



Encouraging Quality in Early Childhood Education and Care (ECEC)

RESEARCH BRIEF: RESEARCH IN ECEC MATTERS

What is research in ECEC?

Research in ECEC refers to studies and analyses on any issues related to the early education and development environment of children in ECEC centres. Both qualitative and quantitative research has been undertaken in the field of ECEC with different methodological approaches. A brief overview is given below, to be detailed in later sections.

Qualitative research

Qualitative research provides an in-depth analysis of a topic in ECEC, often based on small samples since in-depth studies can be very time consuming. Different approaches in collecting data for qualitative studies include *case studies*, *narratives*, *ethnography*, etc., and most often include *interviews* or *observation techniques*. Within ECEC, the research focus is often placed on topics such as how child developments are facilitated; how staff and parents interact with children and how these different interactions are related to child development; how positive interactions can be facilitated for staff and parents; how staff job satisfaction or parental satisfaction is affected; etc.

Quantitative research

Standardised measures and other measures that can be numerically coded, administered on a large scale and analysed statistically are used in quantitative research. Some examples of quantitative research methods include:

Descriptive statistics in ECEC. These can help us establish facts and report trends, such as the number of places, number of hours, spending on ECEC, and types of verbal communications that take place in different family types (social benefits, working class, professional families, etc.).

Correlational studies in ECEC can tell us about relationships, controlling for the effect of other factors to some extent. A research question in a correlational study can be as follows: if participation in ECEC has a positive correlation with child development regardless of children's family backgrounds, which of the quality indicators may have bigger effect sizes on child development? Correlations cannot prove a causal relationship, that is, what causes or has a proven direct effect/impact on child development.

Experimental research can most likely support strong conclusions on causal effects, controlling for certain factors or aspects which can influence the outcomes while holding other variables constant. For causal questions (e.g., "Does this policy or programme improve child outcomes?"), large scale randomised trials or quasi-experiments with at least some longitudinal follow-up are usually preferred. However, the administration of research and analysis is costly and time consuming. *Cost-effectiveness and cost-benefit analyses*, in particular, compare policies and programmes to evaluate their efficiency from an economic

perspective. Sound economic analyses require strong underlying studies of programme impacts and cost studies, such as studies which calculate the return on investment in certain ECEC programmes.

What is at stake?

Globally, ECEC enrolment rates have grown substantially since the 1960s. Simultaneously, expenditures on ECEC programmes have grown greatly to support this increase. As a consequence, there is a growing need for policy makers (and other stakeholders) to be informed of programme effectiveness.

ECEC policies are designed and implemented with certain goals in mind. Policy goals for ECEC can include: decreasing inequalities in learning and development between different groups of children (with particular concern for immigrant and other disadvantaged groups); tackling poverty; improving child development, educational achievement and attainment in general; supporting women's participation in the labour force; advancing work-life balance; and increasing fertility rates. The extent to which these goals are actually furthered by ECEC policy remains often unknown. There is also a growing need for practice to be informed by research, in order to ensure and enhance the quality of ECEC services for children, staff and parents (OECD, 2006). Research can provide insight into these issues. Without research, evidence-based policy making, which can lead to greater policy effectiveness and cost-efficiency, would be impossible; and little would be known about the effects of ECEC policies and programmes.

Why does research in ECEC matter?

Evaluating ECEC programmes for improvement and accountability

Research can provide insights into why some programmes succeed and others fail as well as what improvements might make them more effective. As the number of ECEC programmes grew over the last half century, evaluation research developed as a means to improve public policy and practice. One impetus for public investments in ECEC has been research on the short- and long-term benefits of ECEC for children, families and society.

Justifying ECEC investment in improving quality

Political and public support for ECEC depends to some extent on research evidence that ECEC programmes produce desirable benefits on a large scale (OECD, 2006). In the past, ECEC policies have tended to be more focused on improving quantity than quality. More research is needed today to establish the value of quality and to identify the most productive investments in quality improvement so as to increase ECEC programme effectiveness and return on investment.

Improving ECEC practices through evidence

Evidence-based practice is advancing in medicine, psychology, social work and education. These fields seek to have practice informed by the best current scientific evidence rather than relying on theories and beliefs. Practitioners' experiences, contexts and values play important roles in decisions about practice, but evidence-based practice relies more heavily on research findings to guide effectiveness (Slavin, 2002; Thomas and Pring, 2004).

What types of research are commonly carried out in ECEC?

Countries such as Belgium, Finland, France, the Netherlands, Norway, Sweden, the United Kingdom and the United States have established well-co-ordinated research agendas, linked to data systems and government-university agreements. Although research in ECEC is growing rapidly, much advancement is needed (OECD, 2006). The following types of research are most usually undertaken – although the favoured research methodologies and themes can vary greatly from country to country.

