ENCYCLOPEDIA
on Early Childhood
Development

School Completion/Academic Achievement-Outcomes of Early Childhood Education

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Introduction

How does early childhood education influence school success? Early childhood education (ECE) consists of *organized supervised programs with social and educational goals for children (of up to school entry age) in the temporary absence of their parents*, andencompasses a diversity of programs, varying in hours of operation, ages of children and socio-economic status (SES) of families. Examples include part-day preschools, child-care centres, early intervention and family day-care programs.

Subject

If ECE contributes to the achievement of children’s educational potential, then all children should have the opportunity to participate, parents encouraged to access ECE programs for their children and governments should invest in high-quality ECE programs.

Problems

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Families and schools vary greatly in the type of experiences they provide for children, and so do ECE services. The simpler question of whether ECE influences development leads to the more complex question of the optimal qualities of ECE for development. *Assessing and defining quality ECE* is as important an issue as determining its effects.

Research Context

The "War on Poverty" in the 1960s in the U.S., using ECE programs designed to break the cycle of disadvantage for children growing up in poverty, was accompanied by research. These early intervention programs generally involved random assignment of poor children to control and experimental groups, and periodic measurement of IQ, achievement and social outcomes. A few studies followed children into adulthood, allowing assessment of long-term effects. The effects of varying ECE experience on outcomes for ordinary children have also been researched. Such studies are usually quasi-experimental or correlational, and involve the relationship of quality variations to outcomes for children.

Key Research Questions

1. What are the outcomes of participation in ECE for children's school achievement and completion?
2. What qualities of ECE programs are associated with favourable educational outcomes?

Recent Research Results

Long-term educational outcomes: Evidence of the long-term outcomes of participation in ECE has been examined in recent review studies.[1-4] Barnett reviewed 38 U.S. studies focusing on the outcomes of ECE for children in poverty, while Gorey[3] integrated results across 35 preschool experiments and quasi-experiments. The outcome measures of such studies include IQ scores, standardized achievement tests, grade retention, special education placement and high-school graduation. Model ECE programs varied in amount, intensity and duration, but they typically involved participation for one or more years between the ages of birth and five years in high-quality programs. The Abecedarian project is an example of an intensive and long-term (five-year) intervention program.[5,6]

Barnett's reviewshowed statistically significant program effects on achievement beyond Grade Three in five of 11 model programs.[1] The Abecedarian and Perry Preschool projects had effects

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on achievement persisting through to adulthood. The most successful programs were those that started earlier and provided longer and more intense programs.[3,7] The Abecedarian project showed higher cognitive test scores in adulthood for the ECE participants, who gained higher scores on tests of reading and mathematics, had more years of education and were more likely to attend university than the control group.

Most programs reviewed by Barnett reported that grade retention and special education rates were lower for ECE intervention groups. Only nine (out of 24) quasi-experimental studies, however, reported long-term effects on achievement at follow-up. Data on school graduation were collected in five studies, showing that children who participated in these ECE programs were more likely to graduate from high school.

Gorey found that the average intervention effects on standardized measures of intelligence and academic achievement were large.[3] At follow-up, three-quarters of the children who participated in ECE programs scored higher on IQ and achievement tests than comparison children. Even five years after the programs had ended, most participants (74%) were achieving on average better at school than non-participants. Less than a quarter (22%) of ECE participants were held back a grade compared to almost half (43%) of controls. Most ECE participants (74%) graduated from high school, while only 57% of controls did.

There are few studies following the effects of intervention until adulthood, but many follow-up studies in different countries support the positive impact of ECE participation on school achievement.[8] Such studies have been carried out in Ireland,[9] New Zealand,[10] Canada,[11] the United Kingdom,[12] South Korea[13] and Sweden.[14,15]

The nature of quality: Participation in *any* early childhood setting is not sufficient to achieve good school outcomes. Research has demonstrated that quality makes a difference to cognitive development.[10,16-22] There are two main dimensions of quality. *Structural quality* is the observable organizational characteristic of quality (often reflected in regulations). This is a necessary but not sufficient condition for quality.[17] There are three key aspects of structural quality, described as “the iron triangle” (to describe their importance and inter-relationship).[23] The iron triangle includes group size,staff-child ratios and teacher qualifications. Other structural factors are staff wages and low teacher turnover.[8,22,24,25]

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Process quality involves the social relationships and interactions within early childhood settings. [20] Sensitive teachers, who are quick to comfort children, respond to their initiations, know them well enough to interpret their actions, challenge them and mediate peer relationships, support learning. They do not employ punitive or controlling methods or remain detached from children. [26,27]Structured and teacher-directed curriculum models have been associated with poorer long-term outcomes compared to more child-centred approaches.[28,29]

Conclusions

High-quality, intensive ECE programs have positive effects on cognitive development, school achievement and completion, especially for low-income children in model programs designed to ameliorate poverty. Other evidence comes from a wider group of children participating in publicly funded programs. Young children learn best through engaging in spontaneous and reciprocal interactions, meaningful activities and caring relationships. ECE should be carefully planned, staffed by skilled and trained people and involve small groups with favourable staff-child ratios if it is to have positive effects. Program intensity is related to the amount and quality of teacher interaction and class size. Participating in stimulating, warm and responsive ECE programs supports children's excitement and pleasure in learning and encourages ongoing engagement in learning activities.

More resources should be invested in ECE centres. ECE is not usually compulsory and receives less government funding than education for older children. Policies should be developed to encourage widespread participation in ECE by children from diverse backgrounds, to ensure accessibility and affordability. High priority should be given to the improvement of ECE quality, for example through ensuring a supply of qualified teachers and providing good remuneration to retain them. Parents should be provided with guidance so that they recognize and choose good ECE centres for their children. If high-quality care is not available parents cannot choose it, so it is essential for ECE provision to be planned in accordance with the needs of local communities and high standards of quality.

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