



AGA KHAN FOUNDATION

Learning about Learning

Reflections on Studies from 10 Countries



AN AGENCY OF THE AGA KHAN DEVELOPMENT NETWORK

Cover: Reading for Children (RfC) programme in Bihar, India. *Photographer: Mansi Midha*

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FOREWORD

The Aga Khan Foundation (AKF) is part of the Aga Khan Development Network (AKDN), a group of non-denominational development agencies whose mandates range from the fields of health and education to architecture, culture, rural development and the promotion of private-sector enterprise and civil society. Its agencies and institutions, working together in some of the poorest parts of South and Central Asia, Africa and the Middle East, seek sustainable solutions to long-term development problems. These solutions are developed with, and draw upon, the capacity of people to shape and improve their own lives. As such, education serves as the foundation for AKDN's efforts to promote positive social change. It is integral to the well-being of individuals, communities and nations.

The Aga Khan Development Network has long placed particular emphasis not only on access but also on quality and outcomes for students – whether they are in Aga Khan schools or universities or are in public or other non-state systems. It does this through building capacity and developing local systems and institutions in partnerships with governments, civil society organisations and academic institutions. AKDN prioritises analysis and learning, both in its own programmes and those of others, and seeks to use this learning to influence policy and practice. This review focuses on synthesising and reflecting on what we have learnt from research in 10 countries where AKF and its sister AKDN agencies support programmes.

With momentum building with regard to the post-2015 Millennium Development Goals, there is increasing emphasis within the current education discourse on learning outcomes. This is also reflected in the UN Secretary-General's new Education First initiative. An unintended consequence of the education-focused Millennium Development Goals was that attention was placed on completion of primary school rather than on where efforts were breaking down (right at the beginning) and whether or not children were learning anything. A slew of studies in the last few years have made it clear that the majority of children in many low-income countries become established in persistent patterns of under-achievement and leave school with few useful skills. This is costly in both human and financial terms, and represents a serious inefficiency within education systems that has received far too little attention. A growing number of AKDN's programmes and research studies now focus on this issue – not only as it relates to expanding provision of a range of early childhood supports to children and families but also, and critically, to improving learning in early primary classrooms.

*AKF staff have written and commissioned a number of papers and chapters highlighting the issues involved in early transitions including *Is Everybody Ready?* (2007)¹, *Transitions-Perspectives from the Majority World* (2010)² and *Improving Learning Achievement in Early Primary in Low-Income Countries* (2010)³. The current publication, authored by Dr. Sheridan Bartlett, complements these. It provides a synthesis of each study, most of which used quasi-experimental methods, and of the key findings, especially in terms of children's learning. The author also reflects on what can be learned from these studies both individually and as a group. She examines what we have learnt in terms of the key findings within and across countries and how these connect with the wider research literature in this area. Equally importantly she also reflects on what we have learnt about how we do research. She points to the need to make the most of a range of opportunities to learn from programmes using various sources of data and from qualitative as well as quantitative methods. This links to a forthcoming journal article by the same author, commissioned by AKF, entitled "Reflections from the Field on the 'Gold Standard'", which focuses specifically on some of the knotty questions surrounding randomised control trials and quasi-experimental methods for assessing education programming.*

Children growing up in the countries where AKDN works need to develop multiple skills during the course of their lives. Key competencies which are needed in addition to vital literacy and numeracy skills are adaptability, innovation, problem-solving and communication, as well as responsible citizenship and respect for diversity. Whether or not expanded access to educational opportunities translates into meaningful development – for either the individual or the society – depends on child rearing and teaching practices which foster this. We hope that this publication may contribute in a small way to increasing opportunities for children’s effective learning and overall development.

*Caroline Arnold
Director, Education
Aga Khan Foundation
Geneva, Switzerland*



INTRODUCTION

The early years of life, into the first few grades of school, are widely recognised to be the most critical period for learning and lifelong achievement. Investment in these early years is also known to be highly cost-effective,⁴ and indeed one of the most promising approaches to reducing poverty and achieving equity.⁵ Getting things right in early childhood can eliminate a lot of more intransigent problems later on. Yet, in one of the great ironies of development, strong early childhood programming and appropriate support for the first few years of primary school are the exception rather than the rule. Access has increased, without question. But the vast majority of children, most of whom are poor, still have no access to early childhood programmes, let alone high-quality pre-school. Transition to genuinely supportive early primary classrooms remains equally out of reach for most of the disadvantaged children in the world, as is reflected in their high drop-out and repetition rates.⁶

Quality remains elusive in large part because of resource problems, although there is no consistent relationship between GDP and investment in children – political will is fundamental.⁷ But even in countries that have made significant budgetary commitments to children, it can be unclear how to make most effective use of available resources. There is no shortage of global evidence about the importance of support during the early years, but there is much less understanding about what works and why. This paper is an attempt to add to the existing body of evidence by reviewing a number of studies on the effectiveness of transitions programmes supported by the Aga Khan Foundation (AKF) and its sister agencies across the Aga Khan Development Network (AKDN) over recent years. A number of these studies are the first of their kind in that particular country (for instance, the studies from Kyrgyzstan and Tajikistan). The importance of having evidence from their own countries, both for policymakers and those involved in supporting schools, cannot be overestimated – it is key.

The programmes in question come from 10 countries on three continents,⁸ and include a range of interventions for young children and their families. The studies discussed here focus primarily on the impacts for children's academic competence and achievement, although the programmes themselves are more broadly focused. Most of the studies are quasi-experimental, comparing outcomes for programme children with those from other schools and pre-schools, or with children who did not attend pre-school. Only one study is a randomised control trial, with the initial selection of treatment schools determined by random assignment rather than programme priorities.

The tools used to assess children's outcomes vary as much as the programmes. They include widely used standardised tests, tools specially developed or adapted for the situation, and in some cases, local school tests. Some studies used professional outside researchers; others used staff from AKF and its partners, trained for the task. Not all the studies



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are equally rigorous and reliable, or use the same sophisticated analytical methods. But considered together, they tell us more than any of them does alone. The findings vary a good deal, sometimes even from one target area to another within the same programme. Some programmes have been more successful than others, and measured results do not always match with perceived success on the ground. Every study raises interesting questions and opportunities to learn more. The studies and findings generate a good deal of internal reflection and when shared at Aga Khan Development Network education meetings trigger discussion and learning among representatives of country programmes, stimulating excitement about further research.

THE STUDIES



Parents who took part in the programme showed a greater capacity than the comparison parents to interact well with their children and took more pleasure in parenting; they were more sensitive to their children and more inclined to see themselves as role models.

Portugal: A PAR (Association to Learn in Partnership)

The A PAR programme is a response to the lack of effective supports for disadvantaged and socially marginalised families with young children in urban Portugal. It is especially aimed at children at risk who have no place at a local crèche. Its objectives are to raise parents' awareness of their children's needs and their own role, thereby improving children's readiness for school. Weekly hour-long meetings in small groups focus on interactive play, songs, stories and sharing time for parents and children. There is also time for adults to share concerns and experiences while children play with an assistant. Books and play materials can be borrowed between meetings.

Research design: The study, undertaken over three years to investigate impacts for children and parents, compared over 200 programme children, along with their parents, with matched comparison children who attended a regular crèche. There was some overlap in the sample from year to year, but the study was not intended to track children over time. Both parents and children over three were compared using a number of existing scales and items from standardised instruments.

Findings: Parents who took part in the programme showed a greater capacity than the comparison parents to interact well with their children and took more pleasure in parenting; they were more sensitive to their children and more inclined to see themselves as role models. They also had a stronger sense of social support. Not all results reached significance, but there were positive differences for programme parents on all fronts, especially those with children over three. Demographic variables made little difference.

Children benefited significantly on some specific fronts, including cognitive competence, self-esteem, and early language and numeracy skills. Researchers concluded that these children were confident, well prepared for school and capable of achieving on the level of their more affluent peers. They recommended follow-up testing at the end of primary school.

Unlike with the parents, demographic variables had some impact on children's outcomes. Parents' educational level made a difference to their achievement, and children from two-parent households had an advantage over those from single-parent households. There was a highly significant correlation ($p < .001$) between parents' capacity to "observe, recognise, interact and model" and children's awareness of rhyme, a strong indication of the effect that parental responsiveness can have on children's early language development.

Impact: What stands out is the fact that exposure to a weekly hour-long programme, in most cases for a year or less, could make this great a difference to children's chances. Comparison children attended a crèche every day, yet were found significantly less prepared to enter school. Strong as the programme appears to have been, however, there have been difficulties with large-scale implementation owing to a lack of financial support and the low priority given to supportive activities that occur outside formal early childhood centres.

Efforts to disseminate the findings of this study and raise awareness of their implications are critical. Without the link to public awareness and the policy arena, research can have only a limited effect.



Researchers concluded that the children in the A PAR programme were confident, well prepared for school and capable of achieving on the level of their more affluent peers.



For children whose mothers had just some primary education, pre-school made a big difference, resulting in language scores close to the level of those with more highly educated mothers, and about 17 percent higher than non-pre-school peers.

Bangladesh: ECD Support Programme

NGO-supported ECD options have increased in Bangladesh in recent years, but access to services is still very limited for low-income families. A wealth of international research, along with Bangladesh survey data, indicate that children in households with high levels of poverty and low maternal education are in greatest need of support and are most at risk for not completing primary school. Yet these children are also the least likely to attend pre-primary programmes.

AKF's Early Childhood Development Support Programme in Bangladesh (ECDSP,B) has been targeting marginalised communities since 2009, working with civil society partners with a strong presence on the ground. In addition to developing ECD innovations, the programme supports the research capacity of staff and partners, providing hands-on experience in study design, tool development and implementation, and data analysis. Expertise in these areas is sorely needed in Bangladesh (like many other countries) if ECD programming is to build on an evidence base.