Country-specific policy research

Country-specific policy research investigates policy questions for national administrators. This type of research is often funded directly by governments and frequently focuses on programme or policy evaluations. In some countries, a number of university departments or private agencies engage in this type of research. There has been a growing interest in this type of research in ECEC, although some caution needs to be taken in applying findings from country-specific research to other countries or cultures (OECD, 2006).

Large-scale programme evaluations

Programme evaluation is designed to assess the effectiveness of a programme. Its aims include: 1) programme improvement; 2) accountability; 3) assessment of value for money; and 4) assessment of the utility of particular aspects of a programme. Examples include the evaluations of Head Start (the United States), Sure Start, the Effective Provision of Pre-School Education (EPPE) project and the Neighbourhood Nursery Programme Evaluation (England, United Kingdom).

Experimentation and quasi-experimentation with random sampling are the strongest designs for assessing impact. However, critiques include: 1) technical (*i.e.*, selection of unbiased samples), ethical and political difficulties, that is, difficulties to set up a control group which does not take part in the programme through random sampling when the intervention is believed to have a positive impact on early development; 2) large amounts of resources required; 3) full implementation of the programme required; 4) lack of information on how the programme achieved its effects; and 5) focus on easily measurable results rather than important, less quantifiable goals (Meisels *et al.*, 1996; Wortham, 2004)

Results may or may not have a direct impact on decision making, depending on the interactions between research, politics and policy making. When followed up with a longitudinal approach, the confidence level – the level at which findings are statistically significant – improves, and the possibility of having an impact on decision making increases.

Longitudinal studies

Longitudinal studies have been initiated in several OECD countries but are funded more frequently in the United States. Longitudinal studies involve repeated observations of the same sample over long periods of time and aim to investigate the effectiveness of ECEC programmes and long-term outcomes (OECD, 2006). Frequently cited studies include: the High/Scope Perry Preschool Study, the Chicago Parental Centre Programme, the North Carolina Abecedarian Programme, National Institute of Child Health and Human Development studies, and the Cost Quality and Child Outcomes Study of the United States; Competent Children/Learners of New Zealand; and the EPPE study of England (United Kingdom). These studies have contributed to clarifying, for example, quality indicators and their effects on child development, or the associations between family backgrounds and child outcomes (including educational, health or labour market and economic outcomes). The temporal aspect of longitudinal research allows time for both children and programmes to mature, showing how immediate outcomes from programmes may change over time (Chatterji, 2004).

Comparative, cross-national research

Comparative, cross-national research identifies specific policies and practices from which people in other countries can draw inspiration. Its intention is not to identify “models” for imitation or to construct league tables, but to assist policy makers to think more broadly and critically about ECEC. It reveals important differences in management and practice, for example, the wide range of public funding or staff-child ratios practised across different OECD countries. The awareness of such differences can lead to a reassessment of domestic policy and provide an impetus for further research on important issues, such as

funding patterns or the relative importance across countries of literacy and numeracy practices. Examples of comparative cross-national research include policy reviews, such as the OECD thematic reviews, peer-learning efforts, such as the OECD Network on ECEC, or socio-cultural/socio-economic analyses. Socio-cultural and socio-economic analyses aim to understand the context of ECEC in different countries. Such analysis helps countries understand the policy environments of their ECEC systems as part of the larger socio-economic structures or current labour market organisation. An example of such an analysis is gender studies on maternal employment and gender equality in the ECEC workforce (OECD, 2006).

Neuroscience and brain research

Over the past decades, the research focus on young children has shifted from what is fixed by genetics to what can be influenced by environments. Recent neuroscience research has indicated that the child development process is “experience dependent” and requires social interactions and structured experiences (OECD, 2006).

Some of the most relevant findings include (OECD, 2006):

- The capacity to learn is most sensitive during the first four years of life;
- Interactive environments enhance brain development;
- Learning is strongly connected to socio-emotional development; and
- Children continuously build understanding in interaction based on their prior experiences and new information.

What research matters most to inform policy and practice?

Furthering research on the effects of quality indicators on child outcomes

The impacts of structural factors should be sufficiently researched before implementation, since it can greatly contribute to evidence-based policy making and benefit child development. As explained in “Research Brief: Minimum Standards Matter”, structural quality aspects, such as staff-child ratios, staff qualifications and minimum space (and others), affect children’s learning outcomes as well as practitioner’s effectiveness.

Although such quality indicators can impact child outcomes, studies show that ECEC effectiveness also depends largely on the competences of staff (see “Research Brief: Qualifications, Education and Training Matter”) and the support of a curriculum (see “Research Brief: Curriculum Matters”).

