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# Learning from Innovation for Education in Rwanda

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# Learning from Innovation for Education in Rwanda

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GRADUATE SCHOOL OF EDUCATION

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## CHAPTER 1: INTRODUCTION

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Whether introducing radical new ideas or simply doing existing things in new and better ways, innovation is increasingly seen by governments and policy makers around the world as key to creating more effective and more efficient education systems. Embedding and encouraging innovation across all levels of the education sector is seen by Rwanda's Ministry of Education (MINEDUC) as instrumental to implementing the Education Sector Strategic Plan (ESSP).

*'Encouraging innovations in the education sector is a central element of MINEDUC's strategic focus. Introducing innovative solutions to address existing challenges in the sector will act as a catalyst for achieving overall sector goals'*

*(Education Sector Strategic Plan, 2013/14 – 2017/18)*

MINEDUC is prepared to embrace new thinking and new ways of working to become a driver of change and a hub for innovation in education. This is regarded as key to meeting wider objectives, such as improving the quality of education and hence learner competencies through new curricula, teaching methods and materials.

As part of its package of development assistance to the Rwandan government, the UK Department for International Development (DFID) funded 26 Innovation for Education (IfE) projects. Launched in March 2013 and completed in March 2015, the pilot projects cover a range of exciting innovations in early years, primary, secondary and technical vocational education. The projects were initially selected by MINEDUC to fit within the aims of the ESSP and with the ultimate goal of scaling up successful pilots. The topics covered are described in the next chapter. They range from initiatives to introduce new ways of teaching and learning including the use of information and communication technologies, developing the skills of teachers, creating leadership and accountability and increasing access to good quality education for all. Although targeted at different areas, each was explicitly aimed at improving student learning outcomes. Some were also aimed at achieving a range of intermediate outcomes including the development of skills and changes in behaviours and attitudes that, it was hoped, would eventually have an impact on student learning.

### AIMS AND BACKGROUND

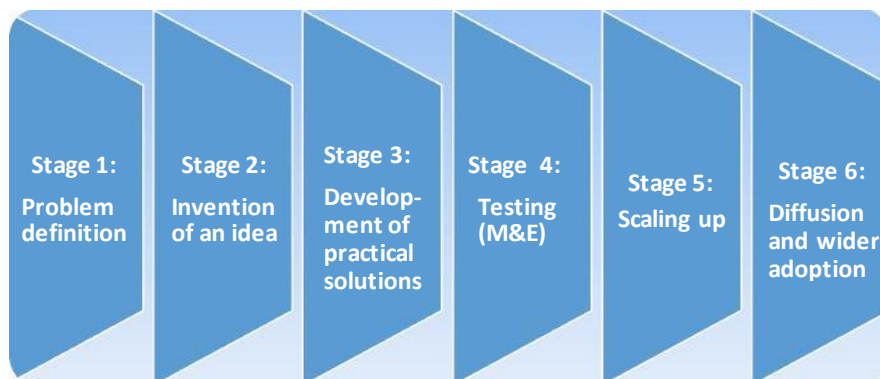
This document will provide an overview of the 26 IfE projects in Rwandan education institutions, classrooms and communities undertaken between March 2013 and March 2015. The IfE projects were rigorously evaluated both by the project teams and by external evaluators. The evaluations have informed the development of this learning document with the aim of providing a better understanding of the innovation process through an analysis of the outcomes of these pilot education projects and the conditions, at both local and national levels, for successful implementation. The generic findings from the analysis of the 26 projects will thus guide MINEDUC towards the future successful implementation and scaling-up of innovations in education, and contribute to an understanding of educational innovations internationally.

Following the Introduction, Chapter Two of the document provides an overview of the innovations. Chapter Three reflects on the different outcomes of the pilot projects whilst Chapter Four looks at the wider conditions required in order to successfully implement and scale-up innovations. Chapter Five provides a thematic summary of key findings including implications for the future scaling-up of innovations.

## The Process of Innovation

The learning presented in this document is part of a wider initiative to assist MINEDUC to become a driver of change and a hub for educational innovation in Rwanda, with the commitment and capacity to support the process of innovation more broadly. The diagram below provides a representation of different steps in the innovation process from problem definition through to diffusion and wider adoption.

Figure 1: The Innovation Process



The analysis of the 26 pilots focuses on the development and testing of practical solutions (Stages 3 & 4 of the innovation process), which will help to inform scaling up (Stage 5) and lead to wider adoption (Stage 6). Evidence from the IfE Fund provides decision-makers in Rwanda a unique opportunity to reflect on the tested innovations and better prepare for when innovations are scaled up and adopted. As Sammoff et al (2011, p.2) note:

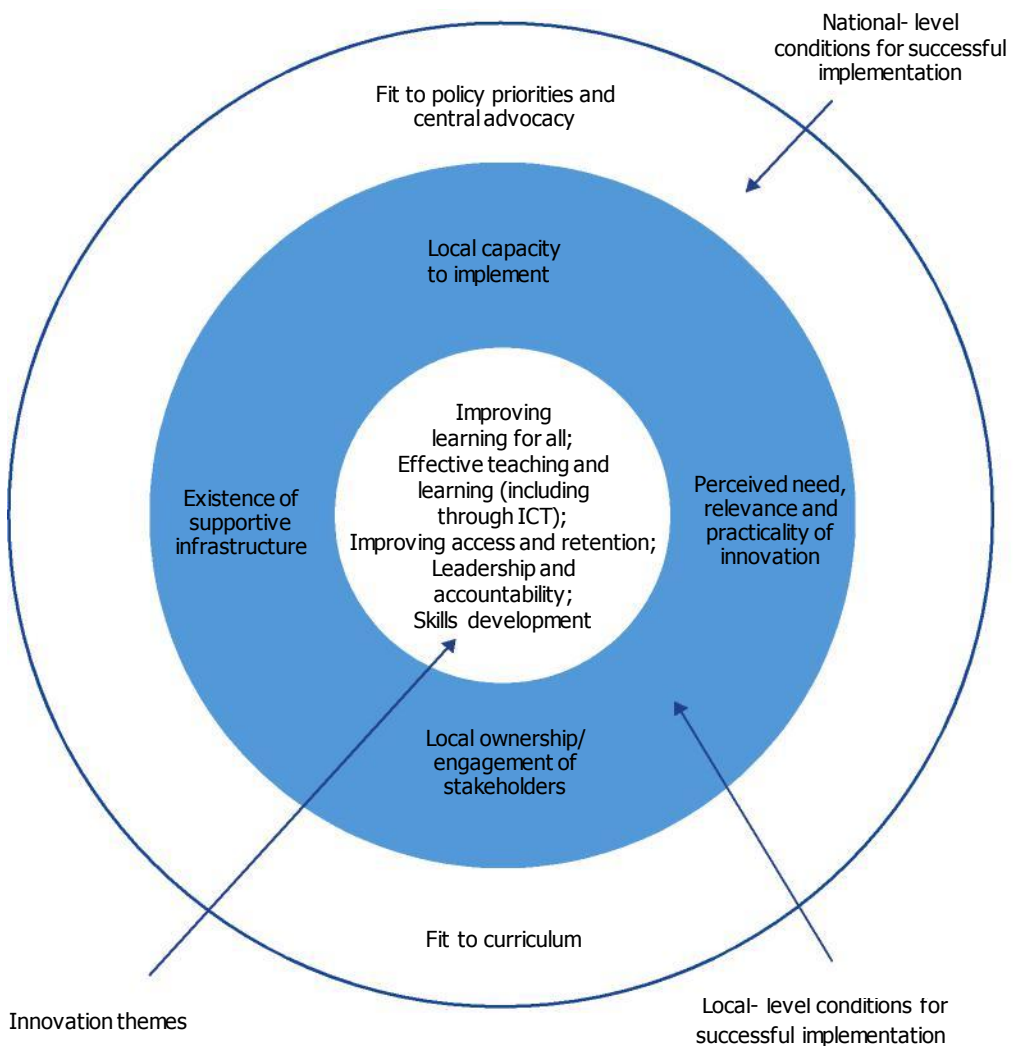
*Many of the innovative education programmes and projects in Africa have been lauded as success stories. Relevant cases have been collected, ...one would expect that all or most of these reform efforts would now be much larger in scale. Apparently few are.*

DfID is supporting the development of MINEDUC as a Hub for Innovation (HfI). The HfI sub-project has focused on designing and delivering a range of activities, programmes and support mechanisms to create an enabling environment for innovation

## Conceptual Framework

The document seeks to present significant outcomes of the 26 IfE projects and to develop an understanding of the factors impacting on the outcomes of the innovations at several inter-related levels. Level one is that of the innovation itself and the various aspects of the innovation that worked and did not work during the implementation phase. The second level is that of local conditions which encompass issues of ownership, capacity to implement, the availability of necessary infrastructure and stakeholder engagement. The third level is national and relates to the fit of innovations with the curriculum and other policy priorities, capacity at a national level, and the extent of central advocacy and support for particular innovations.

