991). Ruller suggests that the

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[1] The significant finding for age accounted for 1.5% of the variance on the competence scale (PSPCSA). When total PSPCSA scores were analysed there were no significant effects of age.

variation of prevalence rates often reflect the strong cultural-bound context of the checklist's ability to screen behavioral problems in epidemiological research (1970).

When comparing prevalence rates between preschool orientation groups, the results show 33.3% for the care group and 4.2% for the educational group at pretesting while at post testing all children identified with definite behavioral problems were represented in the care group (36.4%). This percentage increase (from pretesting) for the care group was accounted for by the decrease in sample size, not an increase in the number of children identified with behavioral problems. Boys were identified as having more emotional or behavioral problems when compared with girls i.e., 14% for girls and 22% for boys at post testing which runs consistent with previous findings (Al-Jasser, 1990; Chazan & Jackson, 1974; Jackson, 1989; Kapci, 1990; McGuire & Richman, 1986; Singh, 1991).

The evidence shows that children at educationally-oriented centers have fewer identified problems when compared with children at care centers at pretesting (z (N = 96) =1.8, $p<.001$) and post testing (z (N =91) =4.36, $p<.001$). Their scores also significantly improved over time. The pretest scores proved to be a positive predictor of outcomes (t (2 , 90) = 9.52, $p<.0001$). All of the background variables considered (including additional teacher variables: (a) level of teacher's education (t (11, 91) =.26, $p<.80$), (b) length of teaching experience (t (11, 91) =.07, $p<.94$) and (c) teacher's age range (t (11, 91) =.13, $p<.90$)) did not show a direct relation to children's outcomes when entered into the regression equation. Other important staff and parental factors associated with behavioral problems identified in children, were not tested for in this investigation and therefore may not be offered in explanation for the differential effects on outcomes. The more plausible explanation is that the educationally orientated centers met children's emotional needs.

Within groups analysis:

To investigate the possible occurrence of a particular preschool center accounting for higher/lower outcome measure, a within-groups analysis was conducted for each group. A multiple regression model for each assessment was fitted with the scores from the individual preschool centers and pretest scores were covaried e.g., c1, c2, c3, c4 for Care preschools and e1, e2, e3, e4 for Educational preschools. The results showed that children's scores in preschools within each orientation group were similar. Some adjustment for single anomalies (outliers) in the distribution of scores (competency scale for the educational group, PSPCSA and the PBCL scores in the care group) was considered. A further adjusted analysis indicated no significant differences school effects either within either groups.

Summary of findings:

The composite profile of outcome measures shows that children enrolled in educationally-oriented centers compared with children at care-oriented centers and at home performed better on all developmental measures. The strength of these findings comes from a broad package of assessments which aims to consider several aspects of development. Importantly, these differential effects occurred at no further cost (all tuition fees were the same throughout sample) and within the same geographic areas.

Furthermore, factors which may have resulted from the non-randomness of sampling have been statistically controlled for by a conditional model of analysis on three levels: analysis of variance for main effects, a concise regression analysis, and a within-groups analysis that considers preschool variability within each orientation group. Most demographic and family background variables were not significantly related to outcomes. The exceptions were age which showed a single contribution on one measure of the PSPCSA scale (competences outcomes in the educational group) and sex for boys on several outcome measures (Table 3).

The results also suggest that when the two types of provisions (care and educationally oriented) were compared separately (with the home group) their children have different outcomes which appear to be brought about by qualitative differences in preschool practice. Where quality features are low (insensitive, dominant staff attitudes and adult-directed rather than child-focussed practices) as seen in the care centers, self-concept/esteem measures are low in children. It is often difficult to distinguish advantages and disadvantages between children who attend poor quality centers and children who stay at home (Ball, 1994; Clarke-Stewart, 1988,1989; Olmsted & Weikart, 1989; Osborn & Milbank, 1987; Zigler & Hall, 1988). In contrast, when preschool quality is of a high standard (or comparatively higher standard such as shown in the educational settings compared with the care centers in this study) the effects are more pronounced and long lasting (Hadeed, 1994; Howes & Olenik, 1986; Howes & Rubenstein, 1985; Howes, Phillips & Whitebook, 1992; Johansson, 1993; McCartney, K., Scarr, S., Phillips, D. & Grajek, S., 1985; Moss & Melhuish, 1991; Sylva, 1990, 1993; Weikart, 1994).

Discussion and Implications: Children's outcome measures

In Bahrain, there are no signs above the doors designating which preschools offer the different types of care and education, e.g., care-oriented, educationally-oriented, day-care, and so on. All claim to be educationally-oriented and distinctions between teaching practices, management styles, organization, environmental settings, and parental involvement have not been addressed. Emphasis has mainly focused on issues related to maternal-child health and nutrition with a great deal of concern over the physical development of the child (UNESCO, 1993).

