

## What can research evidence tell us about:

# What is the impact of Early Childhood Education?

### *Key messages*

- ❖ High-quality Early Childhood Education (ECE) has had several positive benefits, for example:
  - Improved school performance, reduced class retention, school completion, and improved health outcomes among learners.
  - Increased social skills, lower high school drop-out rates, and reduced crime.
  - Outcomes for the society and mothers, might include increased employment rates and higher future earnings.
- ❖ The implementation of ECE is context-specific and complex, which affects the extent of outcomes seen, e.g.,
  - Children from low-income families would possibly have higher gains when exposed to high quality ECE. However, these gains were not observed in low-quality ECE.
  - Duration of ECE possibly has different outcomes on boys and girls depending on the quality of teacher-child interaction.

## Where did this Rapid Response come from?

This document was created in response to a specific question from a policymaker in Uganda in 2023.

It was prepared by the Center for Rapid Evidence Synthesis (ACRES) at the Uganda country node of the Regional East African Community Health (REACH) Policy Initiative.

### Included:

- **Key findings** from research
- **Considerations about the relevance** of this research for health system decisions in Uganda

### Not included:

- Recommendations
- Detailed descriptions



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## **Summary**

### **Background:**

Early childhood Education (ECE) is fundamental in a child's cognitive, learning, social-emotional and physical development. Given the benefits of ECE, factors such as the quality of ECE and other individual, family and community factors might influence the impact of ECE. In Uganda, there is scarce research evidence and data to evaluate the impact of ECE despite efforts to improve its implementation. It is therefore important to understand the contextualized outcomes of ECE for further policy discussions.

### **Rapid Response Question:**

*What is the impact of Early Childhood Education?*

### **Summary of findings:**

There are many benefits or positive outcomes for children who participate in Early Childhood Education with the highest gains among children from low-income families. However, good quality ECE is key for successful ECE programs. The outcomes of ECE include;

- Children who experienced longer durations of ECE (at least 2 years) and increased intensity of 8 hours in class were more likely to have small to medium gains in mathematics scores at primary and high-school levels of education. However, the improvement in mathematics scores reduced over time.
- Children who participated in ECE, especially before 2 years were more likely to have increased scores in literacy and reading. However, the scores may reduce as the child progresses to the next level of education.
- Children with ECE experience were more likely to have medium to large gains in school performance scores such as higher grades at school leaving tests, reduced rates of class repetition and fewer school-drop outs. However, those in low-quality ECE may have low school performance scores.
- Children with developmental challenges, such as those with special needs like autism, Down's syndrome, or cerebral palsy, were more likely to join primary schools with other children.
- Children who start early earlier and have longer ECE experience in high-quality ECE centres were more likely to have increased interest and participation in learning even at other levels of education.

### **Conclusion:**

Early Childhood Education participation is highly associated with positive outcomes with the highest gains for children from low-income families. However, the outcomes of ECE tend to grow weaker, especially with poor-quality ECE. Enhancing the quality of ECE, starting at an early age (before 2 years) and longer years (at least 2 years) of ECE experience is important to achieve better and longer positive ECE outcomes.

## Background

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Early Childhood Education (ECE) contributes to the holistic development of a child. The International Standard Classification of Education (ISCED) defines ECE as the initial stage of education programmes before primary education. ECE includes education programs that aim to stimulate a child's cognitive, learning, socio-emotional and physical development and excludes programs providing only services like feeding and supervision [1]. Uganda's National Policy on Education recognizes ECE also known as the pre-primary level of education for children up-to eight years, including daycare centers, home-based care centres, community centres and nursery schools [2].

Childcare advocates have argued that ECE has dramatic and long-lasting positive outcomes, such as reducing the inequity among children from different social economic backgrounds [3]. However, questions have been raised about the generalizability and duration of outcomes in different contexts. For example, questions on the quality of primary education raise doubts about the longevity of the positive outcomes. Also, it is important to tease out the impact of ECE from other social interventions or exposures. In addition, it might not be certain if ECE might have any unintended negative effects on the learner.

However, there is a scarcity of research evidence and data to evaluate the impact of ECE in Uganda despite efforts to improve implementation, e.g., approving relevant ECE policy and curriculum. Upon this concern, the Uganda National Institute for Teacher Education (UNITE), an entity central in the implementation of the National Teacher Policy requested for evidence on the impact of Early Childhood Education. The evidence will inform the discussions with the policymakers on the Early Childhood care and Education policy.