*The levels are summarised in the diagram below:*



## CHAPTER 2: INNOVATION FOR EDUCATION - AN OVERVIEW

All 26 of the IfE projects piloted an innovation which had the potential to positively contribute to the quality of education in Rwanda and the improvement of learning outcomes. Some of these were very much focused on materials or approaches including the use of technologies that directly impact on teaching and learning in the classroom; others were further removed from the learning process but impacted on aspects of education, such as leadership, accountability, school improvement, the home environment, and the provision of infrastructure that provides the wider context within which a quality education can be achieved.

The projects were categorised across the IfE themes of: accountability and empowerment, inclusive education, climate change and environment, effective teaching and learning, skills development and the use of appropriate technologies in education. In this document, the themes have been slightly reconfigured to allow for clearer lessons to be drawn for particular related aspects of the learning experience. These revised themes are:

- i. Enhanced learner access, retention and completion
- ii. Innovative approaches in the classroom
- iii. Skills for development
- iv. Enhanced leadership and accountability
- v. Educators' professional development

This chapter provides a thematic overview of the IfE projects. It is important to note that the themes serve to give an indication of the main areas that the IfE projects covered. Many of the projects focused on more than one aspect of educational quality (for example, both teacher professional development and enhancing school leadership) and so are discussed across the themes. However, given the limited space available, not all aspects of every project can be covered. For more information on individual projects, please see individual Project Summary documents see (*Innovation for education* @ [www.mineduc.gov.rw](http://www.mineduc.gov.rw))

### I Enhanced Learner Access, Retention and Completion

Projects under this theme focused upon innovative approaches to improving learner access, retention and progression for all children. Particular focus was for children who are less likely to access and achieve a quality education including those with disabilities and girls, particularly those from socio-economically disadvantaged families.

#### Children With Disabilities



*Inclusive futures in Rwanda: establishing and applying a set of national standards and norms in inclusive education* implemented a variety of activities from the home to national levels to improve the access to and quality of education for children with disabilities. This included community outreach work to increase the number of children with disabilities in school and to improve the quality of provision for children while in school by making the school environment more 'child-friendly' and by supporting teachers to respond to the needs of children with disabilities in the classroom. *Inclusive Education Partnerships for Awareness-Raising Consultation and Training* had a similarly multi-pronged approach through bringing together a range of stakeholders (parents, teachers and health workers) to devise and implement an inclusive education strategy at the school level for children with disabilities to attend and achieve while in school.

### Children From Socio-Economically Disadvantaged Families

*Mubyeyi, Tera Intambwe! Initiative (Parents, Step In!)* and *Improving Educational Quality & Access through Sustainable Investment in Students, Parents and Educational Institutions* both worked with parents in innovative ways to address issues of school drop-out and non-completion. *Mubyeyi, Tera Intambwe! Initiative (Parents, Step In!)* piloted a community education worker model, modelled on the successful community health worker model, as effective messengers of the value of education to parents who do not regularly attend school meetings, alongside radio talk shows. *Improving Educational Quality & Access through Sustainable Investment in Students, Parents and Educational Institutions* provided school fee loans to 5,000 parents to enable them to pay for their children to attend low-cost private schools. Through making school improvement loans available, these schools were also able to invest in improving the quality of education received by these learners. A new public-private initiative *Keeping Girls in School* focused particularly on the challenges girls face in staying in lower secondary school, achieving good learning outcomes and moving on to upper secondary school. The innovative approach brought together mentoring, peer support through girls' clubs and saving activities to provide a coherent strategy for addressing the social and economic factors that impact on girls' educational experiences.

### II Innovative Approaches In The Classroom

Projects related to this theme focused on new approaches to enabling more effective learning in the classroom. Projects concentrated on the early years and primary schooling and piloted particular technologies, materials and personnel as the enablers. Across these projects, there is a strong Continuing Professional Development (CPD) element and the importance of training and ongoing support for the implementation of these enablers should not be underestimated.





## Learner-centred and inclusive methods for teaching and learning

The first enabler introduced by some projects was introducing new, more learner-centred and inclusive methods for teaching and learning. For example, the *Improving the Quality of Education through Active Learning* project piloted the innovative 'Active Learning Method' of teaching which involves learners doing something and then reflecting on what it is that they have done. It seeks to improve learners' critical thinking, problem-solving and comprehension skills. The project involved training in-service teachers and pre-service teacher trainers to use more active learning methods in the classroom. The Gasabo School Development Programme implemented a 'whole District, whole School' approach. It aimed to improve learning outcomes for boys and girls and their greater participation in lessons through more learner-centred approaches to teaching in public schools in the Gasabo District of Rwanda. Complementary teacher training focused on foundational child-centred educational competencies.

## Learning support technologies

Introducing different kinds of learning support technologies was the second kind of enabler introduced by some projects in this theme. These projects piloted the implementation of information and communication technologies (ICTs) which would facilitate more effective teaching and learning rather than feature as a distinct part of the curriculum. One example, *Know Zone Rwanda*, introduced the use of educational TV programmes to support learners in revising for the core subjects for the Primary 6 national examinations. The *Promoting Spatial Thinking in Natural Resource Management through Community Mapping* project was a pilot for the teaching of spatial thinking and aimed to empower young people with improved conceptual and technical skills. Teachers were trained in spatial mapping and students learnt geographic technology and mapped the local environment surrounding their schools.



## Learning support materials

A third enabler tested by the projects was the introduction of learning support materials. *The Rwandan Children's Book Initiative* successfully piloted the greater use of Kinyarwanda reading books in the early years of primary school. The innovation worked at two levels: nationally to systematically improve the writing of appropriate reading books; and at school level, to promote the use of reading books. The project sought to use these materials to improve children's ability to access reading books and improve their literacy rates. *Improving Learning Outcomes through Language Supportive Textbooks and Pedagogy* focused on a different approach to positively impacting learners' achievement – the accessibility of the English language in textbooks in Primary 4 (the transitional year from learning through the medium of Kinyarwanda to English). Three pilot textbooks that were accessible and allowed for English language development were successfully implemented to indicate the way this language supportive approach could improve student learning in English and other subjects.

## Learning Support Personnel

The final enabler was building the capacity of learning support personnel. The first two in this sub-theme focused on early childhood development (ECD) centres where there is a shortage of trained workers, particularly in socio-economically disadvantaged communities. *Early Childhood Care-Giver Professional Development and Certification Programme* trained and placed 158 unemployed young women as interns in ECD centres. At the end of the internship, they were encouraged to work in poor communities where there has been limited access to ECD. *The Rwandan Emergent Literacy and Maths Initiative* also focused on ECD through the implementation of literacy and numeracy learning materials and inclusive teaching methods for pre-school children. A large element of the project was the training of parents to provide effective learning support for their children, particularly in areas where they could not access high quality ECD learning. *Improving Teacher-Librarian Education in Rwanda* had the clear aim of developing teacher competencies to act as librarians. This was through the development of a new undergraduate programme in librarianship at the University of Rwanda and training of in-service teachers to help them better manage information resources at the school to allow for learners to have the use of books and other information resources in classroom learning.

## III Improving Skills For Development

Projects within this theme took a broader perspective to 'learning for all' and encompassed projects specifically developing skills of children and young people. The focus tended to be on the later stages of education – lower and upper secondary schools, as well as technical colleges. The skills developed included financial, social, environmental and technical skills.

### Financial skills development

Financial skills development included projects where learners were taught about approaches to saving and financial planning. Two projects – *Keeping Girls in School and Improving Educational Quality & Access through Sustainable Investment in Students, Parents and Educational Institutions* – provided learners with training in saving alongside other activities. *Afla Academy for Financial and Social Education* exclusively focused on financial skills development. Their aim was to develop young people's capacity for entrepreneurship, and learners received financial education in the classroom through active learning methods.



### Social skills development

Social skills development included projects which sought to develop learners into good citizens related to positive values and responsibility. *Afla Academy for Financial and Social Education* also focused on social education to develop young people's capabilities for responsible citizenship. Similarly, *iWitness in Rwanda: Developing Critical Thinking and Promoting Positive Values using Internet-based Resources* focused on developing young people's critical thinking and reflective skills so that they can be responsible citizens in adulthood. The project used internet-based

witness testimonies of genocide to promote positive values and empathy among the young people who participated.

### Environmental skills development

Environmental skills development included *Empowering Rwandan Education Professionals to deepen environmental protection and climate change through “Green School Initiatives”*. This project explicitly looked at environmental education. It aimed at developing young people’s environmental commitment through school-based projects including the building of school gardens and the teaching of an environmental curriculum.

### Technical skills development

Technical skills development included projects which focused on Technical and Vocational Education and Training, both in technical and secondary school settings. *The set-up of the Rubengera Technical Secondary School* developed skills in carpentry and wood technology in one private technical secondary school using an innovative teaching approach known as Dual Integrated Technical Training, which links reflective practical training with production for the market under the supervision of highly qualified craftsmen. The other project which developed young people’s skills development was *Promoting spatial thinking in natural resource management through community mapping*. Through the use of geographic mapping technology to map the local environment, young people learnt conceptual and technical skills that are not a central part of the existing curriculum.



## IV Enhanced Leadership And Accountability

Projects related to this theme recognised the importance of effective and accountable leadership and community engagement for the delivery of good quality education. While the projects focused on skills development and shifts in attitudes and behaviour, the long-term aim was the improvement of learning outcomes for all children.