This study which tested the effects of participation in three different child care settings (care-oriented centers, educationally-oriented centers and home) rests solely

on a previous classification of preschool settings which measured teacher's attitudes and management practices (Hadeed, 1994; Hadeed, 1993).

Two dynamic comparative questions were considered regarding preschool effects: (1) Is attendance at preschool centers associated with higher performance on children's development when compared to a home group (control)? and (2) Does attendance at educationally-oriented preschools improve the child's performance when compared to children attending a care-oriented center? The evidence in this study clearly answers both questions. The impact of preschool experience is greatest when children attend educational settings. Furthermore, these findings parallel other research evidence linking higher outcomes to long-lasting benefits which are cultivated in high quality preschool learning environments (Andersson, 1989; Field, 1991; Schweinhart et al., 1993; Sylva, 1993; Vandell, Henderson & Wilson, 1988).

For the most part, explanations for the different outcomes measured cannot be directly owed to a unique set of family background variables. Of those factors that were controlled for (Table 1), two made a significant contribution on outcome measures: gender and age. Both require further explanation.

The explanations offered here for the gender differences on some performance measures are not straightforward. The higher scores for boys on the Stanford-Binet assessment runs contrary to most research which shows that girls tend to do better, particularly on language and communication items (Terman et al., 1961; Abu Alam, 1989; Faraj, 1986). While some researchers have linked gender differences in performance to children's different learning strategies (Dweck & Leggett, 1988; Hagglund, 1991; Rutter, 1985), others claim differences are related to early entry into center-based care (Andersson, 1989; Howes, 1988). Gullo and Burton (1992) suggest that gender differences may be owed to a combination of biological traits (maturation levels) which are coupled with social and behavioral expectations in the surrounding school environment. For this study in Bahrain, where more traditional sex-role

stereotypes are reinforced, empirical observation suggests that boys are treated with favoritism in many aspects of social and family life e.g., allowed more independence, accepted for being 'naughty', etc. Previous research carried out in Bahrain confirms this observation showing that teacher's and parent's expectations significantly vary according to gender e.g., girls are expected to be passive, quiet and accommodating while boys are seen as strong, successful and assertive (Al-Fadhel, 1986). Further research from abroad shows that cultural expectations do indeed shape the different ways girls and boys construct knowledge and behave (Lehr, 1982).

The higher perceived competence measures (cognitive and physical tasks, PSPCSA) associated with age are consistent with Harter's theory which states that as children get older (5-6 years) they become more critical of their abilities and the structure of the self becomes more differentiated. As Slipek explains, there is less likelihood of inflated scores owed to fantasies about the ideal self that are reported as children get older. One example in this study showed that children at home (youngest in the sample) tended to overrate their physical competences often stating excellent prowess and agility at climbing and swinging when in fact, not a single home had swings, slides or climbing apparatus (Hadeed, 1994). While Harter (1990) claims children blur the distinction between their actual abilities and wishful thinking until around eight years old, other research puts the age much younger, at around five years (Buller, 1990). This age variability seems considerable and possibly an important consideration for future research. In Bahrain, this research suggests that the distinction is amenable to intervention in the age range of 4-6 years.

In sum, the findings reported in this study coincide with a growing body of research showing that high quality learning provides the optimum conditions for cultivating high levels of self-concept, emotional stability and social relations (Andersson, 1992; Schweinhart et al., 1993; Reifel, 1993).

Further explanations for the differences found between preschool groups is provided in a body of descriptive evidence regarding conditions in the educational environment that support a higher quality learning setting when compared with care settings and home e.g., better staffing ratios; more learner-active; child oriented practices, better working conditions; more person caring interactive behaviors between children and adults; and a more varied supply of facilities. This evidence is contained in two subsequent reports (Hadeed & Sylva, 1995; in preparation): one which measures characteristics of the overall preschool surroundings using The Early Childhood Environmental Rating Scale (Harms & Clifford, 1980) and the other which measures child/adult behaviors using time-sampled observations (The Target Child Method, Sylva, Roy & Painter, 1980).