Research design: In 2011, the programme completed the first phase of a three-year tracking study looking at the impact of one and two years of pre-school for children's primary school readiness and subsequent primary retention and achievement, compared to that of children with no pre-school. The study also looked at the effect of parental education and other demographic variables on children's outcomes.

In a departure from other studies, this research was not conducted with AKF-supported pre-schools, since they had not been open long enough to be a practical focus for assessment. Instead it was carried out with some of the many government-supported centres run by the Bangladesh Shishu Academy (BSA).⁹ The study gave ECDSP,B staff a valuable opportunity to use assessment tools they had been developing and to build research capacity. It was also a source of learning for refining their own ECD interventions.

BSA's pre-school programme is similar to many pre-school programmes in Bangladesh. Taught by local young women who have finished eighth grade, activities are both teacher-led and child-initiated, and include songs and stories, numbers and letters, physical exercise and free play.

The sample was 121 randomly selected children who had attended 11 randomly selected BSA pre-schools from three parts of the country; most attended for one year, some for two. A comparison group from nearby villages did not attend pre-school. During the first six weeks of Grade 1, children were tested on motor development, social and emotional development, language development and emerging literacy, general knowledge and approaches to learning. Development of the assessment tool was guided by the UNICEF-supported provisional Bangladesh Early Learning Development Standards (ELDS).

Findings: Pre-school children scored on average about seven percent better than non-pre-school children, and the difference was consistent and highly significant overall ($p < .001$). Language skills and approaches to learning showed the most significant effects. The amount of time children had spent in pre-school made no significant difference; one year was as useful as two in terms of their scores in school readiness assessments.

The amount of time they spent in pre-school was not affected by demographic variables.

Mothers' education had a highly significant effect on achievement: Better educated mothers had children who tested better in school. Those whose mothers had secondary education scored almost 20 percent better than children with uneducated mothers. But pre-school made little difference to these children – their scores were high whether or not they went to pre-school. For those whose mothers had just some primary education, pre-school made a big difference, resulting in language scores close to the level of those with more highly educated mothers, and about 17 percent higher than non-pre-school peers.

The children of uneducated mothers also benefited from pre-school, but not as much. Children were better able to make good use of the pre-school experience when their mothers had at least some education. It is often stated that the most disadvantaged children benefit the most from early childhood programmes. While it is most certainly true that access to early childhood programmes is far more critical for children who are marginalised for one reason or another, this finding serves as an important reminder that the most disadvantaged children and their families may need additional supports to enable them to really gain maximum benefit from an ECD intervention.

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In 2009, AKF supported the Institute for Professional Development in Gorno-Badakhshan Autonomous Oblast to start up a community-based ECD programme. Communities provided space; the programme provided furniture, materials and teacher training.

Tajikistan: Community-based ECD Programme

When Tajikistan was part of the USSR, urban areas were well served with kindergartens and nurseries run by well-trained staff. But economic reforms in the 1980s and the Soviet collapse in the 1990s led to the closure of most of these kindergartens; by 2005, less than 500 remained. In 2006, AKF started working with the government Institute for Professional Development – Gorno-Badakhshan Autonomous Oblast (IPD-GBAO), to address this lack of opportunity. In 2009, AKF supported IPD-GBAO in piloting community-based pre-schools in three villages in Shugnan District (where AKF had a presence) as well as four villages in the Rasht Valley.

Communities provided space and the programme provided furniture and materials. Teachers, mostly former kindergarten or primary

teachers, were identified by the community and trained through the programme. Centres operate five days a week with two teachers for about 20 children. Daily routines include large- and small-group activities, free play and structured interaction with other children and teachers. Rasht children attend from age 4 and go on to Grade 1 at age 7; children in Shugnan join school at age 6, going into a preparatory “grade 0” (established in areas where the children do not speak the national language as their mother tongue).

Research design: During the second year of operation an impact assessment looked at access and coverage in both districts, children’s attendance, the quality of learning environments, teacher preparedness and children’s school readiness skills, compared to those of children from nearby villages without centres. Children who had spent a full year in an ECD centre, 207 in all, were tested. Some were still in ECD, some by then in Grade 0 or 1. Comparison children without ECD experience, 269 in all, included 4- and 5-year olds (still at home) and 6- and 7-year olds in Grade 0 or 1. Programme and comparison children attended different schools.

Research tools, developed, field tested and revised by IPD-GBAO, included an ECD classroom observation instrument; interview protocols for teachers, parents and community members; and child assessment tools focusing on language, basic numeracy and literacy, cognitive and social skills. These were based on UNICEF assessment tools used for validation of Tajikistan’s Early Learning Development Standards. Tools were administered by six experienced teachers, trained by IPD-GBAO. Tests in Shugnan were administered in Shugni and recorded in Tajik; in Rasht, they were administered and recorded in Tajik.

Findings: ECD classroom observations revealed attentive caring teachers and well organised classrooms, but materials were sometimes not readily accessible. Rasht children were more likely to use materials creatively; Shugnan children relied on teachers’ guidance. Lesson plans were regularly prepared and half were considered excellent or good. Teachers were making progress in preparing stimulating environments for children and using child-centered approaches, although most lessons remained teacher-directed. Teachers in Rasht seemed better able to hold children’s attention; their lessons, however, were considered by the observers to be “too difficult” for children. By comparison, Shugnan children were observed to be less engaged. (This will be taken up further in the discussion section.)

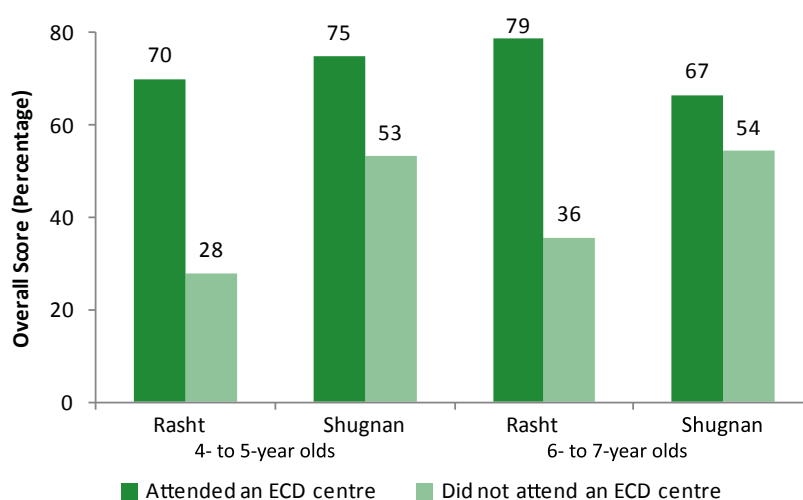
Although teachers were doing well overall, it was clear that support and mentoring on various fronts was still needed. Children’s attendance (based on head counts for three specific days) was 86 percent in Shugnan, and 60 percent in Rasht, where there was political unrest. Children in Rasht were also more likely to drop out because of parents’ reluctance to pay the fees.

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Children’s test scores indicated strong success of the programme for both age groups. Comparison girls tested better than boys, but the programme closed this gender gap, with similar scores for boys and girls. The programme also helped close a very large achievement gap between districts. Comparison children in Rasht scored as much as 25 percent lower than comparison children in Shugnan, while Rasht programme children did as well and sometimes better than Shugni children.

Children without ECD in Rasht were much less competent as a population than children in Shugnan, suggesting a generally less supportive environment for young children in Rasht. In Rasht, the difference between programme and non-programme children was highly significant. In Shugnan, while there was a clear positive difference, especially for children still in pre-school, it was not as dramatic as that in Rasht. Rasht programme children did not score significantly differently from the Shugnan programme children during pre-school, but they gained a lot more ground over the time they spent in the programme (assuming they were comparable to the children in the comparison group). They also scored markedly higher than Shugnan children in grade 1. See Figure 1 on page 12.

Figure 1: Achievement scores in percentage by district, ECD experience and age cohort



Demographic data might have shed light on these comparison group differences, but were not collected for this study. Research staff point out, however, that Shugnan has long been supported by the Aga Khan Development Network and people there have a strong respect for education. Rasht is considered more conservative and autocratic; communities are reportedly less attuned to the importance of investment of money or time in their children. They were less involved in the parenting programme, and less likely to see school readiness and thinking skills as important for their children.

According to programme staff, they expected their children to achieve more tangible improvements in academic skills; they were less aware, in other words, of what “readiness” actually consisted of. This lack of awareness was perhaps reflected more generally in a lower capacity to provide a supportive environment for their children, something that the ECD programme then dramatically compensated for.

The research also looked at the sustainability of these programmes, as indicated by parents’ payment of their fees, on which teacher salaries depend; and provision of support for other expenses and necessities. On the whole the model is working and parents in both districts want to expand the programme.

Teachers in Shugnan, however, were considerably more likely to report that their salaries were paid on time. Shortfalls were generally related to logistics and timing, although parents in Rasht were generally less willing or likely to pay the monthly fees on which the teachers’ salaries depend. They were also more likely than Shugnan parents to provide supports in the form of in-kind donations rather than money. After just one year of operation, however, findings on all fronts were extremely encouraging.

Impact: By its second year, the programme provided ECD for about eight percent of eligible children in the programme areas. Since then demand has resulted in significant growth, and in 2012, the programme reached 34 percent of 4- to 6-year olds in Gorno Badakhshan Autonomous Oblast.



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AKF promotes high-quality alternative early childhood models which are affordable for government and parents. Some centres are formal “central” kindergartens. Some are smaller satellite centres set up in teachers’ homes, underused classrooms or other community spaces.