Comparing different intervention types

There are multiple avenues for improving child development and outcomes. Comparison of different effect sizes by different intervention types could help make an informed policy choice and contribute to increased knowledge on the effects of different programmes. Table 1 compares effect sizes among different interventions: 1) nutrition services, 2) cash benefits and 3) ECEC. For cognitive and schooling outcomes, the effect size is the largest for ECEC, while nutrition services have the largest effects on social outcomes. To improve health outcomes, nutrition provision and cash benefits have larger effects than ECEC.

Table 1. Effect magnitudes by type of early childhood development policy

Percent of 1 standard deviation

	Nutrition	Cash Incentives	ECEC
Cognitive	.26	.17	.35
Social	.46*	.21	.27
Schooling	.11	---	.41
Health	.38	.38	.23

Note: *only 1 study in this category.

Source: Nores and Barnett (2010).

Comparing different pedagogical strategies and programme approaches

Research projects like the European Commission supported INCLUDE-ED seek to promote better practice by facilitating knowledge exchange between practitioners and stakeholders more directly. Identifying well-performing institutions and interviewing practitioners can encourage rethinking about practices and broaden perspectives. This can be used to define quality in ways that guide practice. One approach is to provide a balance of teacher-directed and child-initiated activities (see “Research Brief: Curriculum Matters”). Another is to ensure a reasonably high ratio of staff to children and use of small groups to facilitate individualised interactions between staff and child (see “Research Brief: Quality Goals Matter”).

Research on special needs education and early intervention can identify more responsive pedagogical approaches that can mitigate further disadvantages, and curricula that help tackle disabilities (OECD, 2006). Successful inclusion of children with special needs requires attention to the organisation and management of ECEC settings, in particular, the adaptation to the needs of children, the hiring or allocation of specialised staff, and more flexible organisation of group sizes and rooms to cater for specialised sessions. With intense early intervention, some adverse effects can be reversed or even prevented for much less than it costs to provide special services later.

Furthering research on practice and process

Research on practice and process, sometimes referred to as “action” or “practitioner research”, is a valuable mode of research in that it enables staff to reflect systematically on their own practice. Some researchers express reservations about this type of research, claiming that its methods are rudimentary and that it lacks rigour and reliability. However, if carried out by practitioners with the support of university research departments, methodology and reliability can be ensured. As a practice, it also models a major aim of ECEC: to encourage participants to build theories and to experiment and reflect on their environment in a democratic and mutually supportive way. Practitioner research has high value as a tool for professional development because of the clear methodological links to pedagogy, reflection and quality improvement processes. A possible weakness is that many of its valuable findings and insights remain at the local level and are not passed upward to ministries in a systematic way, unless ministries are proactive in keeping open lines of communication (OECD, 2006).

What are the policy implications?

Setting out research frameworks with sustained funding to support long-term policy goals

If research is to guide policy and practice, it is important to set out a long-term framework for ECEC policy research (OECD, 2001). Without a stable research infrastructure and long-term funding, it is difficult for

research to inform policy and practice, especially by advancing national or international research on a large scale. This will require political will to invest in research and have policy and practice guided by research.

Furthermore, the potential for local research to inform practice also seems considerable. ECEC programmes have several strong traditions of practitioner research or inquiry, including Reggio Emilia, reflective practice and other forms of participatory self-evaluation. However, with a few exceptions, national support for practitioner research is weak (OECD, 2006). Effective use of research to inform practice needs to be combined with a planned research agenda; training opportunities for conducting ECEC research; development of evaluation instruments; and procedures sensitive to the country-specific contexts (OECD, 2001).

Advancing quality in qualitative research

In qualitative research, the difficulty remains in the explicit justification (and consequences) of the choice in design and methodology. For example, case studies on children's interactions are so rich in example and detail that they provide the perfect basis for professional reflection and can support ECEC staff to better support a child's learning and development (Jensen *et al.*, 2007). However, the lack of co-ordination in research has resulted in literature that is often haphazard and contains so few randomised trials or other approaches capable of clearly identifying effects that we still know very little about the effects of different programme features or staff behaviour.

Supporting rigorous quantitative research and meta-analyses

Decision making should rely on an entire body of research rather than the latest single evaluation or study. To ensure that there are enough studies for useful summaries, the number of rigorous studies supported must be increased. Research quality makes a difference: in some circumstances, poor quality studies seriously underestimate programme impacts; and other times, poor quality studies greatly exaggerate impacts (Camilli *et al.*, 2010; Nores and Barnett, 2010). Integrating research and practice will help greatly if the focus is on longitudinal studies with sufficient rigour and sample size (Jensen *et al.*, 2007). An important function of a good review is to evaluate the quality of the evidence and report the extent to which findings differ based on the methodology used.