### School leadership

Some projects specifically focused on school leaders and their capacity to effectively manage and lead an educational organisation. *Coaching School Leadership to achieve high level learning outcomes* exclusively focused on head teacher competencies. This project trialled a number of different approaches to head teacher CPD including: face-to-face coaching by education officers, training of head teachers, and a combination of the two. All three were shown to have some effect on the perceived competencies of head teachers’ leadership. In both *Improving Educational Quality & Access through Sustainable Investment in Students, Parents and Educational Institutions* and *Achieving Learning Outcomes for All* there was a head teacher development

component. The former trained head teachers in more effective financial management, while the latter promoted the importance of school leadership for supporting effective teaching and learning in the classroom.

### Community engagement

Other projects focused on strengthening the capacity of parents and the local community to contribute to school management and hold local education providers accountable. *Mubyeyi, Tera Intambwe! Initiative (Parents, Step In!)* included strengthening the capacity of parents to contribute to effective school management through Parent Teacher Associations. Similarly, *the Gasabo School Development Programme* developed and implemented a framework for the local community, and worked with community educational leaders to support school management. An important part of this was developing a greater expectation for accountability and responsiveness between education providers and communities. *Ndi Hano! (Here I am!): Daily teacher and pupil attendance management using SMS reporting* generated data on teacher and pupil attendance. Making this information more transparent was intended to enhance community accountability for the quality of learning happening in their schools.

*Improving quality of primary/lower secondary education through community engagement in management of school resources* focused solely on community engagement in school resource management. The approach was two-fold with school management committees trained to become more involved in the management of school resources and an initiative put in place in the community to hold education officers to closer account in relation to the quality of education in local schools. Essentially, the innovation tackled the issue of ownership with parents more involved in the education of their children in *their* schools.

### V Educators' Professional Development

Many projects involved elements of CPD to support the implementation of innovations. Several projects, however, were also innovative in their implementation of CPD.



## Peer learning

Many of the projects involved forms of peer learning. *Achieving Learning Outcomes for All*, for example, used forms of peer mentoring to support the uptake of learner-centred methodologies. In a similar vein, *the Gasabo School Development Programme* introduced the new role of 'teacher multipliers' to promote learner-centred approaches. As we have seen, in the *Improving the Quality of Education Through Active Learning in Rwanda* project, teachers engaged in an ongoing 'ALM cycle' of monitoring, sharing and improving. During the 'monitoring' stage, teachers were filmed in their own classroom and observed by other education staff using ALM classroom observation schedules. At the 'sharing' stage, reflection and discussion took place based on the videos and classroom observations, and the strong points and areas for further development were discussed.



## Innovative use of technologies

Some projects combined the use of peer learning and the innovative use of technologies to deliver CPD. For instance, *eTeacher Training at Teacher Training Colleges* introduced techniques for using ICT across the curriculum and built the capacity of pre-service teacher trainers to train teachers in using ICT effectively. *Teacher Self-Learning Academy* delivered a teacher self-study programme through the use of audio-visual materials, linked with teacher peer learning through teacher reflection groups. *The Mentorship Community of Practice* trained school-based mentors whom MINEDUC had deployed to support basic education throughout

•Projects used different ways of measuring learning outcomes. Some used the results of existing school tests; some adapted other existing standardised tests such as the Early Grade Reading Assessment (EGRA); whilst others designed bespoke tests.

the country. It was innovative in developing on-line resources and communication tools to allow mentors to provide peer support to each other in developing their professional practice.

Both *the Teacher Self-learning Academy* and *Strengthening Teacher Effectiveness through Mentoring Supported Autonomous Language Learning* piloted the use of blended learning for teacher CPD. The blended learning packages combined self-managed learning aided by technology (mobile phones and iPod) and in-person support (by fellow teachers and school-based mentors). *The Teacher Self-learning Academy* sought to improve the quality of education through the development of Primary 5 and 6 teachers' use of learner-centred methods and technology as well as English language development. *Strengthening Teacher Effectiveness through Mentoring* used this approach to focus in on improving primary teachers' proficiency in English and their confidence to teach across the curriculum in the medium of English.

## CHAPTER 3: INNOVATION FOR EDUCATION OUTCOMES

A key priority for the Innovation for Education Fund Manager was to collect evidence about the impact of innovations on learner outcomes that could be used to support the scaling-up process within MINEDUC. IfE demonstrated that improvements in learning outcomes were possible in the relatively short project time-frame if innovations immediately provided solutions to problems of quality education at the point of delivery, i.e. schools. However, most projects sought to achieve outcomes that would create the necessary conditions for learning outcomes to be improved beyond the life of the innovation fund. These 'intermediate outcomes' were mainly concerned with improving the knowledge, attitudes and practice of project stakeholders in relation to innovative education processes. This chapter provides an overview of these two main types of outcomes across the 26 IfE projects. A discussion of the main lessons that can be learnt from the process of monitoring and evaluating innovation is included as Annex 1.

### Improvement in learning outcomes

Learning outcomes included improvements in traditional outcomes covered in the formal curriculum, such as improvements in literacy or numeracy (often measured through performance in standardised tests), as well as in a range of skills for development including financial, social, environmental and technical skills not currently covered in the traditional curriculum but which were aimed at assisting learners in their day-to-day life out of school. Most of the projects targeted the classroom as the site in which learning outcomes were to be realised, although some targeted informal learning environments. *The Emergent Literacy and Maths Initiative*, for example, worked with parents as educators in the home whilst the *Promoting Spatial Thinking in Natural Resource Management through Community Mapping* project targeted learning in the environment immediately surrounding the school.



There was considerable variation in the extent to which projects were able to demonstrate improvements in cognitive learning outcomes using standardised tests . Some projects demonstrated significant improvements. For example, Improving Learning Outcomes through Language Supportive Textbooks and Pedagogy (LaST) supported the development of language supportive textbooks and trained teachers in language supportive pedagogy to help learners to access textbook content and develop their English language across the Primary 4 curriculum. Learners at LaST and non-LaST schools were tested using specially designed language tests for their understanding of the topics covered in the chapters of the textbooks. Learners at LaST schools performed significantly (16%) better than those at non-LaST schools. This suggests that the innovation had aided learning with key factors contributing to the achievement of outcomes being a virtuous cycle of:

- The engagement of teachers in the training,
- Regular observations and feedback to teachers
- Teacher willingness to change their classroom practice
- The effective use of the last materials,

Similarly, *Emergent Literacy and Maths Initiative* (ELMI) introduced an emergent Literacy and Maths programme in early childhood centres and parent groups with the aim of better preparing pre-school learners for primary school. ELMI saw positive learning outcomes for Literacy and Maths using bespoke tests to measure their school readiness. The improvement from the start of the project to entry to primary school was 28% in literacy for children at the ELMI centres, compared with 22% at non-ELMI centres. For Maths, the improvement is 18% compared with 17%. Learners were also observed for their 'learning approach' while in Primary 1, encompassing their motivation, interest, concentration and confidence. The finding here is that for both treatment groups the interventions are benefiting all families and children equally, regardless of socio-economic status. This compares with non-ELMI learners where there were significant differences by gender (with boys performing better than girls) and socio-economic status (with children from higher-economic groups performing better than those from poorer households). Significantly, the ELMI trained parenting component, which was much less resource intensive, produced almost the same absolute levels of achievement as the ELMI ECD centre approach and recorded the best gains in learning outcomes - implying it is a better option for scale up. In effect the empowerment and enthusiasm of even illiterate parents matched the learner centred, participative approaches and new resources of the ECD centres



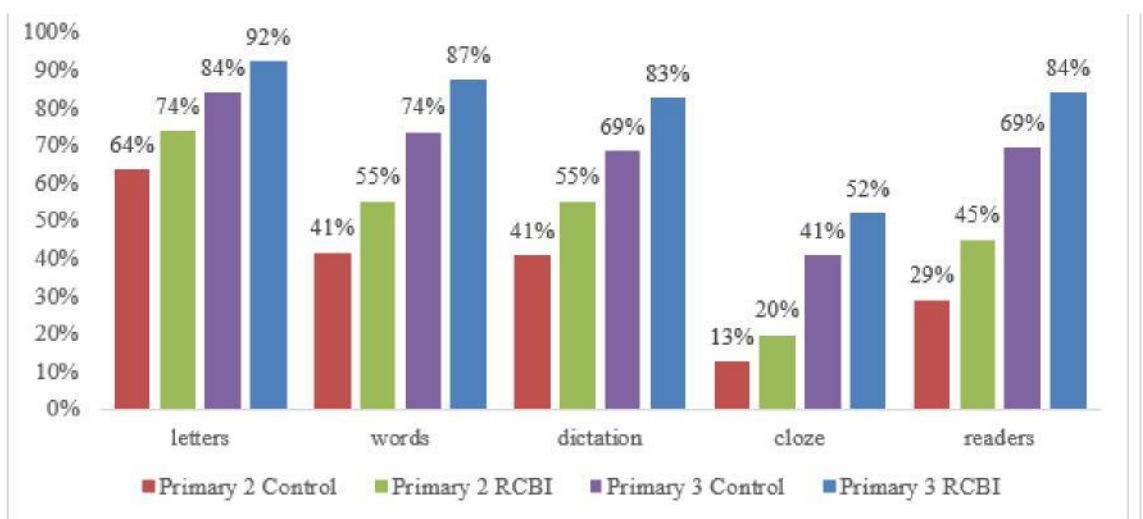

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<sup>3</sup>The five provinces of Rwanda are divided into 30 administrative districts. Each district is in turn sub-divided into sectors (416 in total).