Kyrgyzstan: ECD Programme in Osh and Naryn

As in Tajikistan, the failure of the Soviet system in Kyrgyzstan was followed by the collapse of its pre-school system, resulting in little chance of ECD experience for children, especially in rural areas where only four percent on average had access in 2006. (Urban access was over 20 percent.) AKF’s contribution to rebuilding early childhood supports, implemented through the Mountain Societies Development Support Programme (MSDSP), has been focused in remote rural regions of Osh and Naryn. The programme has catalysed the establishment of 133 central, satellite and yurt kindergartens in these two oblasts. Between 2005 and 2011, ECD enrolment in one district has increased from seven to 58 percent.

The AKF programme promotes high-quality alternative early childhood models which are affordable for both government and parents. This includes emphasis on introducing a half-day shift system to increase coverage. Some centres are formal “central” kindergartens. Others are smaller satellite centres set up in teachers’ homes, underused classrooms

or other community spaces. Teachers in both receive the same training and materials. To support children's transition to the very structured primary school system, the programme trains key teachers to mentor lower grade teachers in more lively, child-centered approaches. AKF has implemented a Reading for Children (RfC) programme, which makes use of a community space (often a school) to house a mini-library (of mostly storybooks) and parent workshops. The workshops build parents' confidence and skills in reading with, telling stories to and interacting with their children. In response to the dire lack of Kyrgyz language books for young children, AKF has developed 36 books. For most children this has been their first opportunity to have access to enjoyable books in their mother tongue.

Research design: Two studies (2008, 2009) were conducted on programme children's Grade 1 achievement, comparing it to that of children in the same schools without ECD experience. Only some of these schools benefited from the Reading for Children programme, and overall results here were also compared to those in schools without this programme. The first study used teachers' assessments of the students; the second used standardised curriculum-based assessment tools to ensure objectivity. Results remained fairly consistent, however – a reflection of the high level of training of teachers in the country and the general reliability of their assessment of students' achievement.

Findings: In the earlier study, which included 497 Grade 1 students from 15 schools (244 with ECD, 235 without), ECD graduates scored an average of 74 percent compared to 64 percent for those without ECD, a highly significant difference ($p < 0.001$) overall and for most subjects. Children attending the six schools that had mini-libraries and an RfC initiative had significantly higher reading scores than those without this extra component: 75 percent for children in the RfC schools, both ECD and non-ECD combined, compared to 64 percent in the schools without this added component. There was a cumulative advantage for children with both ECD experience and access to mini-libraries.

The follow-up study with standardised tools took place in fewer schools with half as many children. Overall scores in Grade 1 were still higher for children with ECD, but the gap between those with and those without was somewhat smaller. In effect, the results of the earlier study were confirmed. Conversations with teachers suggest that, faced with children with such different preparation and skills, their attention has necessarily been focused most heavily on the non-ECD children. This dilemma is faced in any classroom mixing ECD and non-ECD graduates and can diminish the extent of the tested difference between children.

Impact: The ECD centres, mini-libraries and accompanying parent workshops have been in increasing demand by parents. The Ministry of Education has purchased many of the books developed by AKF for distribution to schools and kindergartens nationwide. A pre-school law which passed in 2010 fully endorsed the alternative models developed by AKF and others. Operational costs are met primarily by government with communities providing the balance.



The study in Kyrgyzstan showed that there was a cumulative advantage for children with both ECD experience and access to mini-libraries.



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East Africa: Madrasa Early Childhood Programme¹⁰

The Madrasa Early Childhood Programme in Kenya, Uganda and Zanzibar, established with AKF support in the late 1980s, was a response to the economic and educational disadvantage of Muslim children in East Africa. Community-owned and managed Madrasa pre-schools stress the training and mentorship of locally selected teachers, child-centred learning, low-cost local materials, and the integration of local religious beliefs and cultural practices. For more than a decade, especially in Kenya and Uganda, both Muslim and Christian children have been enrolling in these community ECD centres. Children go for two to three years in mixed age groups, often keeping the same teacher throughout. As of 2012, over 230 community Madrasa pre-schools were operating and had served over 90,000 children. The three Madrasa Resource Centres (MRCs) have trained more than 4,500 ECD teachers (those working in Madrasa pre-schools as well as teachers from more than 220 other pre-schools) as well as Grade 1 teachers from several hundred schools.

The programme has generated considerable research over a number of years, using both internal and external researchers. These have included the impact study discussed below as well as analysis of pilot initiatives (e.g., incorporating stronger health and nutrition components into the pre-school curriculum) and other studies assessing costs and sustainability. Most recently an external evaluation was undertaken of a mini-endowment scheme to help ensure financial sustainability of the community pre-schools. There has also been an internal study looking at how the “graduated” pre-schools are doing in terms of quality, parent and community engagement, leadership and management, and how well the linked structures (associations of graduated pre-schools and community resource teams created to provide support) are functioning. Because the primary researcher for many years was part of the regional office, he interacted constantly with staff and helped inform their thinking. Discussion and reflection within and across the three MRCs during the planning and process of different evaluations and studies have, over the years, led to changes in practice, both in pre-school programmes and teacher training curricula, as well as in terms of the programme’s strategic direction.

Research design: The impact study described here looked at outcomes for children while in the programme and is based on data collected between 1999 and 2003. The pre-test/post-test design compared Madrasa pre-school children with children from non-Madrasa pre-schools and children at home with no pre-school experience. Early reports were discussed within the programme; in recent years, more sophisticated analysis, with external researchers, has resulted in peer-reviewed papers.

Eight Madrasa and eight comparison pre-schools from the same area were selected in each of the three countries. There were two cohorts of children, one which started pre-school (or not) in 1999, and one the following year. Children technically start pre-school in Uganda and Kenya at three years of age, and in Zanzibar at four, but many children are actually over-age when they enter. The sample group was, on average, almost a year older than the formal pre-school entry age, with a range of two to three years in every group. In each class, 10-12 boys and girls, aged between three and six, were randomly selected and tested close to pre-school entry and again after about 18 months of pre-school. There was a follow-up test when they reached the end of pre-school. The non-pre-school children were tested at the same times. Of this sample of 423 pre-school-age children, 321 were assessed at least twice, and 173 children were present for all three assessment points. A number of children from all three countries, and especially Uganda, dropped out over the study period, generally those with higher scores at entry. It seems that parents moved their children when they deemed them capable of starting school – a reasonable decision in a setting where competence is considered more important than age.

The standardised assessment tools, evaluating such skills as reasoning ability, visual cognition and verbal comprehension, were extensively pre-tested, translated and back-translated, and administered to children in their local language by trained graduate assistants working in pairs.



Attendance in a Madrasa pre-school classroom was reported to have a significant effect on the development of children’s social competencies, as compared to that of children from other pre-schools.

Findings: The 18-month assessment¹¹ indicated that pre-school children (both groups) had significantly better cognitive skills than children who had not attended pre-school, with consistently greater benefits in verbal, non-verbal and numerical school readiness. Madrasa pre-school children also performed substantially better than non-Madrasa pre-schoolers. Findings for the third round of assessment, reported by an external team in collaboration with the Madrasa Programme,¹² were in line with the earlier findings. The cognitive level of Madrasa pre-school children increased by .4 standard deviations per year more than non-Madrasa pre-school children, a significant ($p < .01$) difference. But the benefits for Madrasa pre-school children also flattened after the 18-month assessment. This could mean that the programme benefits younger children more than older children, or that the initial intense response to the new stimulation fades somewhat over time. But it could also be explained by the movement of higher achieving children into primary school (for which children do not have to pay), a trend which increased between the second and third assessments as governments passed Free Primary/Universal Primary policies.

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Parent education levels were found to have a substantial effect on children’s education, but did not reach statistical significance. Gender had no effect. Children’s age was significant in explaining the variance in scores (although no indication was given as to the age at entry which predicted the best results). Even when controlling for these and other variables, pre-school attendance was found to have a significant effect for cognitive outcomes. Madrasa pre-school children also performed substantially better than other pre-school children. The research also investigated children’s social development, drawing on teachers’ ratings to score them on various behaviours, including such prosocial factors as sharing with other children and being sensitive to their feelings, religious awareness (for example, praying, reminding other children of Allah’s existence) and disruptive behavior (such as bullying or teasing). Attendance in a Madrasa pre-school classroom was reported to have a significant effect on the development of children’s social competencies, as compared to that of children from other pre-schools.¹³

Pre-school quality was also assessed using the Early Childhood Environment Rating Scale – Revised (ECERS-R),¹⁴ which looks at space and furnishings, activities, quality of interaction, programme structure and parent-teacher relations; and the ECERS-E (Extension),¹⁵ which provides greater depth and focus on curriculum. Results of the two scales were strongly correlated, and the combined score was considerably higher for Madrasa than non-Madrasa pre-school classrooms.¹⁶ Pre-school quality had a similar effect for the third assessment point, with significant impacts for Madrasa but not non-Madrasa pre-school children. The ECERS scores were significantly correlated to Madrasa pre-school cognitive scores ($p < .001$), but not those in non-Madrasa pre-school classrooms. Researchers suggested this was related to the lower capacity of non-Madrasa pre-school teachers to make good use of improved classroom resources.

Parenting education sessions were introduced later as part of the programme. Qualitative research in Uganda looked at the effectiveness of



In Uganda, parenting education sessions revealed benefits for parent-children and parent-teacher relationships, and for children's discipline and confidence levels, their attendance and their involvement in learning.

this intervention.¹⁷ Interviews with parents, teachers and others revealed benefits for parent-children and parent-teacher relationships, and for children's discipline and confidence levels, their attendance and their involvement in learning. Parents considered that school-based workshops, meetings and open days were more effective than home-based support groups or home visits.