The findings that the beneficial effect of preschool is strongest in the educational-oriented settings was demonstrated with the recognition of initial higher pretesting scores at study entry . While several research studies on preschool effectiveness have shown considerable variation in pretest scores (Entwisle, Alexander, Cadigan & Pallas, 1987; Lazar et al., 1982; Lee, Brooks-Gunn & Schnur, 1988; McKey et al., 1985) the explanations for differences at study entry are not clear and suggest the need for future research. Some claim that pretest differences may be owed to backgound varaibles that were not controlled for in the experiment. Other possible explanations may be time in treatment prior to pre-testing which is not accounted for in the study; or possible confounding effects from outside preschools experiences such as children attending more than one type of preschool on a daily/weekly basis. This study cannot provide a definitive explanation for the pretest differences. In view of the continued significant progress made by the educational group over time, it seems plausible that some of the variation may be owed to the intervention prior to pretesting. It is also possible that unmeasured home characteristics between groups may have accounted for the pretest differences e.g.,

parental rearing practices, parental choice for care, family support systems; sibling relationships, religious practices, etc. Unfortunately, these factors, often linked to research showing beneficial gains in children's performance, were not investigated in this study.

A unique advantage in this study is its composite profile of instruments. Each instrument was carefully considered for its cultural familiarity in the region (Middle East), previous application (particularly in Arab-speaking samples) and its contribution to a rounded profile which would tap several aspects of development. The advantages of providing a 'rounded' profile assist in describing comparative differences between groups and address aspects of development that often overlap e.g., social and emotional behaviours (Rutter, 1985). Distinctly, a profile of measures rules out the possibility of generalizing results based solely on a single outcome measure. More importantly, though for this study, it provided a framework for future comparative research where none has existed previously in Bahrain.

Having qualified a few of the major concerns surrounding outcome measures, none negate the important differences found in this research. Besides lending further evidence to the body of literature on preschool effectiveness, these results supply numerous implications for improving preschool conditions in Bahrain and may be useful to those responsible for policy and practice in early years education (state and local ministry officials, directors/owners and staff at preschool centers, faculty providing teacher training at the University of Bahrain, and parents). These findings can assist in the on-going and future teacher training programs; provide a yardstick for identifying and dicholomizing various types of preschool provision; aid policy makers in their planning, constructing and implementing future preschool models; and suggest areas of future research needed in the field of early childhood education.

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Table 1. Descriptive statistics for child and family background variables at study entry in three preschool settings (care-oriented centers, educationally-oriented centers and home)

	Care (n=48)		Educational (n=48)		Home (n=44)	
	M	SD	M	SD	M	SD
Initial intake variables (child and family characteristics):						
Child's age	51 5***	4.6	48 0**	4.4	47.0	4 5
boys	49 9	3 3	48 3	4.4	47 3	3 6
girls	52 6**	5 0	47 6	4.5	46 7	5 2
Child's gender						
%boys	40 (19)		50 (24)		45 (20)	
%girls	60 (29)		50 (24)		55 (24)	
Age of mother	23 2	6	24 7	7	25 4	6
Mother's education (in school years)	9 6*	3 4	10 2**	3 2	8 0	3 4
Father's Occupation	3 6	1 9	3 2	1 8	3 9	1 6
% Bahraini nationals (child and parents)	100		100		100	
Months in preschool at study entry	4 5	4 6	3 8	4 7	(preschools only)	
Additional family characteristics:						
% working fathers	95 5		97 6		93 2	
%working mothers	42 2**		40		18	
Marital status						
% of separated or divorced	0		0		0	
% households with live-in relatives	19 5		30 7		40	
% live-in domestic help	52 6**		63 6**		27	

(table continues)

Table 1. Descriptive statistics for child and family background variables at study entry in three preschool settings (continued)

	Care	Educational	Home
Additional family characteristics (con't):			
% homeowners	65	53	50
with gardens	54.6	65 9	40
% mothers who played daily w/child >1hr	70.4	74 9	66
% fathers who played daily w/child >1hr	34	51 2	52 2**
% mothers told stories	83**	82 6**	60
% mother read stories	51**	68**	30
% watched TV daily (children)	40 9	33 3	78.5**
School, Teacher Characteristics:			
Teacher's age			
% less than 20 yrs	17	8	
% 22-29 yrs	67	75	
% over 30 yrs	17	17	
Teacher marital status			
% married	54	55	
% separated/divorced	0	0	
Teacher's education			
% with some training	0	8	
No. of years teaching			
% < 1 year	33	34	
% 1 - 5 years	35	33	
% 6 or more years	32	32	

Note Analysis of variance was used for comparison of initial intake variables Chi-square analyses was used for family characteristics contained in the Family Background Questionnaire (Hadeed, 1994) and the teacher variables measured as part of the data collected in the Teacher Questionnaire/Interview (Hadeed, 1993).