Rwanda Children’s Book Initiative (RCBI) supported the production, distribution and use of Kinyarwanda children’s reading books in the early years of primary school. Classroom observations and questionnaires showed that reading books were being used significantly more often by learners. At the end of the project, primary two and three learners at RCBI and non-RCBI schools were tested for their recognition of letters and words, dictation, cloze (insertion of missing words) and reading aloud. As shown in the table below, RCBI learners performed better across the tests and year groups with outcomes attributable to the significant increase in reading books in schools and the teachers improved knowledge, skills and confidence to manage school book collections and use books to support reading and learning.

Figure 2 RCBI Average Skills by Grade and Group: Full Sample



In some other projects there were also significant improvements in learning outcomes although these were not always consistent across different subjects or from large samples of learners. *Achieving Learning Outcomes for All* which promoted the use of learner-centred methods in the classroom saw a significant (30%) improvement in English reading test results achieved

by P5 pupils in rural and remote schools. However, there were poor results for Mathematics with the treatment group scoring less at the end of the project than at the beginning. The set-up of *Rubengera Technical Secondary School*, which introduced teachers and learners to new, more reflective and interactive approaches to carpentry skills training, showed good learning outcomes for all students enrolled on the course with a slight improvement in marks from Secondary 4 – 5, but this was within a very small sample size. This was found across boys and girls (the latter’s enrolment having increased from 3% to 28%, attributable to the strategic promotion of the participation of girls in technical education and an innovative approach to mobilizing women to support TVET).

By way of contrast, some projects showed no improvements in learning outcomes. *KnowZone Rwanda*, promoted the use of technology and educational TV programmes in the classroom which teachers struggled to get to grips with and use constructively in class to improve their teaching practice. *Improving the Quality of Education through Active Learning in Rwanda* introduced new active learning methods into primary classrooms, which were positively evaluated by the teachers trained and the sector and school based staff supporting them, but which did not reflect in the school examination scores used for evaluation.

There were also a small number of projects which focused on developing other skills for development amongst learners including financial, social, and environmental skills. These tended to be projects which focused on an aspect of learning outside of the classroom. These included the promotion of environmental issues in the *Green School Initiatives* project and the development of financial management for girls in *Keeping Girls at school (KGAS)* so that they felt more confident staying in school. While KGAS did not show a significant impact on drop-out, there was a measured shift in girls' attitudes towards spending and saving. The girls who participated in KGAS had an 18% higher probability of spending on education and a 34% higher probability of saving than those who had not participated. Findings from the interviews with girls are particularly insightful. These included girls demonstrating increased confidence by developing peer relationships in saving clubs and some finding the mentoring process one where they could share personal problems.



'IWitness' used witness testimonies of genocide to develop learner values and critical thinking. This project also showed qualitative evidence of the development of positive values, including empathy and tolerance, e.g.:

*Learner 1: the other thing that touched me was watching testimonies from genocide survivors because they had so much pain from their experiences but what I liked was that they decided to move on from that pain and develop themselves.*

*Learner 2: What has touched me was the fact that I used to think that you cannot go to someone whose people you have killed to tell them how it all happened but with these testimonies, I learned that telling the truth to someone that you have offended can resolve the conflict between you.*



The results were more mixed for the *Alfa Academy for Financial and Social Education* project. In terms of learner social skills development, showing increases for learner self-efficacy (a belief in one's competence to tackle new tasks and to cope with adversity), financial literacy, planning attitudes, and savings behaviour. There was no improvement in students' reported pro-social skills, savings attitudes and entrepreneurship.

## Development of Knowledge, Attitudes And Practice (KAP) Amongst Stakeholders

International literature suggests that learning outcomes alone are often not the most appropriate evaluative measures for innovation. None of the 26 projects worked directly with learners. Rather, they sought to influence learner outcomes through the development of a range of 'intermediate outcomes'. These intermediate outcomes included the development of knowledge, attitudes and practice (KAP) amongst different kinds of stakeholders and associated changes in behaviour that it was hoped would, once established, then enable them to deliver improved learning outcomes.

Different stakeholders operate at different levels of the Rwandan education system:

- The national level (policy makers and officials working in MINEDUC and in the Rwanda Education Board (REB), education publishers).
- The sector and the district (e.g. Sector Education Officers (SEOs) and District Education Officers (DEOs))
- The community (e.g. Community development workers or parents in the home)
- The organisation (e.g. Head teachers, school-based mentors)
- The immediate learning environment (e.g. Teachers in the classroom)

Nonetheless, all of these stakeholders potentially contribute to improving the quality of education within the context of the Rwandan education system as a whole. The achievement of intermediate outcomes through changes in the knowledge, attitudes and practice (KAP) of these different stakeholders thus provides another important yardstick, in addition to improvements in learner outcomes, against which the progress and success of innovations can be evaluated. Generally, the closer the innovation is to the action of the classroom and the greater its involvement of the end-user, the learner, then the more obvious and immediate the impact on learning outcomes will be.

### National KAP

The vast majority of projects focused on educational change at the local level but a small number of projects also featured components at the national level and the capacity of private and government sectors to implement educational innovation. Both the Rwandan Children's Book Initiative and Improving Learning Outcomes through Language Supportive Textbooks and Pedagogy targeted the publishing community and MINEDUC/REB as part of systemwide capacity development. In both projects, there is evidence of increased skills in the production of story books and language supportive textbooks, across their design, illustration, authorship and editing. This was self-reported in training evaluations and included many of those representing local publishers demonstrating local capacity building. It can also be seen in the quality of the books produced. These projects also included a significant advocacy and training component to stress the importance of reading and language-supportive books with key personnel from MINEDUC/REB. Workshop evaluations suggest increased awareness. If sustained, these systemic innovations will ultimately have an impact in classrooms and improve learning outcomes.

## Community KAP

For projects where the focus was on community engagement, there is also evidence of skills development among this wider constituency. This is particularly seen where new roles were created and local community members were trained in the skills needed to take on the role. *Mubyeyi, Tera Intambwe! Initiative (Parents, Step In!)* depended upon the innovative role of Community education workers (CEW) to work with parents to address issues that lead to learner drop-out. Similarly, *the Early Literacy and Maths Initiative* developed the capacity of parents to take an active role in their children's early development, and their impact on children's school readiness was equal to that of ELMIT-trained ECCD centre caregivers.



In projects that sought to engage parents more closely in their children's education, there is significant evidence to suggest that the innovations were successful in shifting parental attitudes. *'Mubyeyi, Tera Intambwe! Initiative (Parents, Step In!)*' demonstrated improved perceptions towards education with approximately two thirds (65%) citing the CEWs as the main reason for this improvement. Although there is an issue of attribution, there were significant increases in re-integration of primary learners in districts where the innovation was introduced. For example, the numbers of children returning to school in Gasabo district, where there had been 2,712 primary students re-integrated in 2013, had increased to 9,484 in 2015. Similarly, *Improving Educational Quality & Access through Sustainable Investment in Students, Parents and Educational Institutions* saw a shift in parental attitudes towards the relationship between poverty and learner drop-out. As a consequence of this shift in attitude, among the families who received loans, the proportion of parents citing poverty as a reason for child drop-out fell from 83.2% at the outset of the project to 50% at its end.

Shifts in understanding were also recorded among parents of children with disabilities. *Both the Inclusive Education Partnerships and Inclusive futures in Rwanda* surpassed their expected figures for numbers of children with disabilities enrolling in school. At the primary schools where their innovations were implemented, 1,223 and 1,296 children with disabilities enrolled respectively. Both projects utilised group discussions with parents to reflect on their experiences of the innovation. Findings suggested that parents are more inclined to support their children's learning once they have a greater understanding of the rights of their children to a quality education and their own responsibilities for making this possible.

•The Cell is the politico-administrative entity between Sector and Village

## School leadership KAP

For the projects with a focus on leadership, there was evidence of increased school leadership capabilities. For example, *Coaching School Leadership to achieve high level learning outcomes* found that head teachers reported on their progress on adopting 'eight dimensions' of successful school leadership. In this project, there is also qualitative evidence of SEOs demonstrating new skills in coaching head teachers to be better leaders. This is particularly significant given that many SEOs had initial difficulties in developing their new coaching role. Evidence of development of new skills among SEOs and School Based Mentors is also seen in their training and mentoring of teachers. Similarly, *Achieving Learning Outcomes for All*, saw head teachers self-reporting high levels of leadership skills by the end of the project. Here though the evidence of support from SEOs was much weaker.