In Uganda, repetition rates were assessed in the schools that admitted most of the Madrasa pre-school children as well as children from other pre-schools and those with no pre-school experience. Both Madrasa and non-Madrasa pre-school children were categorised together as "the pre-school group". In Grade 1, the repetition rate for children without pre-school was twice that of the pre-school group (7.8 percent vs. 3.7 percent). Grade 1 is an especially critical year because it is when so many children repeat, drop out or become established in persistent patterns of under-achievement. This gap gradually closed over succeeding years. Presumably only the more successful children remained in school at this point.¹⁸

"In Grade 1, the repetition rate for children without pre-school was twice that of the pre-school group (7.8 percent vs. 3.7 percent)."

East Africa: Quality in Early Learning Project

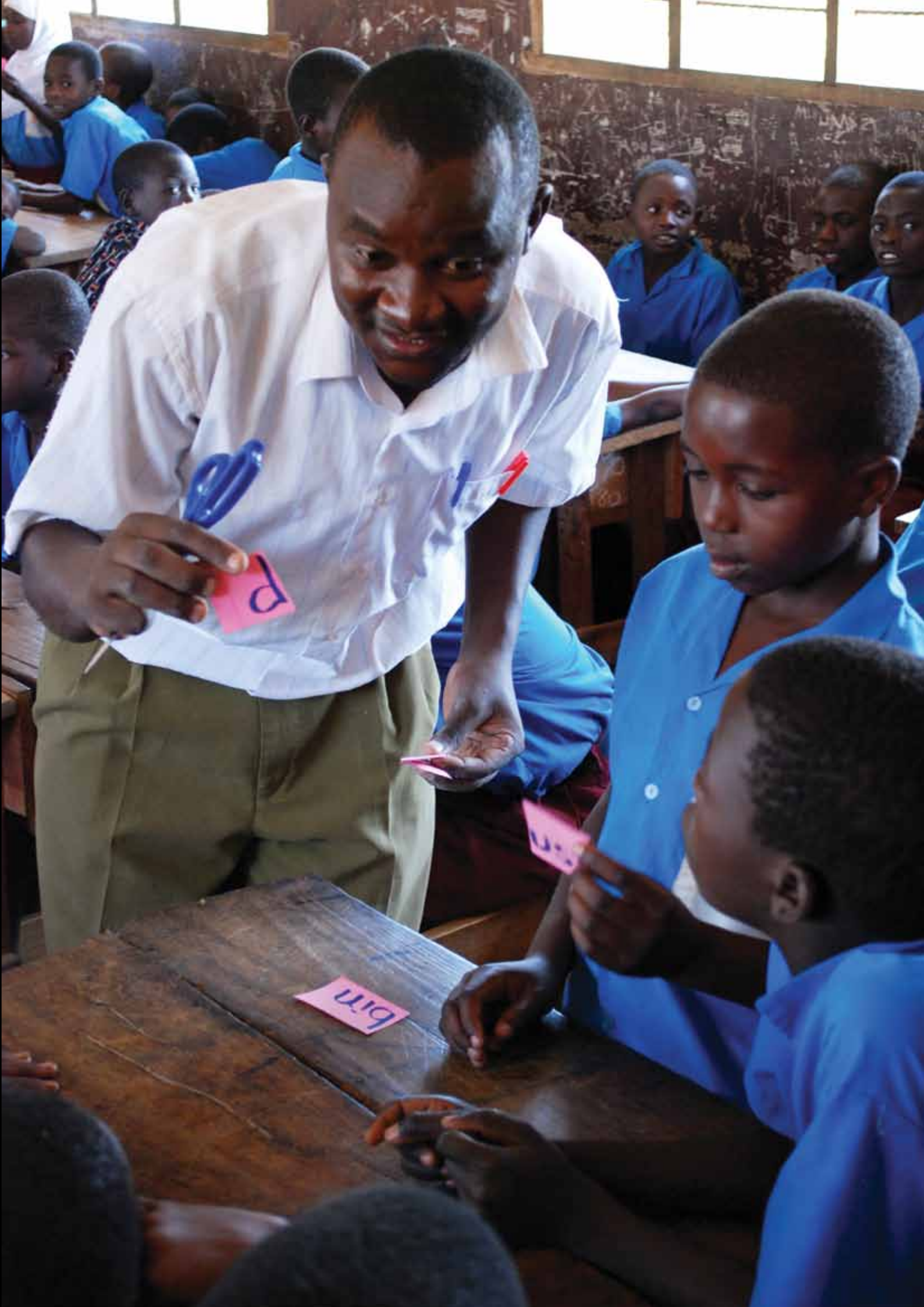
Another East African study, this one not targeting the effect of pre-school, focuses on the impacts of the AKF-supported East African Quality in Early Learning (EAQEL) project in primary schools in Kenya and Uganda. The Hewlett Foundation-supported research and development programme was implemented in two districts in each country, selected for their consistently poor performance in national exams. The initiative involved a systematic, scaffolded approach to teaching reading and numeracy, based on David Rose's Reading to Learn (RtL) model.¹⁹ This approach differs from more traditional approaches by focusing initially on meaning; children are immersed in a story or text and move from oral comprehension to the understanding and mastery of component parts (including phonics), rather than the other way around. Teachers are carefully trained in a set of structured, interactional steps. This learning approach is delivered in the context of strong support for teachers, appropriate materials and the involvement of district education staff. AKF sub-divided the treatment schools into "core" and "core plus" groups with each in one target district in each country. "Core plus" included a Reading for Children component – the establishment of community mini-libraries, with books in local languages available to both treatment and control schools. Parents received training in reading to their children and guidance in supporting their learning at home.

In EAQEL project classrooms, children are immersed in a story or text and move from oral comprehension to the understanding and mastery of component parts (including phonics), rather than the other way around. Teachers are carefully trained in a set of structured, interactional steps.



Research design: The RtL intervention was structured as a randomised control trial.²⁰ Of 41 clusters of schools within AKF's programme area, 19 were randomly selected for the intervention and 22 for the control group. In all, 120 schools were involved in two districts in Kenya and 109 in two districts in Uganda; and almost 14,000 students were evaluated. The standardised tools to test children's competencies were curriculum-based and developed in consultation with academic experts and practitioners, international and local. AKF and its partners were largely excluded from the development of the tool, apart from an initial workshop, which meant they were not able to ascertain whether the competencies associated with RtL were being assessed. The research was carried out by an external research organisation from Nairobi, the African Population and Health Research Centre (APHRC). A baseline survey indicated that Grade 1 and 2 sample students in control and treatment groups began at a similar level, although programme students had slightly lower scores overall and children in Uganda performed worse than those in Kenya in most of the tested literacy and numeracy skills. End-line analysis took these differences into account in assessing the effect of the intervention.

Findings: The research showed no overall significant effect on oral literacy in Kenya, although interestingly children in schools that were implementing the new method best did show a significant gain. Children in all groups in Uganda showed a significant effect ($p < 0.05$). The best result was the nine percentage point difference in the Uganda district where the "core model plus" was implemented. This has to be interpreted cautiously, however, since comparisons of individual





In all, almost 14,000 primary school students in Kenya and Uganda were evaluated in this study. From a research and development learning perspective, the findings of the randomised control trial did not help to illuminate what was actually happening in the treatment classrooms and therefore what might be influencing the results.

districts lacked the numbers to reach significance. In written literacy, gains were again consistently significant for Uganda, but not Kenya, despite the lower baseline scores of Ugandan children. Contrary to expectations, the Ugandan children who benefited most from the programme were not those who had scored the least at the baseline, but rather the average and high achievers, who scored a significant 15 percentage points higher than their comparison group.

The poor Kenyan results were hard to understand, given the enthusiastic response and assessment of teachers, parents and children. A possible explanation was that some Kenyan students were already answering all questions correctly at baseline, resulting in a ceiling effect, with lower scope for improvement at the end line. In other words, the tests may not have been designed to capture the full scope of children's achievement. The better results in Uganda could also have been related to the context of recent conflict and lower levels of resources there. The infusion of materials and attention may have spurred a greater student response. The quality of implementation in Uganda, with more follow-up from "support tutors", may also have had an effect. Also relevant is the fact that the programme distinguished between "high uptake" and "low uptake" schools, a distinction not made in the research. When high uptake schools were separated out, they showed significant gains compared to control schools.

Other implementation differences also emerge from teacher interviews, classroom observations and parent focus groups. Ugandan teachers rated themselves more highly on their understanding of the approach, reflecting a level of confidence and enthusiasm that was communicated to children, and that ended up being more important than the higher Kenyan teacher ability to list steps in sequence. Researchers also found Ugandan teachers consistently better prepared for their lessons. A higher pre-existing level of parent involvement in Kenya, both in control and treatment schools, might have minimised the impact, so much more clearly felt in Uganda, of support for parental involvement and the provision of the local language books. It remains to be determined whether the tools (not available in English) were adequate for assessing the particular approach encouraged by RtL, that is, finding meaning in text rather than the more common focus on mechanical "building blocks". Hewlett Foundation has also acknowledged that the testing may have happened too early in a process with such a radically different approach. The significant gains in the schools with better implementation in Kenya bear out this interpretation.

AKF and the project teams engaged in several discussions amongst themselves, with APHRC and with other researchers and literacy specialists. An internal AKF review the previous year as well as ongoing monitoring processes made it clear there were issues that needed to be addressed in terms of further adaptation of the approach to the realities of classrooms in East Africa. From a research and development learning perspective, the findings of the randomised control trial did not help to illuminate what was actually happening in the treatment classrooms and therefore what might be influencing the results. AKF

subsequently organised a qualitative evaluation by two international early literacy specialists and two national literacy specialists. This team spent long periods observing teaching and learning in the classrooms and in discussions with teachers, heads, parents and students. They concluded that teachers in both countries were doing an impressive job of implementing this new approach with growing confidence, despite major challenges such as classrooms often of 80 to 100 children and considerable time demands in the preparation of materials and lessons. Ensuring the availability of sufficient materials has helped turn many teachers into committed and enthusiastic practitioners. AKF is making further efforts to re-shape and adapt the approach and it plans to continue using RtL, confident that it will begin to make significant differences to children's achievement levels.²¹

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From 2002 to the end of 2011, AKF, with local partners, supported the Releasing Creativity and Confidence (RCC) programme to expand access to pre-school and the early grades and to improve school quality in Balochistan and Sindh provinces, and in the territories of Gilgit-Baltistan and Chitral (GBC).