*p< 05 **p< 01 ***p< 001

Table 2. Analysis of Variance for Children's Outcome Measures at Pretesting and Post testing

	Care		Educational		Home	
	pre	post	pre	post	pre	post
Stanford-Binet						
M	88.8	88.5	110.5***	111.7***	87.1**	85.5
SD	6.4	5 9	9.1	8.7	8.9	6.7
WPPSI						
Arithmetic subtest						
M	7 9	7.7	10.6***	11.5***	8 6	7.2
SD	1 6	1 5	2.7	2 5	2 4	2 0
Block design subtest						
M	6.9	5.4	10 8***	10.8***	7 1	6 0
SD	2.6	2 1	2 7	2 7	2 3	2 1
Totals: both subtests						
M	14 8	13 1	21.4***	22 3***	15.7	13 2
SD	3 3	2 6	4 5	4.7	3 7	3.4
Draw-A-Person						
Drawing #1: A Man						
M	78 6	77.9	88.7***	85 6***	78 4	75 3
SD	11 9	10 2	12 2	10.2	15 9	14 0
Drawing #2: A Woman						
M	77 9	77 4	86 6***	83.1***	75 4	73 3
SD	11 0	9 0	10 4	8 6	14 1	12 6
Drawing #3: The Self						
M	76 9	77 8	88 5***	84 4***	75 4	73 9
SD	11 3	9 8	11 8	11 1	14 9	12 5
PSPCSA						
Competence domain						
Cognitive subscale						
M	18 8	19 4	22 6***	23 5***	18 5	18 6
SD	3 4	2.7	1 7	1 0	3 5	3 1

(table continues)

Table 2. Analysis of Variance for Children's Outcome Measures at Pretesting and Post testing (continued)

	Care		Educational		Home	
	pre	post	pre	post	pre	post
Physical subscale						
M	19.3	18.8	22.8***	23.1***	19 5	19.4
SD	3.2	3.2	1 7	1 5	4 0	3 6
Competence subscales combined						
M	38.1	37.9	45 4***	46 2***	37.6	37.9
SD	5 6	4 9	2 8	3.8	6 2	5 5
Acceptance domain						
Peer subscale						
M	16.4	16.1	20.7***	21 6***	18 3	16 9
SD	3 8	3 3	1 9	2 3	2 9	4 1
Maternal subscale						
M	17 6	16 4	21 1***	21 7***	18 7	18 3
SD	3 3	3 1	2 4	2 3	3 2	3 4
acceptance subscales combined						
M	34 0	32 5	41 8***	43 1***	37 0	34 9
SD						
Preschool Behaviour Checklist[a]						
M	8 8**	9 5**	6 5	5 2		
SD	5 8	4 8	3 4	3 2		
% scores > 12	33.6	36 4	4.2	0%		
	(16)	(16)	(2)			
prevalence rates	pretesting	18 8%	post testing	17 6%		

Note Significance levels are based on individual analysis of variance followed by post hoc analyses (df=2 for all analyses except PBCL, df=1 (Fisher PLSD and Scheffe F-test)

[a]significance levels are based on analysis by Mann-Whitney -U test pretesting z(1 96)= - 1 9 p< 001) corrected for ties, post testing z(1 91)= - 4 36 (p< 001) corrected for ties (Siegel, 1988) Numbers in parenthesis indicate actual subjects identified with definate behavioural problems

*p< 05, **p< 01, ***p< 001

Table 3. Summary of Concise, Simultaneous Multiple Regression Analysis Showing Contributing Variable Effects on Child Outcomes Measures

Variable	B	SE	p
Stanford-Binet			
Sex	-2.31	.84	.007
Care-oriented	1.97	1.03	.06
Educationally-oriented	10.21	1.59	.000
Pretest scores	.68	.05	.000
WPPSI: Arithmetic subtest			
Care	.74	.38	.05
Educational	3.32	.39	.000
Pretest scores	.45	.07	.000
WPPSI: Block Design subtest			
Care	-.50	.45	.27
Educational	3.36	.52	.0001
Pretest scores	.41	.07	.0001
Draw-A-Person: totals (Drawings #1,#2 & #3: A Man, Woman, and The Self)			
Sex	-10.24	5.02	.04
Care	10.15	6.11	.10
Educational	18.43	6.49	.005
Pretest scores	.34	.07	.000
Preschool Behaviour Checklist			
Types of preschool provision[a]	-2.8	.56	.0001
Pretest scores	.68	.06	.0001
PSPCSA: Perceived Competence			
Age of child	.18	.08	.02
Educational	5.8	.97	.0001
Pretest scores	.36	.08	.0001

(table continues)

Table 3. Summary of Concise, Simultaneous Regression Analysis Showing Contributing Variable Effects on Child Outcome Measures (continued)

	B	SE	p
PSPCSA: Perceived Acceptance --			
Educational	5 87	97	0001
Pre-test scores	57	08	0001

[a] Preschool groups were compared (care vs educational) only for this assessment