Across the projects which engaged in teacher professional development, there was evidence of teachers' skills development. For example, the *eTeacher Training College* showed that the majority of teacher trainers and teachers (66% and 96% respectively) had developed skills in the use of technology in the classroom by completing the e-teachers training course. This positioned teachers to better implement technological innovation in the classroom. Similarly, teachers were trained in learner-centred methodology under *Improving the Quality of Education through Active Learning in Rwanda* and qualitative observational evidence shows they use more active learning methods at end-line than baseline, and involve students in more activity-based learning. In interviews, teachers disclosed that they had developed their confidence and skills in applying learner-centred methods in the classroom. For the *Early Childhood Care-giver Professional Development and Certification Program*, in which 158 young women were trained in early childhood care, the majority of the trainees (73%) stated that they strongly agreed that they had the skills to succeed in the workplace. (There was no difference in the control group and intervention group of caregivers in terms of teaching practices. The intervention group used a wider range of methodologies but their practices were not performed as consistently as those of the control group).

While projects related to teacher professional development tended to focus on shifts in behaviour and the impact for learners in the classroom, it is evident that there was some shift in attitudes towards teaching methods (for example, the use of technology or learner-centred methods in the classroom) and styles of professional development. The latter was particularly seen with many examples of teachers showing positive attitudes towards blended

learning which brought together guided self-study with peer learning and self-reflection. In *Teacher Self-learning Academy and Strengthening Teacher Effectiveness through Mentoring*, positive attitudes towards this learning can be linked to the recognised need for language development among teachers who are not confident in teaching through the medium of English.

### Teacher professional development and KAP

For a number of projects, particularly those concerned with improving teaching methodologies in the classroom, the focus was on bringing about changes in behaviour. There were positive outcomes for change in teaching practice for many projects focused on effective teaching and learning and inclusive teaching methodologies. Results from quantitative evaluation techniques showed that across a range of classrooms, teachers were shown to respond positively to training and systematically introduced new teaching methodologies. In those projects which sought to introduce more inclusive methodologies in the classroom, there were improvements, although often modest, in teacher behaviour to incorporate these methodologies. For example, The *Teacher Self-learning Academy* showed a small but significant change in teaching practice, particularly among science teachers, when quantitatively measured. There was also measured change in the use of active learning methods and more activity-based learning in *Improving the Quality of Education through Active Learning in Rwanda*. In some cases the findings were more inconclusive. For instance teachers were observed to score highly in the use of some learner-centred methods in *'Achieving Learning Outcomes for All'* but less highly in others including the use of group and pair work. Here, however, there were difficulties in comparing the end-line and base-line results meaning that the findings are not robust. Similarly, whilst more than two thirds (68.75%) of in-service teachers stated that they have used more inclusive principles in the classroom in *Inclusive Education Partnerships*, the exclusive use of teacher self-reporting as a means of verification also makes these data unreliable.



Qualitative findings across these projects also support the fact that many teachers changed their pedagogical practice to include more learner-centred methods. For example, qualitative findings from the *Teacher Self-learning Academy* enhanced the quantitative findings (above) by showing the ways in which professional development has shifted their behaviour through the greater use of group work and the development of new and inexpensive teaching aides. This suggests the potential for longer-term shifts in behaviour in these classrooms. Similarly, *Gasabo School Development Programme* showed significant improvement in teachers' classroom practices across all indicators, including in participation and the promotion of positive values, although there was variance across the schools where the project was implemented. This was explained in the qualitative findings with teachers suggesting that the impact of the teacher multipliers (trained peer mentors) on teachers' practice depended on the support of the school leader.



The projects which saw significant change in effective teaching and learning were those where the need for the innovation was well recognised by teachers (see Chapter 2 for more discussion). One example here comes from projects which focused on English as the medium of instruction. *Strengthening Teacher Effectiveness through Mentoring* supported primary teachers' English capacity and their confidence in teaching through the medium of English. Teachers were shown to give very positive reactions to the innovation because it addressed a challenge that many teachers were facing. By the end of the project, classroom observations demonstrated that all teachers were able to deliver lesson content in English to a satisfactory level with the vast majority (85%) able to present the content 'clearly and effectively in English'. Another positive example comes from *e-Teacher Training at Teacher Training Colleges* where the level of technology in the classroom increased significantly from the baseline in all the TTCs and the secondary school involved in the project – in 13 out of 16 lessons the use of ICT in the lesson was observed (compared with just 2 out of 20 at the start of the project). This was supported by self-reporting data from teacher trainers with more than two thirds (70%) stating that they used ICT in their teaching at least twice a week (an increase of 22% from the start of the project). Similarly, technology was seen to support the work of the School-Based Mentors in *Mentorship Community of Practice*.

This project set up an online community of practice for school-based mentors to provide peer learning and documentation in support of their work with teachers across the country. By the end of the project, more than two thirds (70%) of the membership were actively engaged in the online community with some measurable improvements in levels of peer learning and school-based mentors' work with teachers on English language skills. It is important to note that though there were improvements in mentor behaviour, this was not matched by changes in measurements for attitude or motivation. The findings from this project demonstrate mixed outcomes for projects related to technology and suggest that there is potential for technological innovation to lead to positive outcomes but the conditions and context are important considerations (this is discussed further in Chapter 4).



## CHAPTER 4: THE CONDITIONS FOR SUCCESSFUL INNOVATION IMPLEMENTATION AND SCALE-UP

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The IfE's focus on *process of innovation evaluation* goes beyond outcomes. IfE used qualitative studies to examine the conditions and context of the innovation to demonstrate how people and systems change, and to identify the key enabling factors and actors that enabled the innovation to achieve certain outcomes and impacts. All 26 IfE projects identified potential process of innovation (PoI) issues and risks to successful implementation at the outset of the project life cycle. All wrote PoI evaluation reports reflecting on these issues. Each project was also required to consider the potential up-scaling and sustainability of the innovation and the key barriers and enablers to this. Thus although this document deals largely with the implementation stage of the innovation process (see the Introduction) it is possible to give some preliminary consideration to a number of issues that MINEDUC will need to take into account when considering scale-up of innovations. The project reports have been systematically analysed and themes manually coded. From this analysis, the key conditions for successful innovation implementation have been highlighted. These are:

- Fit to policy
- Fit to curriculum
- Stakeholder engagement
- Building capacity to innovate
- Existence of a supportive infrastructure

With reference to the conceptual framework in the Introduction, the first two conditions relate to factors at a national level whilst the others are more local. It is suggested below however, that as the projects move towards scale-up some of these conditions will also have greater implications for the national level.

### Fit to policy

This condition relates to the compatibility of an innovation with the wider policy environment. This is to acknowledge that although projects were initially identified for their relevance to the ESSP, there is also a wider policy, legal and regulatory framework governing different parts of the education sector that innovations also need to fit within. Furthermore, policies have the potential to change and this has implications for the future scale-up of some innovations.

While all projects were relevant to the Rwandan Education Sector Strategic Plan, there were some that were more closely related to particular education policies. A key success condition for these projects was the fit to current and evolving education policies. One example of a project where there was successful integration into government priorities was the *Early Childhood Caregiver Professional Development and Certification Programme*. This is a project that addressed a very current need in the educational field for trained professionals to provide low-cost early childhood care (ECC) across Rwanda.

The 2011 ECC policy laid out plans for ECC to be available in all cells. Training for the tutors who will deliver the ECC training in teacher training colleges (TTCs) is under way but, in the short-term, there is a real need for alternative training programmes. The integration of the ECC Professional Development and Certification Programme in TVET addresses this need and the project team has been involved in a series of meetings with senior officials in the REB and the Workforce Development Authority (WDA) to take this forward. Similarly, the *Strengthening Teacher Effectiveness through Mentoring (STEM)* project clearly addresses a government priority which is to improve the level of English of teachers. The project has

enjoyed considerable support within MINEDUC as a result and this is likely to enhance its chances of scale-up.

Two other projects provide interesting contrasts to the above in that they do not fit quite so well with current government policy despite also demonstrating positive results in their evaluations. The *Emergent Literacy and Mathematics Initiative* successfully showed the potential for educating parents to improve the literacy of their children as compared to ECD centres. Although scaling up the parental involvement aspect of this innovation might ultimately prove more cost-effective than training ECD professionals it does not fit so well with current MINEDUC policies or priorities thus potentially affecting its likelihood of scale-up. Partly for this reason the project team have been seeking to integrate the parental component within the programmes of the Ministry of Gender and Family Promotion (MIGEPROF) with as yet unknown results. Similarly, despite positive evaluation results, the *Improving Learning Outcomes through Language Supportive Textbooks and Pedagogy* strongly advocated for the strategic use of some Kinyarwanda words in textbooks and a bilingual approach to second language acquisition but has encountered significant barriers by challenging the English Medium policy.