Pakistan: Releasing Confidence and Creativity

Despite Pakistan's commitment to universal access to quality education, a third of primary-aged children are still not enrolled, and one of six Grade 1 children never make it to Grade 2. Investment is low, teachers are poorly trained and frequently absent, and facilities and learning materials are woefully inadequate. From 2002 to the end of 2011, AKF, with local partners, supported the Releasing Creativity and Confidence (RCC) programme to expand access to pre-school and the early grades and to improve school quality in Balochistan and Sindh provinces, and in the territories of Gilgit-Baltistan and Chitral (GBC). Partners worked with communities to find space (usually in schools) for pre-school classes where these did not exist; they hired pre-school teachers, mobilised communities to contribute to their salaries, provided training and ongoing support for both pre-school and Grade 1 and 2 teachers and brought in materials. A warm, child-centred, activity-based approach to learning was encouraged. The programme also worked with families around their children's education and development, built stakeholder capacity and commitment, and engaged in policy dialogue.

Programme schools differed on a number of fronts. Most were government schools but some, primarily in GBC, were community schools, run by Aga Khan Education Services, Pakistan (AKES,P). Some schools took boys only, some girls only, and some were mixed. Language varied too. Urdu was the official medium in Balochistan and most government schools in GBC; Sindhi was mostly used in Sindh; and English in the community-based and private schools. Local languages were also in use. In Balochistan, pre-school was officially for one year, but many children attended for two, until they were old enough or skilled enough to enter Grade 1. In GBC, most pre-school programmes were officially two years. In Sindh, there was one official pre-school year, but for many children Grade 1 lasted more than one year. The situation varied from child to child, and it was a challenge to determine how many years of pre-school children would have had on entering Grade 1. Most, but not all, pre-school classes, used a formal pre-school curriculum. Some, but not all, schools were receiving support from other organisations. All these differences made simple comparisons of children's outcomes quite difficult.

Research design: Nonetheless, a quasi-experimental study was undertaken in 2008 to compare programme outcomes with those in randomly selected comparison schools. It looked at differences between schools and classrooms, attendance and progression, and children's learning achievement. In 37 programme and 36 comparison schools, children entering the year prior to Grade 1 were tracked for three years – over 2,000 children in all. Pre-school and Grade 1 classrooms were observed and children's achievement in Grades 1 and 2 was tested. Supported by technical partners (especially Aga Khan University), the programme developed its own simple classroom observation tool with measures on classroom environment, interaction and teaching quality. Standardised learning achievement tools were also locally developed to

assess curriculum-based numeracy and literacy in Urdu (or Sindhi) and English. Tools were piloted in at least two regions and adapted before use.

Findings: There was a very positive effect on children's enrollment, attendance and promotion during the first year of tracking, especially in Sindh, and especially in government schools, which were mostly attended by the more disadvantaged children. RCC government schools had attendance rates 20 to 50 percent higher than non-RCC schools. By Year 3, these effects were still positive but less dramatic. Extensive flooding in the country as well as conflict, especially in Balochistan, could have contributed to this decline. Tracking promotion and repetition rates was also complicated by the informal provision of a second year of pre-school for many sample children.

RCC classrooms were found to be significantly brighter, cleaner, more colourful and better equipped than comparison classrooms. Children were more engaged in their activities, more involved with other children, and interactions between teachers and children were far more likely to be warm and supportive. Instructional style, almost totally teacher directed and rote in non-programme classrooms, more often involved some choice and involvement on the part of children in RCC classrooms, although not all teachers managed to make this shift.

The difference in the impact for children's achievement varied from district to district, but averaged about seven percent and was significant overall. Results were best in Sindh where most of the differences between programme and non-programme children in both grades were highly significant ($p < .001$) In Balochistan, results were also positive, although less consistently significant. In GBC, where both programme and comparison children, mostly in supported community schools, were doing much better to start with, overall scores were highest for RCC children, but there was less of a difference between programme and comparison schools. There were significant correlations between children's literacy outcomes in Sindh and classroom features, specifically the availability and accessibility of learning materials, the teacher's instructional style, opportunities for peer learning and effective classroom management.²² The same correlations are yet to be undertaken for other programme areas. At the time of testing some RCC teachers had not received training, and this meant it was possible to compare results on this front. Children in classrooms where the teacher had the initial training did substantially better and this reached significance in English literacy.

Children's age at entry, the number of years spent in a pre-school class, levels of parental education, household income, and the relationship between language of instruction and language used at home, would all have been interesting and valuable variables to explore. But in the context of what was already a large and, for many reasons, very challenging study, the data for these areas remained either uncollected or too complex to analyse, at least for the time being.



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When AKF started working in Bihar in 2007, the intention was to strengthen education through the government system. The school situation was so dire, however, that community-based Learning Support Centres were established as an interim measure.

India: Learning Support Centres

Bihar, one of the poorest states in India, lags behind the rest of the country in literacy and school enrolment. For children who enrol, benefits are limited. Teachers have high absentee rates, and drop-out and repetition are common. When AKF started working in Bihar in 2007, the intention was to focus on strengthening education through the government system. The school situation was so dire, however, especially for many marginalised children, that community-based Learning Support Centres (LSCs) were established as an interim measure. These centres were designed to complement government schools by providing after-school support. However, as fears about bullying and discrimination in the government schools are prevalent, it is not clear how many children are actually attending both.

In 2012, 42 LSCs served nearly 3,500 school-aged children (6 to 12 years) outside of school hours, with opportunities to develop their literacy and numeracy skills and self-directed learning, and support from 137 teachers.

These teachers, selected by the community, have all received a month of training from the Bodh Shiksha Samiti in Jaipur, and continue to take part in bi-monthly trainings and planning workshops. The centres provide a lively, welcoming setting where children can acquire basic skills, either supplementing their work in school, or gaining the skills and motivation to enter school. There is an emphasis on stories, songs, word games, role play, painting, drawing and discussion as central to establishing strong literacy and numeracy competencies.

All the LSCs now have ECD centres attached to them. This was not part of the initial plan, but younger children were accompanying their siblings to the LSCs, and some provision needed to be made for them. Seventy local women were recruited to serve as volunteer “mother teachers”. All had a 21-day training, also from Bodh. Thirty of the LSCs also have a Reading for Children (RfC) programme which provides books on loan through small libraries which are open for an hour a week for young children as well as parents and older siblings. Teachers also provide parent orientation sessions.

Research design: In 2011, student learning achievement was assessed in all 42 LSCs, using a test developed by Pratham, the internationally respected Indian NGO. The test, already used with over 300,000 children to evaluate the Read India programme, focused on basic language and numerical competencies. Children’s scores were later compared to the scores of children from Pratham-supported government schools in Bihar.

Findings: LSC children significantly outperformed the government school students in a number of domains. They averaged about 60 percent higher in numeracy and 65 percent higher in language skills. This was not designed as a comparative study. No attempt was made to establish the comparability of the children involved in terms of age, demographics or other variables. Nonetheless, the scores of these “comparison” children served as a useful benchmark for the achievements of the LSCs, making it clear that this flexible non-formal programme supported strong academic outcomes.

Impact: The programme is now phasing LSCs into the schools, working with primary teachers to create more attractive, child-centred schools and to adopt the successful LSC methodologies as part of their practice.

In the study, LSC children averaged about 60 percent higher in numeracy and 65 percent higher in language skills than government school children.





The study in Mozambique showed that out of 183 official school days in the year, children on average were involved in learning activities for the equivalent of only 30 days.

Mozambique: School Improvement Programme

In Mozambique, one of the poorest countries in the world, decades of civil war, poverty and poor education infrastructure have resulted in multiple generations with little access to learning opportunities. With concerted government efforts in recent years, primary net enrolment rates nationwide now average 92 percent, but drop-out is still high and achievement is low. Fewer than five percent of three-to-five-year olds have access to pre-school. This study is something of an outlier, compared to the others considered in this report, since it does not report on the effects of programming, but rather provides a more general situation assessment. It offers an extreme example of what transitions-focused programmes are tackling and how critical evidence-based interventions are.

Research design: In 2010, the USAID-funded EQUIP2 project teamed with AKF to examine the effectiveness of primary schools in the province of Cabo Delgado, which has among the highest poverty rates in the country, and is the area in which AKF concentrates its efforts. The focus of the study was on the use of time in schools and children's reading ability in Grade 3. Data were collected from 49 randomly selected schools, mostly in AKF's multi-sectoral programme area, and in each school an average of 13 Grade 3 students were randomly selected for an assessment of their reading skills. Of the sample children, 89 percent were over-age; average age, as reported by the children, was 11. (Official school entry is at 6 years of age, i.e., children in Grade 3 should be 8-9 years of age if they have not repeated or entered late).

The study looked at the number of days schools were open relative to the number prescribed by government; the amount of time each day that schools were active, compared to the hours set by government; the number of days teachers were present and that children attended; the amount of time teachers were present in the classroom and children were engaged in learning activities. Considerable time was lost on all these fronts and children on average were involved in learning activities for the equivalent of only 30 days a year – while 183 days were theoretically available for learning. The greatest loss of time was related to what went on in school on days that schools were open – late starts, early closures, extended recess and a lot of time spent with teachers outside the classroom. Only five percent of classroom time was spent on reading.