**Rapid Response Question:** *What is the impact of Early Childhood Education?*

## Summary of findings

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In this rapid response brief, we summarise evidence from literature comparing the impact of ECE among children attending ECE and not. It is however important to first review the element of quality as it is central to ECE's contribution to the positive outcomes for children.

Quality is characterized as; process quality and structural quality [4].

### How this Rapid Response was prepared

After clarifying the question being asked, we searched for systematic reviews, local or national evidence from Uganda, and other relevant research. The methods used by the SURE Rapid Response Service to find, select and assess research evidence are described here:

[www.evipnet.org/sure/rr/methods](http://www.evipnet.org/sure/rr/methods)

- i) Process quality refers to interactive and actual experiences that children have within ECE. The elements of process quality include; play-based pedagogy, Child-teacher interactions, family (parent or caregivers) and community engagement.
- ii) Structural quality refers to characteristics of programs that are easier to regulate and are often influenced by external factors. The elements of structural quality include; specialized teacher training and opportunities for continuous professional development; a safe, large and healthy [access to drinking water, handwashing and toilet facilities] physical space and low Pupil-teacher ratio (lower and manageable number of pupils).

### **The impact of Early Childhood Education.**

Many studies indicate that children from low-income families have the highest gains from ECE especially if it is of high-quality. The outcomes of ECE a short, medium or long-term. These include; [4-9]

#### **a) Cognitive outcomes**

Cognitive outcomes include outcomes related to the learning assessment, such as mathematics, literacy and reading scores, and also school performance, such as class repetition, special education placements, and grades at leaving primary education.

Generally, children with experience of high-quality ECE are more likely to have more positive cognitive outcomes than those without experience.

Depending on the outcomes, the strength of positive change will likely change after accounting for environmental situations, such as teachers' qualifications, maternal education, and family-Income.

#### *Mathematics assessment*

- The gains in mathematics scores were small to medium among children who experienced ECE, with an average of at least 8 points higher than children without ECE experience. There was a longer consistency of better mathematics scores at primary and high-school levels of education among children who experienced longer durations of ECE and increased intensity of 8 hours.
- The highest score for children with ECE experience was observed during attendance and primary school entry.

- The improvement in mathematics scores reduced over time. However, there were more substantial effects in the early stages of high school.
- Children living in poverty had the most extensive positive improvements in mathematics assessments.
- Children from low- and high-income families experience different degrees of change depending on the quality of their ECE experience. When children from low-income families experience low-quality ECE, they will have no significant or negative benefit. However, the children from high-income homes performed better if they attended. This was attributed to the different assessments of quality for the ECE experienced by children from low- and high-income families.
- Teachers' professional development, background education and parental support significantly changed the benefits of the children with ECE.
- The degree of quality changed for countries, which affected the impact level. In countries where high quality did not differ much from low quality, there was almost no impact on mathematics tests for children who experienced ECE.

#### *Literacy and reading assessment*

- Children with ECE experience were more likely to have increased scores in literacy and reading by at least two percentage points. The quality of ECE did not have any impact on the scores. However, there was a wide variation in the degree of benefits from small to large depending on family income, gender, duration of ECE and the teachers' level of education.
- The degree of benefits reduces with increasing levels of education. For example, children had more considerable benefits at primary school entry compared to high school.
- Children who started ECE earlier were likely to have longer-term benefits than those who did not or had short periods of ECE.
- Children who experienced high-quality ECE had better reading and literacy scores regardless of context.

#### *School performance: Class repetition, special education placements, and performance on school leaving tests.*

- Generally, children with ECE experience had medium to large positive benefits on a combined school performance score, including class repetition, special education placements, and grades on school leaving.

- The level of school performance increased with the increasing quality of ECE. Children with ECE experience of low ECE quality had low positive scores. In contrast, those with medium quality had medium positive scores and those with high quality had high positive scores.
- Consistently, children who experienced any ECE had reduced levels of class repetition and were more likely not to drop out of school because of performance or frustrations.
- Children with developmental challenges, such as those with special needs like autism, Down's syndrome, or cerebral palsy, were more likely to join schools with other children when identified earlier for ECE. Children with special needs are often placed in special schools that are often non-inclusive.
- On average, children who experienced ECE were likelier to have higher grades at school leaving tests than those without ECE experience.