### Policy implications for scale-up

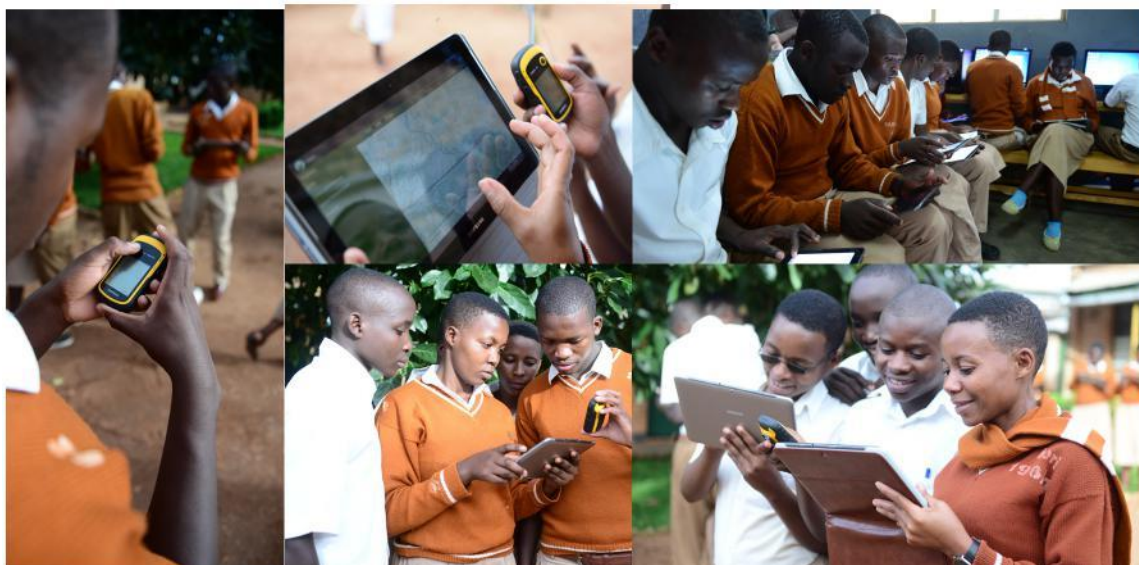
The above draws attention to three related issues that have implications for the future scale-up of innovations. First, from a MINEDUC perspective it draws attention to the possibility of reviewing existing policy where there is sufficient evidence from IfE projects and from elsewhere to support this. Secondly, from the point of view of projects it draws attention to the importance of on-going advocacy work to influence the direction of future policy. As we have seen in the case of some projects, this is because the existing policy either provides a barrier to scale-up and/or future policy directions are uncertain. (This latter is pertinent in relation to the government's long-term policy towards low-fee private schools which has implications for the future scale-up of the *Sustainable Investments in Students, Parents and Educational Institutions in Rwanda* project). In the case of virtually all of the projects, successful scale-up will require MINEDUC's commitment to providing additional resources. Thirdly, scale-up in the majority of cases will also involve on-going changes to the curriculum; the development of capacity in the form of new roles and training; and the continuing development of infrastructure. These in turn require a policy commitment on the part of MINEDUC and central advocacy for change if innovations are to be realised, as is discussed in the following sections.

### Fit to curriculum

Across the projects, a key condition for successful implementation is a close link to the national curriculum. Projects where the link was clearly demonstrable tended to find greater teacher and school leader engagement and allowance for the innovation to be incorporated



into the school timetable. Broadly speaking, projects which implemented something new in the classroom but within the parameters of the existing curriculum were well received by local stakeholders. For example, in the projects that integrated new inclusive teaching methodologies or materials, such as *Improving the Quality of Education through Active Learning*, *Gasabo School Development Programme*, *Language Supportive Textbooks* or the *Rwandan Children's Book Initiative*, were generally viewed as a new approach for delivering the same curriculum.



However, it is important to note that there was some confusion regarding the role of technology in the curriculum for projects which sought to introduce ICT in the classroom. Some projects reported that ICT was often seen as an extra-curricular or stand-alone activity by teachers and school leaders rather than a mechanism through which to deliver the curriculum. One project that particularly encountered this was *KnowZone Rwanda*. Here, there was a significant challenge in the use of technology being seen as a medium to improve learning more broadly. Teachers, head teachers and SEOs often saw the innovation as separate from everyday teaching. There are clear implications here that the development of innovation through ICT requires shifts in the perceptions of local stakeholders in the value of technology to enhance everyday teaching. This project also highlighted the need for significant ICT awareness training for teachers and those who support their teaching (head teachers and education officers).

Where projects were deemed not to fit with the existing curriculum, they reported that the innovations were often not given high importance by key stakeholders. For example, *Promoting spatial thinking in natural resource management through community mapping* found that, given there were no clear links to the existing curriculum, teachers were reluctant to engage in the innovation apart from outside of normal classroom time. Similarly, *Empowering Rwandan Education Professionals to deepen environmental protection and climate change through "Green School Initiatives"* found that school leaders and local education officers tended not to see the

<sup>5</sup> See the report on the Diagnostic Survey of MINEDUC Capacity to Support Innovation produced as a separate document for the Hub for Innovation project.

learning benefit of the innovation because it was not directly linked to in-classroom teaching. This project tried to work with REB to bring environmental education more centrally into the existing curriculum and, conversely, could possibly have made more of the potential of the enhanced school environment to complement more 'traditional' subject teaching.

Fit to curriculum was also deemed an important condition for sustaining and potentially upscaling individual innovations. Here there is a clear lesson that it may be easier to bring about small but discrete change to the curriculum, for example, inclusion of content into one subject. This can be seen in the example of *IWitness* in Rwanda where close involvement in the curriculum review and curriculum implementation process, to ensure a link between *IWitness's* witness testimonies content and methodology and the new curriculum, has strengthened the relevance of the project and its chances for scale-up. Set up of *Rubengera Technical Secondary School*, the smallest of the IfE projects, is another example where there is potential for sustainable change and planned upscaling at a localised level rather than jumping to wider diffusion and adoption nationally.

Other projects highlighted the importance of flexibility in the ways in which innovations can be integrated to fit with the curriculum. *Implementing Aflatoun programme in offering Financial and Social Education to Rwandan children* set out with expectations for the programme to be integrated into the new curriculum as a discrete subject. When there was recognition that this would not be possible, the project team highlighted the need for flexibility and suggested ways for the programme to be integrated across different aspects of the curriculum. There, is, however, a risk involved in the integration of innovation within the new curriculum in that some of what is innovative and exciting about the pilot may be lost during scale-up. This was a specific concern not only of the *Aflatoun* programme but also of the *Green School Initiative* project. In both cases it was recognised that integration into the curriculum has implications for teacher training, as discussed below.



The above example also illustrates a key opportunity for scale-up in that the government is currently in the process of implementing a new competency-based curriculum and there may be scope for including new competencies (in this case financial and social competencies) within the new curriculum. Even though the curriculum design process is completed there are still opportunities to influence curriculum implementation: i.e. through curriculum training and bringing in new materials that support the implementation of the new curriculum in the classroom. There is also scope for projects such as *Aflatoun* and *Green School Initiative* to continue to advocate for space in the new curriculum.

### Stakeholder engagement

A key condition for successful implementation of the innovations was the engagement of diverse groups of the projects' stakeholders. Here engagement refers to the extent to which different stakeholders are involved in the innovation process. Across the 26 projects stakeholder engagement relied on the perceived need, relevance and practicality of the innovation. Being able to see a direct benefit was critical. For example, this was clearly shown in the projects that focused on the language issue for both teachers (*Strengthening Teacher Effectiveness through Mentoring*) and learners (*Improving Learning Outcomes through Language Supportive Textbooks and Pedagogy*). Another example is from *Mentorship Community of Practice* which developed an online community of practice for senior school-based mentors. This was well-received by the mentors because they saw it as time saving and providing an effective alternative to long transport trips.



In the projects which focused on CPD, we can see the interplay between perceived need and practicality of the innovations. Stakeholders not only needed to see the benefit but also needed the time and space to engage in CPD using materials that were easily accessible. Many projects reflected upon the difficulties for teachers to engage in the CPD opportunities, such as training related to the projects or space to reflect on their own practice, because of competing time pressures from long hours of teaching and marking. For example, reflections from *Teacher Self-Learning Academy* suggest watching videos of their teaching and engaging in reflection based on the videos proved difficult for teachers who were short of time to undertake the activities. It is evident that time is crucial for innovations to be embedded within the institutional structure at the school level and to bring about cultural change in understanding, attitudes and behaviours that is required. Teachers need time beyond the training and reflection to get used to new ways of working in their teaching within the

classroom. Thus although it is strongly suggested in the following section that peer learning, including peer learning supported by technology, has an important role to play in CPD, this lack of space and time had implications for teachers' capacity for sustained engagement in the activities that were central to the CPD programme and this must to be taken into account in scaling up (see below).

It is not only the direct beneficiaries of the innovations who need to see the relevance and practicality of the innovations. It was evident from across the projects that the wider educational community needed to support and understand the innovations. This was particularly in relation to the school leaders, local education officers and the teacher trainer community. The latter were indirectly involved in a number of projects, particularly as thoughts turned to the sustainability of projects and the embedding of new teaching methodologies in pre-service teacher training. The engagement of these indirect stakeholders has the potential to contribute to a more conducive environment for innovation implementation. The *Coaching School Leadership to Achieve High Level Learning Outcomes* had some success in using SEOs to coach head teachers. Head teachers were also directly targeted in the Gasabo School Development Programme. However, it also became clear that their support was necessary for the successful implementation of all aspects of the project, including changes in teaching methodologies in the classroom and giving teachers the time and space to engage in CPD and peer reflection. The support of head teachers, SEOs and DEOs to encourage local ownership of the innovations was deemed to be critical to many of the projects. It was also identified as a key issue relating to scale up and sustainability of projects. A number of projects encountered significant challenges in engaging these stakeholders due to a lack of capacity. This issue is discussed in more depth in the next section.