Governments should create and support systematic research frameworks focused on key issues of policy and practice. Systematic programmes of research designed to build information over time on policies and programme features (particularly those that are costly) would be particularly useful. Such a programme would prioritise the study of policy or programme features that are readily manipulated by government and have some evidence already linking them to effectiveness. It may be more efficient to test coherent sets of policies or programme features rather than to examine each individually.

The ECEC field should integrate research and practice by adopting an experimental approach to policy and programme development where innovations are systematically tested in randomised trials before being adopted system wide. The information generated would be increased if these studies could be linked to existing large-scale data systems (birth cohort studies; education, social welfare and administrative tax records; and national surveys – see “Research Brief: Data Collection and Monitoring Matter”). Place-based randomised trials may sometimes be used when it is not desirable to randomise individual children and families. For example, at the national level, a new ECEC programme or approach could be rolled out in randomly selected communities before a decision is made to implement nationwide. At the local level, alternative curricula might be compared with neighbourhoods or local programmes randomly assigned to one or another before a decision is made to adopt one new approach throughout a city or region.

Expanding research agendas to include disciplines and methods currently under-represented

Starting Strong (OECD, 2001) notes the dominance of concerns and methodologies derived from mere programme evaluations and developmental psychology in ECEC research. While this focus is deemed important for ECEC, a wider research perspective using other disciplines is also needed. Anthropology, sociology, public policy, gender studies and learning theory are cited as disciplinary bases to be researched from which pertinent policy and practice could be developed. Cross-country studies are also seen as useful for assessing the impact of different policy initiatives.

Making research accessible to policy makers and practitioners

It is important to train policy makers, administrators and teachers in the interpretation of research and research summaries as well as to train researchers to be able to explain research results in non-technical language. The translation of research summaries and reports of study findings into forms more easily accessed by practitioners is of particular importance. It is also important that research be widely disseminated to improve the theoretical and methodological contributions of research through constructive criticism and feedback (Jensen *et al.*, 2007).

Up-to-date research findings can help guide practitioner behaviour if well understood and supported. High-quality ECEC services require a combination of structural aspects and competence of practitioners to use their own knowledge in order to support and stimulate children's development in different learning areas. Staff also need good content knowledge in a variety of areas, knowledge of how to direct a child's attention on a shared object for learning and communicate this with the child in a reflective way (Pramling and Pramling, in press; Sheridan 2001; Sheridan *et al.*, 2009).

Advancing and disseminating research in international communities

International co-operation can greatly facilitate the production of useful research summaries to guide practice. The inclusion of common measures and the use of common reporting conventions would be particularly helpful. Also useful would be the translation of studies and research summaries into multiple languages.

What is still unknown?

Research on children's spaces and environments

An important indicator of quality is the level of investment in, and the appropriateness of, early childhood buildings and learning environments, both indoor and outdoor. This is generally admitted from a health and hygiene perspective but is not always understood from an educational perspective.

The study of children's spaces and environments is a growing area of research in both the United States and Europe (Finland, Italy, the Netherlands, Norway, the United Kingdom, etc.). Cross-country comparisons have been useful in calling attention to this issue, e.g., questioning the assumption that "serious" learning and education of young children can only take place indoors, compared to the strong outdoors approach of the Nordic countries. The growing inclusion of children with disabilities has alerted school designers and architects to the fact that, in many countries, few buildings have access for disabled children and are often poorly designed for group work and children's activities (OECD, 2006).

How to optimise ECEC effectiveness

To inform policy and practice, there must be a sufficient body of rigorous and relevant evidence. Much of the most rigorous research to date has focused on whether or not ECEC participation has positive effects

rather than on quality and its impacts. It is unclear how much specific guidance research will be able to provide regarding quality. A great deal remains to be learned about how to optimise ECEC effectiveness.

Effectiveness of universal vs. targeted interventions

Although immigrant and disadvantaged children appear to benefit more from ECEC than others, they also appear to benefit more when they attend ECEC with the general population. Whether targeted or universal programmes offer more benefits for their cost could be clarified by additional research.

Research on effective interventions for children with diverse backgrounds

Increased patterns of migration can have profound consequences on the daily functioning of institutions (Jensen *et al.*, 2006). Research on the ways to integrate diverse populations is lacking, yet it is of utmost importance. A related issue that needs clarification is the best way to address language development with immigrant populations, in particular, how to provide dual language immersion cost-effectively. In general, there is relatively little information on the costs of policies and programmes and even less on the economic return on these expenditures outside of North America. Such information is vital for making sound policy choices at the national level and for programme design at the local level.

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