Findings: For assessing children's reading ability, students were tested on oral vocabulary, letter recognition, concepts about print and reading fluency. Overall results were alarming: 59 percent of this Grade 3 sample could not read a single word. Only six percent could manage 11 or more words per minute. The capacity to comprehend a text requires at least 40 words per minute – a standard achieved by only two percent of the sample. Most schools had government textbooks (distributed by AKF), but this was meaningless support in the absence of time spent using them.

The language issue was a significant factor. Although the education system is officially bilingual, with early years supposed to be taught in children's mother tongue, the reality is that only a very small percentage

are actually exposed to bilingual or mother-tongue teaching. Researchers noted Portuguese being used as the language of instruction 93 percent of the time. (It seems not insignificant that, despite the official bilingual policy, children were also tested in Portuguese.) Nationally, six percent of the population speaks Portuguese as a first language and an additional 39 percent speaks Portuguese as a second language. This means the great majority of children are being expected to understand, speak and learn in an entirely new language. This reality has powerful effects, especially in the context of an overall system so plagued by inefficiencies.

The very small percentage of children in this study who spoke Portuguese at home had a critical advantage. In the test of oral comprehension, they scored on average 18 points out of 20. Local language speakers scored an average of seven points. The difference was especially dramatic on prepositions – small words with a disproportionate influence on understanding. Where Portuguese speakers scored six out of six, local language speakers scored one point on average. Children speaking only the local language at home scored lowest on all counts. Children speaking Portuguese, with or without another language as well, scored highest, and were able to read 25 words per minute. This group was so small, however, that it is not safe to draw generalisations.

Impact: The findings of this study have been widely disseminated, from community level up to national level, as well as internationally through conference presentations. This has encouraged broad discussion, and relevant actors at all levels are thinking about the next steps in addressing the problems. Responses are reinforcing the understanding that focusing just on attendance, or getting textbooks into students' hands, is not enough, nor does it seem to be only about getting a better instructional approach (although that would be useful).

At the community level, local school councils, parents, school directors, teachers and students have been brought together to reflect on solutions and strategies. One school council now requires the school director and teachers to request permission for any anticipated absence. AKF will be working with schools to reinforce support to teachers in the early grades. Especially in very poor, underserved areas like Cabo Delgado a range of factors needs to be addressed. Tackling only student and teacher attendance, making relevant materials available, or ensuring teachers are confident and know how to teach foundational literacy and numeracy is not sufficient.

Internationally, the findings are influencing projects in a number of countries. The World Bank has also trained more than 650 teachers, supervisors and Ministry of Education officials in the Latin America and Caribbean region in conducting classroom observations for a better understanding of time use and the quality of teaching in classrooms. In short, this is an excellent example of the kind of impact a clearly conceived, well disseminated study can have, and it sets a high bar in this regard.



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REFLECTIONS ON THE FINDINGS



The studies confirm the broad consensus that children who have been exposed to warm, stimulating, child-centred programmes are more confident, capable, curious and happy, and that continued support in early primary can help to consolidate the gains.

Research on pre-primary and early primary interventions in low-income countries is patchy at best. When we look for answers and try to build on existing knowledge, we are forced in many cases to extrapolate from evidence found in high-income countries. These studies add some new insights and dimensions to the more general knowns and unknowns around early childhood programming and research in low-income countries.

Do early childhood supports make a difference?

They most definitely make a difference. These studies, without exception, add to the weight of existing global evidence on the benefits of ECD.²³ Evidence from the qualitative component of studies, where it exists, deepens understanding of the dynamics underlying the numbers and is especially compelling. The studies confirm the broad consensus that children who have been exposed to warm, stimulating, child-centred programmes are more confident, capable, curious and happy, and that continued support in early primary can help to consolidate the gains.

How *much* of a difference these programmes have made is harder to determine. Quantitative measures of children's success in these studies are almost always positive but in many cases are not dramatic. In most cases, children with this extra year or two of support score on average about 10 percentage points better on achievement tests than children without this experience. There are exceptions. Children in the Rasht Valley in Tajikistan, for instance, did more than 40 percentage points better than their peers. Where the differences are less remarkable, they are nonetheless significant in most cases. But why are they not a better reflection of the more compelling differences observed by parents, teachers and programme staff on the ground? Is the qualitative evidence reliable? Are the tests reliable? Are we even focusing on the right things?

We pay both too much and too little attention to these numbers. On the one hand, we are pushed by donors, by governments, by a numbers-oriented culture, to place great stock in quantitative evidence, especially when it has a p value attached to it, and especially when it points to cognitive benefits. We work hard to ensure that we have research designs and tools that will indicate reliably that there IS a significant difference. Yet in truth, especially in the low-income countries where AKDN works, we are still not sure how valid these tests are as a way of evaluating the benefits to children. We do not know what these scores for four-, five-, six- and seven-year old children will actually mean in another 10 years. We still focus primarily on snapshots of relatively short-term success.²⁴ Nor can we be sure that cognitive test differences are the main issue. What would we see if we measured instead how many stories children know? Or how capable they are of asking a question? Or how interested their fathers are in what they have to say? Or how often their mothers have actually spoken to their teachers?

On the other hand, we don't take our numbers quite seriously enough, given the energy and resources that we pour into obtaining them. We

look for positive differences and significance, reasonably enough, but sometimes the real information that these tests offer us can slip right by. If programme children score an average of 4 on a 10-point word recognition test in Grade 1, and comparison group children score 2, we are more likely to be relieved that this difference is significant than to wonder why our programme children are doing so poorly on a simple curriculum-based test. We are inclined to set up our bar graphs to end at 5 rather than 10, and to emphasise that programme children are getting double the score of comparison children. This is an extreme example. But it sometimes seems that reaching significance is the primary standard for the success of a programme, despite the fact that this tells us almost nothing about children's competence or capacity to cope with school (or life outside of school) or about ways a programme might be improved. (Since many of these studies are reported primarily in terms of significance, I use the same language here.)

Does ECD make more difference for the most disadvantaged children?

We know from a body of research in high-income countries that high-quality ECD programming is especially important for deprived and excluded children.²⁵ Some studies show larger gains for disadvantaged children, others show that they can benefit equally.²⁶ When disadvantage is extreme, pre-school is generally considered insufficient to compensate for the resulting deficits; the programmes that show the most consistently strong results are those that also provide supports for families and that require parent involvement.²⁷

A number of the studies reviewed here add to this body of work. The Bangladesh study found children's achievement was significantly related to household income and assets and to parental education, especially that of mothers. The link with maternal education is not new, but this study adds an interesting dimension. Here, it was the children of mothers with some primary education who scored better than those whose mothers had no education. (As might be anticipated, children with the most highly educated mothers had the best test scores, but they did not need the programme to do well.) Children with uneducated mothers made very positive gains, but having a mother with at least some education enabled children to draw the greatest benefit from the ECD programme. The study clearly points to the need for additional supports for these most disadvantaged households to help counter the compounded effects of exclusion and deprivation. The Bangladesh programme did not have a parenting component, and this would probably have made a difference.

The Tajikistan study brings an interesting perspective to the consideration of disadvantage. Comparison group children in two programme areas had dramatically different scores, both prior to school entry and in Grade 1, suggesting a generally less supportive environment in the Rasht Valley, where the lower performing children lived. Socio-economic differences were not investigated, but Rasht is reportedly better off materially. The sense among programme staff was that the difference lay in parental awareness and engagement. This was supported

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by the results of parent surveys. Rasht was reported by programme staff to be more authoritarian and conservative with lower status for women and a less sophisticated understanding of children's development and learning needs. Pre-school more than closed the gap for Rasht programme children – those who attended ECD outperformed programme children in the other district when they reached school. If a lack of parental awareness can be considered a proxy for disadvantage, this research is a classic example of pre-school having the greatest impact on children in greatest need.

There are other kinds of disadvantage that are usually not the focus of the household surveys that accompany most early childhood studies. In the East African EAQEL study, Ugandan children, starting from the lowest level comparatively speaking, ended up gaining the most as a group and bypassing programme children from other programme countries. The usual demographic variables were not found to play a role. Yet a case could be made that children in Uganda, with its lower human development index and recent history of conflict, might have been in greater need of the programme support and better placed to make good use of it.

PARENT INVOLVEMENT

Three of the studies in this report contribute to more general positive evidence on programmes that include attention to parents' involvement.²⁸ (Existing evidence does not find that information sharing with parents has the same value as active involvement.²⁹) The Portuguese A PAR programme provides the strongest evidence on this front, demonstrating that an intervention focused on parents and children together can be a highly effective use of resources. Despite being limited to one hour a week, these interactive parent-child sessions resulted in highly significant impacts for children, relative to those achieved by comparison children who attended daily nursery programmes.

Evidence from Kyrgyzstan is also compelling on this front. Here, some of the study schools had a Reading for Children (RfC) programme which provides mini-libraries and support for parents to read to their children. This had a greater impact on children's literacy than ECD alone. The difference in Grade 1 reading scores for ECD and non-ECD children was two percentage points; the difference between those with and without a Reading for Children programme in their schools was a highly significant 11 percentage points. Children with access to both RfC and ECD did especially well.

In East Africa, the EAQEL study found a similar correlation between children's performance and parent involvement through an RfC programme. EAQEL's "core plus" intervention with RfC was implemented in half the programme districts, and children here had consistently higher literacy scores. Parents reported their enthusiasm for this component, and especially for the provision of books in the local language.

What difference does the language of instruction make?