The engagement of parents was also critical to the success of several projects. Two main types of learning emerged in relation to successfully engaging parents. First, parents were often best engaged in activities that directly supported their children's learning, as with Mubyeyi, Tera Intambwe! (Parents, Step In!). A face-to-face approach with individuals committed to spending time with parents and children in their homes was very well-received by both parents and children.

*One day a Community Education Worker came to visit me at home and asked me why I don't go to school. I told him that it is because my parents told me to leave school in order to help them with different home activities. The next day the Community Education Worker met my parents and discussed with them. After two weeks I returned to school.*

*(Learner, Mubyeyi, Tera Intambwe!)*



By way of contrast, *Community Engagement in the Management of School Resources* project sought to engage parents in the life of the school. The project approach around the 'accountability week' seemed to be very much about 'educating parents' as well as raising awareness about 'student behaviour'. The project evaluation highlighted the need for a stronger emphasis on the positive role parents can play in their children's education, and the potential need for teachers and schools to do things differently to cater to the needs of students and their parents (rather than only expecting change from parents and students).

A second learning point concerning parents is that they (and indeed other stakeholders) are often best engaged and develop ownership when they feel empowered by an innovation. The *Emergent Literacy and Mathematics Initiative* successfully engaged parents in their children's learning in the home. Parents were trained to do simple activities with their children that they can easily remember through use of the activity cards provided and that can be conducted in and around the house, in the market, etc. The innovation demonstrated parental empowerment in that parents started to understand that they have something to offer to their children in terms of learning, even if they are illiterate themselves.

A key learning with implications for scale up is the importance of finding ways to incentivise stakeholders to remain engaged in projects in the face of competing demands on their time. Stakeholder capacity and resources to take on the new responsibilities of project participation alongside their existing commitments was a key condition for success. Examples in schools include a new teacher-librarian role (*Improving Teacher-Librarian Education in Rwanda*), teacher mentors for girls (*Keeping Girls in School*) and teacher-mentors (*Gasabo School Development Programme*). Teachers often found that there were tensions between the expectations of their new role and their continuing priorities.



While the creation of the new role may make sense for the innovation, it is important that a balance is struck so that teachers do not compromise other aspects of their work. In *Keeping Girls in School*, some trained mentors dropped out of the scheme and the project responded to this by considering the ways to incentivise their involvement in the programme.

*That is a problem (unpaid mentoring) because some get discouraged and don't perform well. A volunteer should be motivated for the duty s/he committed to do.'*  
*(Teacher mentor, Keeping Girls at School Programme)*



The examples for increasing their interest in the new role include a certificate of appreciation and participation in training, public recognition of their involvement, and positive comment in performance appraisals. Mentorship activities were organised at manageable times to be as compatible with other commitments as possible. The use of performance management and role descriptors to incentivise government employed stakeholders to engage with innovations is an important issue with implications for scale-up and government budgets. This is discussed in more depth below.

### Building capacity to innovate

This condition for success is concerned with the development of roles to support innovations during the implementation phase and with a view to longer term scale up and sustainability. It is also to do with the support provided for that role, particularly in the form of CPD. This condition is closely linked to the previous one in that building capacity is vital to maintaining stakeholder engagement both in the short and longer term.

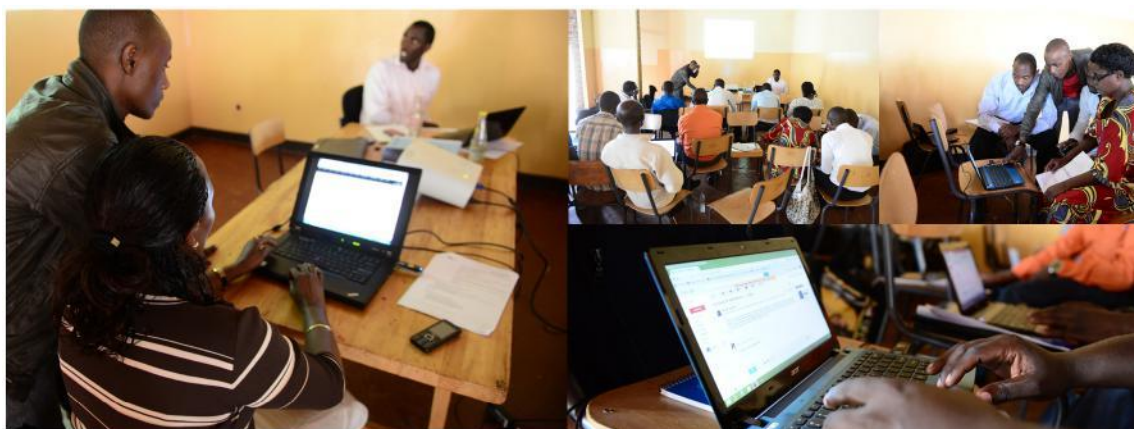
Many of the IfE projects required the development of new ways of understanding, attitudes and behaviours. As we have seen previously, some projects required teachers to teach in new ways, e.g. through learner-centred or inclusive methodologies. Other projects required head teachers to engage in new forms of leadership practice whilst yet others aimed to develop the role of parents in relation to their children's learning. An important overall finding from these kinds of projects is the potential of peer supported learning combined with reflective practice as a successful way of building professional capacity. Thus although teachers sometimes found it difficult to find the time to undertake this kind of professional learning, as noted



in the previous section, they also found it beneficial to be able to do this in their own time and at their own pace. As we saw in chapter three, forms of peer learning including those that made use of technology to support peer learning were generally evaluated highly. Peer learning could also potentially support other forms of CPD by providing on-going support for educators. In this respect, the findings from the *Improving Teacher Librarian Education in Rwanda Project* found that although the one-off training provided was highly evaluated, participants expressed the need for on-going forms of mentoring. An implication for scale-up is to find ways to more firmly embed processes of peer supported learning within professional development activities as a means for developing the capacity to innovate. This might also involve raising an expectation to include professional development in the job descriptions not just of teachers but of other education professionals.

Many projects reflected on the importance of securing local education office support to give the innovation credibility in the school and wider community. New roles were often developed to allow for local government engagement with the innovation but it became clear that engagement depended on more than the creation of a new role. For example, in a number of projects Sector Education Officers (SEOs) were invited to committee meetings but without a clear steer as to what their participation would entail. Similarly, there were examples of SEOs being given a discrete role in the project but SEOs showing reluctance to take part since this was not part of their official duties. *Strengthening Teacher Effectiveness through Mentoring* suggested the importance of flexibility when engaging local education officers.

This was achieved through reflections on the expectations from SEOs and the decision was made to lighten the workload of SEOs. Another important reflection from *Coaching School Leadership* is that any role given to SEOs needs to be in line with existing policy and practice. In this project there was difficulty in implementation due to a high turnover of SEOs. As with teachers and head teachers, there are implications here for the way that the roles of DEOs and SEOs are defined in job descriptions. There is also a need to more clearly define the distinct role district officers are expected to play in supporting innovation. Moving towards scale-up, a possibility is to specifically include support for innovation within performance management targets for officials at this level. This might seem especially appropriate in the context of a move towards a more decentralised education system and the introduction of district development plans.



Some projects relied on the creation of entirely new roles. *Mubyeyi, Tera Intambwe! Initiative (Parents, Step In!)* successfully introduced the new role of 'Community Education Worker', modelled on the community health worker, to engage parents in their children's learning. *Emergent Literacy and Maths Initiative* reflected on the importance of identification of 'Parent Facilitators', selecting those who broadly reflected the parent population thereby making the project and its aims more widely accessible. They particularly highlighted the importance of involving the community in the selection of Parent Facilitators because this 'approval' would help the success of the sessions. It meant that the facilitators were well respected members of the community. For the projects where new roles were created to implement the innovation, the long-term sustainability of the pilot was deemed to be dependent upon the need for these roles to be institutionalised and for key individuals who had excelled in the roles to be champions of the projects going forward. Examples here included new roles in the community (*Mubyeyi, Tera Intambwe! Initiative (Parents, Step In!)*) and in schools (*Gasabo School Development Programme*). Embedding these new roles is seen as essential to the sustained practice of these innovations. However, sustaining these new roles in the scaling up of the innovations will have significant cost implications.



Building capacity was critical at the institutional and local levels during the implementation phase but it is increasingly important in the context of scaling up innovations at the national level too. Thus some projects require the development of capacity in specific skill areas within REB if they are to be successfully scaled up. The *eTeacher Training at Teacher Training Colleges* project, for instance, will require the development of specific ICT skills within REB to support the maintenance and development of the e-learning platform on which the innovation is built. A more general point is the need to develop capacity and commitment at national levels of government to support and embed the innovation process - a full discussion is beyond the scope of this document. Of relevance here is the observation that part of the national capacity to support innovation involves consideration of the relationships between different parts of the education system. Thus many of the projects required changes not just in the curriculum but concomitant changes to teacher training and to processes of accreditation of different kinds of qualification, for example. This was evident in the projects focusing on training early childhood educators, librarians and so on.