#### **b) Learning dispositions and social-emotional outcomes**

Learning dispositions are characteristics or attitudes with which children approach learning which include; motivation, independence, concentration, confidence and perseverance. Learning dispositions also include social-emotional behaviours such as empathy, tolerance to frustration, self-control and the ability to work with others.

- Children who participated in high-quality ECE were more likely to have increased interest and participation in learning even at other levels of education. However, the gains are more with qualified teachers and low pupil-teacher ratios.
- Children with ECE experience were more likely to have reduced anti-social behaviours. Anti-social behaviours are actions that hurt others either emotionally or physically. These include; how frequently the child fights, gets angry, argues, theft and verbal abuse.
- Children who start early (ages 2 and 3), longer ECE experience for at least 2 years and attended high-quality ECE were less likely to drop-out of school
- Boys as compared to girls in high-quality ECE were found to be more protected against anti-social behaviours. In the long run, the rates of juvenile arrests were likely to reduce.
- Children who are at risk of physical aggression i.e. whose mothers have low levels of education and are from stressful homes were more likely to have a reduced effect of physical aggression.

- Frequent parental visits to the ECE centre and parental involvement in school meetings seemed to significantly reduce anti-social behaviours among children.
- However, the influence of peer groups at school was most likely to reduce the consistency in the learning dispositions and social-emotional outcomes.

### **c) Child Health Outcomes**

Most of the research around child health outcomes has been on the mental health of children. With high-quality ECE experience, children especially those from stressful homes were more likely to have reduced cortisol(stress) but in a short term.

- However, children less than 3 years and those attending full/all-day care were more likely to have higher cortisol levels.
- Additionally, high levels of infections were more likely to be experienced by children attending ECE.

### **Other unintended ECE Outcomes include;**

- d)** Increased maternal employment. Mothers with children participating in ECE were more likely to have more employment opportunities. This further increased the overall family well-being especially for disadvantaged children.
- ECE participation was likely to increase the skills and qualifications of teen mothers as they got an opportunity to go back to school.
  - However, full maternal employment or longer working hours was not really possible with infants/toddlers and ECE centers that provide half-day services.
  - Reduction in ECE costs especially for low-income mothers was more likely to increase employment rates.
- e)** Increased employment opportunities for children who attend ECE when they reached adulthood.
- f)** Long-term economic returns through gains from taxation and lower public expenditure on curbing down crimes.

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## Conclusion

Early Childhood Education participation is highly associated with positive outcomes with the highest gains for children from low-income families. ECE participation is likely to lead to; improved scores in mathematics, literacy and reading, improved school performance (reduced class repetition, school completion and reduced special needs placements), increased social skills and fewer juvenile arrests. Other unintended outcomes include; increased employment rates and earnings of an individual, increased maternal employment and reduced economic costs on crime prevention. The outcomes of ECE are complementary with some outcomes such as learning dispositions i.e. independence and concentration associated with higher cognitive gains at the start of primary school. Generally, the outcomes of ECE tend to grow weaker with poor-quality ECE. Enhancing the quality of ECE, starting at an early age (before 2 years) and longer years (at least 2 years) of ECE experience is important to achieve better and longer positive ECE outcomes.

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## What is a Rapid Response?

Rapid Responses address the needs of policymakers and managers for research evidence that has been appraised and contextualised in a matter of hours or days, if it is going to be of value to them. The Responses address questions about arrangements for organising, financing and governing health systems, and strategies for implementing changes.

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## What is ACRES?

**ACRES** – The Center for Rapid Evidence Synthesis (ACRES) is a center of excellence at Makerere University- in delivering timely evidence, building capacity and improving the understanding the effective, efficient and sustainable use of the rapid evidence syntheses for policy making in Africa. ACRES builds on and supports the Evidence-Informed Policy Network (**EVIPNet**) in Africa and the Regional East African Community Health (**REACH**) Policy Initiative (see back page). ACRES is funded by the Hewlett and Flora foundation. <http://bit.do/eNQG6>

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## ACRES' collaborators:



## Regional East African Community Health Policy Initiative



## EVIPnet

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## Glossary

of terms used in this report:  
[www.evipnet.org/sure/rr/glossary](http://www.evipnet.org/sure/rr/glossary)



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