The general consensus in the growing mother-tongue literature is that instruction in mother tongue and dominant language at the same time is the most productive approach, addressing the concerns that accompany the use of either language to the exclusion of the other, and yielding considerable benefits for children.³⁰ The Mozambique study offers some indication of the impediment that language represents for many children. Instruction in Cabo Delgado was not, despite official policy, either bilingual or in the language most children used at home, and the test was administered in Portuguese. For the very few children who spoke Portuguese at home, or both Portuguese and another language, achievement was dramatically higher than the very low average, even given the minimal instruction time. The very small number of dominant language or bilingual children far from constituted a reliable sample, but their very different results add weight to the conclusion that more concerted attention to dual-language instruction is a critical target for minimal resources.

“Across several of the programmes studied, it is likely that a good deal of informal dual-language instruction was taking place – as may be the case in many of the world’s classrooms... We need to know much more about the informal strategies teachers are already using, and the supports that could best assist them in this regard.”

The other studies remind us of how little we know about what actually goes on in many classrooms on the language front. In Pakistan, the formal language of instruction varied from one province to another. But researchers also heard a range of other local languages in use in classrooms. It is likely that a good deal of informal dual-language instruction was actually taking place – as may be the case in many of the world’s classrooms. One vignette from Shugnan, Tajikistan, shows an ECD teacher helping children to go seamlessly back and forth between Tajik and their local language. We need to know much more about the informal strategies teachers are already using, and the supports that could best assist them in this regard.

Does it matter how much ECD programming children have?

The literature generally points to the value of more rather than less ECD programming time for children, especially those who are disadvantaged.³¹ A UK study also indicates that, while longer is better, two to three hours a day is as beneficial as a full-day programme.³² Pre-school programmes in these studies ran from one to three years in length, varied in terms of contact hours, and offered mixed evidence on the importance of programme length.

The Bangladesh and Madrasa Programme studies suggest that more is not necessarily better. In Bangladesh, some programme children had one year and others had two, but there was no significant difference in their tested outcomes in Grade 1. In the Madrasa Programme, which offers three years of pre-school (although many go for only two), cognitive gains for children peaked after their first year in the programme, and then the benefits leveled out. We hypothesise that teachers’ efforts might have flagged with the older children, or that two years might be plenty of school preparation time. It should be taken into account that many children deemed ready for Grade 1 by their parents were pulled out of the programme to start school, probably encouraged by free primary policies that came into play around the same time. They were possibly the higher achieving children, which would have

skewed overall scores. In any case, all three countries are moving towards accepting two years of pre-school rather than three as the standard. The challenge still is that many parents may need some form of child care for longer than two years.

Pakistan's RCC offers a practical, if not test-supported, demonstration of the need for more than one year of programming for disadvantaged children. In theory, this study was a good chance to compare one- and two-year programmes, since length varied from one target area to another. But in practice, official programme length was no indication of how long children spent in pre-school. Many, perhaps most, children in a one-year programme were kept informally in pre-school for at least one additional year until they were considered ready for Grade 1. Ignoring official programme expectations, teachers acted on what they saw as a practical necessity.

The focus and intensity of a programme also makes a difference. The A PAR programme had significant effects for children's achievement despite the fact that children attended this weekly programme for a year or less. One hour a week, targeted at the stimulating interaction of parents and children, was more effective than daily crèche attendance for comparison children where parents were not present (as they were often working).

“Children's outcomes are presumably related to what goes on in the classroom. But surprisingly little is known about specific classroom features that make a difference.”

Closely related to the length and intensity of a programme is children's age when they start. The established evidence is in favour of earlier interventions where possible for disadvantaged children, but more research is needed on the optimal age to start a pre-school programme.³³ In most programmes assessed by these studies, age at entry was more or less fixed, and so not usually a variable that was investigated.

What difference does classroom quality make?

Children's outcomes are presumably related to what goes on in the classroom. But surprisingly little is known about specific classroom features that make a difference. Howes et al.,³⁴ focusing on research in high-income countries, find that process variables have a greater effect than structural variables – that is, human interactions are more important than class size, textbooks, or teachers' education. Some research in low-income countries finds empirical support for this conclusion.³⁵ But the setting and interactions that are part of the picture receive little detailed attention in most comparative studies.

Almost all the studies reviewed in this report focus on programmes promoting a warm, child-centred, active-learning approach supported by suitable materials and teacher training and mentoring. They make an implicit claim for the benefits of learning environments emphasising these qualities, but generally speaking have not focused in a systematic way on the relationship between measures of classroom quality and children's outcomes. The Madrasa Programme study is an exception in the sense that it finds a correlation between classroom quality as measured by the ECERS tools and children's test scores. But only the RCC study attempted to tease out the relationship between specific aspects of classroom quality and children's outcomes. Preliminary findings point to significant

correlations in the Sindh RCC target area between children's literacy scores and the teacher's instructional style, opportunities for peer learning, effective classroom management and the availability and accessibility of learning materials, especially those related to fine motor activities.³⁶ Children in classrooms where the teacher lacked the initial RCC training also had significantly lower scores in English literacy. More work remains to be done on correlations in other programme areas.

In East Africa, Madrasa pre-school classrooms were found to score considerably better (on average 88% better) on the two ECERS classroom scales than non-Madrasa pre-school classrooms.³⁷ These ECERS scores were significantly related to the cognitive skills of Madrasa pre-school children ($p < .001$), but classroom quality appeared to have no relationship to how non-Madrasa pre-school children scored, a fascinating finding. Researchers hypothesised that Madrasa pre-school teachers were better able to take advantage of improved materials and environments – a conclusion that adds weight to the Howes process findings.

Despite the debate about the relative merits of flexible, child-centred approaches and more structured approaches to the “basics”, there is little work in low-income countries comparing different pedagogical methods and their efficacy. The only study here to investigate a specific method is the EAQEL Reading to Learn study. The external research team found a significant impact in Uganda but not Kenya. Schools in Kenya that were implementing the new practice at a high level did in fact show significant results, but this finding received little attention. If, in fact, the method was effective where it was being well employed, there is reason to believe that teachers needed more time to find their feet with this new approach, or a higher level of support. By paying more attention to averages than to within-programme differences, the study failed to draw adequately on the learning that the data provided. Follow-up qualitative assessment of this enthusiastically received approach pointed to both challenges and great promise.

The Tajikistan research inadvertently contributed an interesting insight into contrasting pedagogical styles. All teachers received the same training, but classroom observers found that children in Rasht were more engaged, motivated and creative in their use of materials than their peers in Shugnan, who seemed quiet or even bored by comparison. Teachers in Rasht, however, were judged to be teaching lessons that were too difficult for the children. It appears, given both the greater engagement of Rasht children and their higher scores in Grade 1, that “too difficult” might more accurately have been described as “more interesting and challenging”. It seems likely that the Rasht teachers were both more demanding and more successful in determining children's zone of proximal development, with good results. The observers in each case were teachers from the less successful district. This raises the more general question of data collectors' capacity to identify sometimes subtle differences, for instance, distinguishing good teachers from mediocre teachers. This clearly does not always mean close adherence to the mechanics of an approach. Ugandan teachers from EAQEL project schools were judged less competent at following pedagogical steps in the right order; yet they were more enthusiastic and confident, and their students gained more.



In this batch of studies, only the RCC one in Pakistan attempted to tease out the relationship between specific aspects of classroom quality and children's outcomes. For example, children in classrooms where the teacher lacked the initial RCC training were found to have significantly lower scores in English literacy.

REFLECTIONS ON HOW WE DO RESEARCH

Many of the studies reviewed in this report faced challenges with research design, tools and implementation, and there are lessons to be learnt here for how we do research.

Methodological challenges

In some of these cases, potentially valuable data had to be jettisoned because of a lack of reliability. In Kyrgyzstan, for example, a follow-up of students into Grade 3 was undertaken without sufficient care, and findings were discarded. Ideally these results would have contributed to the very small body of information on ECD children in low-income countries as they move past Grades 1 and 2. Sometimes valuable information was missed because a critical question was not asked. The sophisticated analysis of Madrasa Programme data which found children's age at entry had a significant effect on their cognitive gains failed to actually spell out what that effect was or provide the practical information that might help guide programmes in this regard.

“The more questions that are asked, the larger a survey or test becomes and the more effort goes into simply completing it rather than getting it right. There is practical value to keeping things simple and spare. A small amount of reliable information is always better than a lot of information that cannot be trusted.”

One obstacle to optimal learning is the independent nature of these AKF studies. Often, useful comparisons cannot be made from one country to another. Not knowing the educational level of parents in Tajikistan, for instance, makes it impossible to relate these findings to those in Bangladesh. Not knowing children's age in pre-school in Pakistan makes it hard to compare them to those in East Africa – a difficult comparison anyway, given that the Madrasa Programme study did not draw on this information in practical ways. It makes sense to include certain basic indicators in every study, regardless of whether they are of interest to the programme in question. There should be a capacity to move between databases on some basic fronts if we want to learn more about issues like medium of instruction, age at entry, duration of programme, relationship to home variables. This kind of information is often gathered in baseline surveys, but mostly to ensure that programme and comparison groups are in fact comparable. It needs to be organised and presented in ways that allow it to be shared and more intensively mined.

Admittedly though, constraints around this basic data collection are numerous and can be mutually reinforcing. The more questions that are asked, the larger a survey or test becomes and the more effort goes into simply completing it rather than getting it right. There is practical value to keeping things simple and spare. A small amount of reliable information is always better than a lot of information that cannot be trusted. The RCC study demonstrates how apparently simple indicators can turn into minefields of variability. It should be easy to report how many years of pre-school experience a child has had, or how old a child is on entry. But even simple information can be complicated by unforeseen problems.

These unforeseen problems can be especially challenging when research teams are composed of minimally trained data collectors, who may get off-track in the field. If survey questions, despite piloting, turn out to be more ambiguous than expected, data collectors may not realise the implications of changing the wording or proceeding in a slightly

different way. Perhaps school records indicate that most Grade 1 children are six-years old, but teachers claim that some of them are actually younger, and that parents have falsified their ages to gain them entry. In one district, the data collectors may go with the records; in another with the teacher's best guess. If a knowledgeable, alert research manager does not catch the problem right away, it can mean a batch of data that is very difficult to "clean". The more data collectors trained at one time, the more likely it is that one or two will be confused in ways that do not get picked up until it is too late. And the larger the data collection team, the more likely it is that project directors will be dealing with logistics and management rather than the quality of the data. The RCC baseline contained sections of information about tens of thousands of children that had to be thrown out: there were so many unlikely outliers that even the plausible information began to seem untrustworthy. Problems, as noted above, are not limited to in-house research. Data collection may be more reliable with professional research teams, but they may also be less sensitive to dynamics on the ground, more inclined to rush through despite complexity.

Choosing the right tools

It is beyond the scope of this discussion to give close attention to the extensive array of tests and other instruments used in these studies. It seems clear, however, that careful attention to local relevance is more important than how widely used the tool has been. The RCC modification of the ECERS tools, calling on the involvement of various partners, resulted in a robust instrument for the situation. (This is also now being adapted and used in five other country contexts across AKDN.) This certainly does not mean that existing tools should be rejected – simply that they should be carefully scrutinised by people as close to the ground as possible to determine their validity. The tool used in the EAQEL research raises some red flags in this regard. Although prepared and vetted by local experts, and implemented by a reputable research institute, the literacy test was a general one, not one that would assess the process of learning implied by this non-traditional approach as part of the R&D approach; nor did it seem to set the bar high enough for programme children to demonstrate their gains in the vital comprehension skills which are acquired more quickly with this method than in classrooms using more traditional decontextualised "building blocks". In Kyrgyzstan, teachers' tests came up with results very similar to those from a carefully designed standardised tool. Standardisation certainly relieves concerns about reliability, but this example suggests that a thorough knowledge of the programme in question can be as important.

No matter how well targeted the tools are, the match between the tools and the skills and training of available researchers is critical. In Tajikistan, the "strongest" primary teachers were selected to conduct those classroom observations. Yet their findings call into question their capacity to make valid judgements about their peers. If in fact Rasht ECD children were more engaged and more capable when they reached Grade 1, then the observers' finding that Rasht teachers aimed too far



No matter how well targeted the tools are, the match between the tools and the skills and training of available researchers is critical. In Tajikistan, the "strongest" primary teachers were selected to conduct those classroom observations. Yet their findings call into question their capacity to make valid judgements about their peers.

above their heads probably indicates that these strongest teachers in fact had limited understanding of how children actually learn, and may not have been best suited for conducting the classroom observation.

What really makes for useful research?

“Qualitative evidence gets relatively short shrift in this batch of studies – in large part again because of the expectations of donors. Yet it is clear that when qualitative work is used in conjunction with numbers, a far richer picture emerges and a better understanding of the situation.”

Some of the most interesting learning comes from the internal comparison of programme results in different programme areas, or even within programme areas. Because both the intervention and the research design are the same, other variables can be successfully explored. Yet this is often a missed opportunity, as was discussed in the EAQEL case. Studies pay more attention to programme versus non-programme differences than to within-programme differences. Sometimes data is not even disaggregated to reveal these differences, or if it is, the differences are not fully explored to yield the learning that could lead to improved programming. If results are significant overall, the tendency is sometimes not to discuss results that are weaker in one district than another, but just to point to the significant average. The inherent potential of these multi-site studies to reveal variation should be more fully realised wherever possible. This might call for building into research design and budget the chance to revisit results with teachers, programme staff and others and to look at factors that might have influenced success in different programme areas or even different schools.

There is considerable pressure in the development world to use experimental approaches and inferential statistics for evaluation – randomised control trials ideally, but where these are not feasible, at least strong quasi-experimental designs. Most of these studies did, at fairly considerable expense, make use of the latter, and one was a true randomised control trial. But there are exceptions. The Mozambique research shows how very effectively descriptive statistics can be employed. No comparison group or hunt for significance was necessary here to establish the extent of the problems and to point the way to effective intervention. The Bihar study, which drew for comparison on a large existing database, also demonstrates the value of the creative use of existing opportunities. Perhaps less rigorous and reliable than careful quasi-experimental research, this study was still more than adequate to establish the value of the Learning Support Centres. The current emphasis in the development world on experimental and quasi-experimental methods for evaluation means that many other potentially valuable research opportunities may be missed. Likewise, the use of rigorous comparative methods does not always ensure that the right questions are asked (as in the EAQEL research) or that reliability can be maintained in the face of real-life complexities. Qualitative evidence gets relatively short shrift in this batch of studies – in large part again because of the expectations of donors. Yet it is clear that when qualitative work is used in conjunction with numbers, a far richer picture emerges and a better understanding of the situation. Good qualitative researchers are hard to come by. But not many are needed to add this vital dimension, and to contribute to a better understanding of what the numbers are telling us.

Facing page: The Bihar study (opposite page), though perhaps less rigorous and reliable than careful quasi-experimental research, was still more than adequate to establish the value of the Learning Support Centres.



Most of these studies were undertaken at least in part to influence national policy. In some cases this was an overriding objective. Where governments have minimal resources and many conflicting needs, early childhood requires a far greater commitment. There may be global evidence that strong ECD programmes are extremely cost-effective, but the argument is more persuasive if there is local proof. We know that ECD is supposed to work. But will it work *here*? Will it be cost-effective *here*?

Ministries of Finance and Ministries of Education are most likely to invest in ECD if it is clearly demonstrated that it will make their education systems more efficient – ensuring children’s retention, promotion and successful completion of school. This means being able to demonstrate that children are more likely to stay in school and learn something without repeating classes – a very costly phenomenon for governments in many countries. It is at least in part for this reason that many of these studies gave specific attention to looking at what happens to children once they have entered school.

The findings of the Kyrgyzstan study (first of its kind in the country) contributed to government interest and to the passing of a new pre-school law. In Tajikistan, while the government was in any case enthusiastic about the affordable model developed by AKF, the findings have greatly reinforced this and have contributed to various recent decrees, including that all primary schools incorporate a pre-school class.

“...In low-income countries, a large proportion of the research on early childhood supports and education is undertaken to evaluate programme interventions. The potential for learning here is enormous, and given that it is sorely needed, learning should become a greater priority.”

Crucial as these studies have been in influencing policy, there is also a downside to this focus. An emphasis on demonstrating success is vital for shifting public policy, and critical also to ensuring continued donor support. But it is not how we learn. A relatively uncritical focus on success means diminished potential for teasing out new insights and building on our experience. Learning so often comes from our mistakes or less stellar results, and if these are not highlighted, there is less chance to improve what we do. Programme evaluation research is too seldom the kind of iterative process that it needs to be for real learning to happen. This did in fact happen in East Africa with EAQEL, where unexpected results led to AKF’s own internal and external evaluations, both of which helped to strengthen and refocus the programme. In Mozambique, too, the evaluation helped the country team rethink what would have been its approach in Cabo Delgado had funding actually been available.

We may feel it is up to academic researchers to play this more exploratory role. But in low-income countries, a large proportion of the research on early childhood supports and education is undertaken to evaluate programme interventions. The potential for learning here is enormous, and given that it is sorely needed, learning should become a greater priority. On the ground, in addition to discussing the dynamics underlying successes, there could be more systematic efforts to ensure feedback and the kind of reflective, iterative process that is essential for moving towards necessary changes when results have not been as promising as we would like. AKDN’s education meetings contribute to this type of internal and cross-country reflection but more is needed especially regionally and within countries. In the best of worlds, even governments and donors could be encouraged to welcome more critically reflective practice in ECD and to see an emphasis on institutional learning as a reassuring standard to aspire to.

CONCLUSIONS

This body of work adds weight to more general findings from low-income countries on the benefits of supports for young children and their parents, especially those who are most disadvantaged. In some cases, the evidence of these benefits comes from countries where little or no prior research on the topic exists. Some of the specific areas that stand out here include the need for and the value of interventions that stress parental involvement; the multiple ways that disadvantage can realistically be understood; and the need to continue exploring the relationship between what actually goes on in the classroom and children's performance. These studies have also contributed new tools and a better understanding of some of the methodological challenges inherent in this research enterprise.

The studies also remind us, however, of how many questions remain unanswered or only partially answered, and how much more programme evaluations like these could potentially contribute to institutional learning. The current emphasis on shifting national policy and promoting broader acceptance of and support for ECD is critical, but it is not completely compatible with optimal learning. A wider and more creative use of indicators could be explored. Greater emphasis could be given to teasing out within-programme differences for a better understanding of both less successful and more successful outcomes. A more iterative research process would make it possible to explore outcomes more fully. Generally speaking, there could be more critical reflection on achievements. Longer term outcomes are sorely needed. It is broadly accepted that we need to promote not only access to ECD, but to work on improving quality. For this to happen, we need to welcome and actively pursue all possible opportunities for learning.

Ministries of Finance and Ministries of Education are most likely to invest in ECD if it is clearly demonstrated that it will make their education systems more efficient – ensuring children's retention, promotion and successful completion of school.



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Aga Khan Foundation
Case Postale 2369
1211 Geneva 2
Switzerland
Tel. +41 22 909 7200
Fax +41 22 909 7291
Email: akf@akdn.org

Author:

Dr. Sheridan Bartlett

Photography:

Caroline Arnold, Shelina Bhamani, Alison Joyner, Thomas Kelly, Sheila Manji, Lucas Cuervo Moura, Zul Mukhida, Joshua Muskin, Zahur Ramji, Jean-Luc Ray

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