## Existence of supportive infrastructure

The final key condition for success is having the requisite infrastructural capacity. Some projects faced issues in implementation due to limitations of school infrastructure. For example, *Green School Initiatives* faced constraints in finding space for the gardening project; the main garden for one school was situated a kilometre from the school. However, the main infrastructural capacity issue encountered was in projects using new technologies, especially those reliant on regular access to the internet and electricity. *eTeacher Training at Teacher Training Colleges* needed electricity and internet access for teacher professional development, as did the *The Mentorship Community of Practice* supporting school-based mentors. *KnowZone Rwanda* required learner and teacher access to e-materials.

Across these projects there were two clear lessons. There was a fine line between excitement and fear in using new technologies and their uptake by key stakeholders depended upon being able to use them without technological glitches. Also, new users had to recognise the need for individual technologies to be willing to put in the time and effort to learn how to use them, particularly when they often did not work properly. This was notably seen in the case of *Ndi Hano! (Here I am!): Daily teacher and pupil attendance management using SMS reporting*. Teachers and head teachers encountered a number of technological errors making the process more time consuming than manual alternatives and this discouraged participation in the project. Significantly, there was also no clear incentive to change their practice. There is potential for technology to make teachers' lives easier in the long term but the clear learning here is that, in the short term, there is need for additional incentivising and removal of the disincentives of technological faults for the long-term goals to be achieved.

When considering the potential sustainability of individual projects, many reflected on the importance of developing more reliable infrastructure of internet and electricity for sustaining innovations. However, the reflections tended to focus solely on the infrastructural challenges and the evidence suggests that the success depends upon a combination of infrastructural capacity, stakeholder confidence and competence to use the technology, and the perceived need of the innovation.

## CHAPTER 5: LEARNING FROM INNOVATION FOR EDUCATION - A THEMATIC SUMMARY

This final chapter summarises key lessons learnt regarding the conditions and outcomes of innovation across the five main themes. This learning from IfE should be of value in informing discussions and decisions about scaling up innovation projects or identifying further innovations for testing.

### I Enhanced Learner Access, Retention And Completion

Across the projects related to improving learner access and retention, there is a clear finding that parental engagement can be enhanced and that this impacts on learner enrolment and attendance. Some projects highlighted the importance of face to face communications, particularly when this is outsourced into the community, rather than relying on official communications at school. While some projects utilised radio to reach parents this was not shown to be as effective as the sole means to engage parents in matters related to their children's education.

Another clear finding is that parental engagement takes time, particularly when trying to change attitudes towards children's learning, for example for girls or children with disabilities. It tends to be well-received when messages are delivered by other parents or members of the community. New roles for parents, teachers and community members can be successfully implemented and the importance of providing sufficient time, training and resource should not be underestimated. There are clear cost implications though.

While there are difficulties with attribution of project results, there is significant evidence to suggest that there have been improvements in numbers of children with disabilities enrolling in schools where innovations were implemented. In these projects, changes in parental attitude towards education were also measured. Positive changes in attitudes have also been shown in projects addressing school drop-out due to poverty.

### II Innovative Approaches In The Classroom



Innovative approaches in the classrooms have been shown to have a positive impact on learning outcomes in many cases, although it is clear that their success is dependent upon a number of key conditions. Regarding technology, teachers are willing to learn ICT skills and use these in the classroom if the relevance and need for the technology is clearly explained and they

receive the necessary support and training in developing these skills. The curriculum needs to be conducive to the implementation of innovative approaches utilising new technology and materials otherwise these can be a disincentive for teachers' engagement. For example, if teachers are going to use ICT or language supportive textbooks in the classroom, they need to see that the curriculum can still be effectively delivered.

Although innovations may be primarily implemented in the classroom, there is need for consideration of the engagement of indirect stakeholders, such as local education officers and head teachers, to support the implementation. It may also be necessary for wider systemic and policy change for an innovation to be embedded, so the process of innovation should not focus solely on classroom implementation. There is clearly, though, a logic to the broader process of innovation (as depicted on page 3) which considers the development of practical solutions as leading to scale up, then wider adoption through institutionalisation.

Perhaps unsurprisingly, projects that focused on innovative processes primarily within the classroom achieved improved learner outcomes. There was a clear learning though related to the appropriateness of different types of learner outcomes for measuring the success of innovation. The projects with the most positive results are those with directly relevant tests – for example, literacy tests to see improvements through reading more fictional books. The outcomes are less predictable when it comes to those projects which introduced new technology into the classroom, with some changes in teacher behaviour and confidence in the use of technology but very limited evidence for the impact on learning for all.

### III Improving Skills For Development

The projects within this thematic area have shown that there is potential for innovation to contribute to skills development among learners of all ages but that there were some significant barriers to their successful implementation. The main condition for success is the perceived relevance of the innovation when a clear link to existing curriculum demands cannot be seen. Issues were often seen as outside of the curriculum making it sometimes difficult to find time for implementation and to engage key stakeholders in the process. It is evident that both head teachers and local education officers need to understand the innovation and its role in improving skills development for all to facilitate the wider support needed for consistent implementation.

The other key condition for success is the sustaining nature of the innovation's implementation. For skills to be developed, they need to be nurtured with time and space made available in the curriculum for this. This is particularly important given the risk of the innovation being side-lined if it is deemed to be extra-curricular and/or if the learning benefits are not quickly apparent.

The success of innovations under this theme is harder to measure given that there are not direct links to learning outcomes. However, it is evident that there have been some successful outcomes shown by the greater confidence among learners and some changes in behaviour, e.g. in relation to social and financial skills. This was found across different groups of learners, with the improvement in engagement of girls particularly encouraging.

#### IV Enhanced Leadership And Accountability

For the small number of projects that focused directly on the development of school leadership skills, there are some clear lessons for the importance of time-efficient interventions with ongoing support available from local education officers. Significantly, for projects across all the themes, securing the support of head teachers was shown to be crucial in the implementation of any innovation implemented in the school. It became clear that head teachers need to be actively involved in some way with discrete roles that enable them to support innovation. For example, this may be in the line management of teachers and their approval of CPD or training opportunities. School leaders need to be clear of their given roles so that these are not at odds with their other priorities or responsibilities. This is also relevant for local education officers.

Regarding enhancing community engagement for accountability, it has been shown that parental attendance at school cannot be an accurate signifier of engagement. Rather, active engagement in the local community can be more effective for issues related to learners' education.



There is very limited evidence that efforts to improve the accountability of parents or the wider community have been successful. Regarding school leadership, there is evidence of increased self-reported leadership skills. A subsequent impact on effective teaching and improved learning outcomes has not been shown; although this may be expected given the short time period of the innovations. However, there is some qualitative evidence that suggests that effective teaching and learning positive outcomes are dependent on head teachers directly supporting the processes of teaching and learning in the classroom.

## V Educators' Professional Development

Across the projects related to this theme, it is evident that there is great potential for innovative approaches to professional development of skills and for changing the behaviour of teachers towards inclusive and technology-enhanced teaching. Securing teachers' engagement is crucial to the successful implementation of innovation in CPD. This engagement has been seen most clearly where teachers can recognise the importance of the innovation and how it can improve their professional practice. For example, the projects which focused on improving teacher capacity to teach through the medium of English were well received as they developed teacher confidence and competence in the classroom. To keep teachers engaged, it is important that they see the impact of the innovation quickly, either on learners or through improvements in their own practice.

There is significant evidence to suggest that teachers respond well to a blended approach to CPD which brings together some self-learning, delivered in an accessible way through the medium of technology (e.g. mobile phones), and peer support. While the content of the training was effectively delivered, in some projects it was clear that the wider support network for teachers, including fellow teachers, school based mentors and head teachers, was more important for providing in-person feedback and encouragement. There is much to suggest that the creative combination of content delivery with practice-based reflections and support can improve the quality of teaching in Rwandan classrooms.

Improvements in quality of teaching have been observed across projects in this thematic area, as reflected by significant changes in teacher skills development, attitude and behaviour. For example, teachers showed willingness to engage in CPD related to inclusive teaching methods and this translated into many classrooms being more active and learner-centred. However, it is important to note that there is very limited evidence that there have been improvements in the quality of learning, as measured by improved learning outcomes. Given the relatively short time period of IfE this should not be used as the definitive measure of the success of these projects; rather the mainly positive outcomes related to the effectiveness of teaching suggest that there is potential for improvements in learning outcomes to follow in time.

## **ANNEX 1 METHODOLOGICAL REFLECTIONS ON MONITORING AND EVALUATING INNOVATION FOR EDUCATION**

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IfE provides an opportunity to reflect on the processes of monitoring and evaluating innovation. Across the projects, a number of key lessons learnt have been identified. The first is the merits of mixed-methods research design for evaluating innovation. All of the projects utilised a number of different methods to evaluate the innovation. For the majority, this was a combination of a quantitative measurement of change (for example, changes in student test scores) with qualitative exploration of the perspectives of key stakeholders. Those projects directly involved with change in the classroom also utilised classroom observations and video data to understand teacher and learner behaviour. While the quantitative data provide evidence of the outcomes of a particular innovation, it has often been the qualitative findings which have provided the explanations for why an intervention was deemed to be successful, or not. Significantly, IfE has gone beyond just looking at outcomes to understand the necessary conditions for innovation. By analysing the processes as well as the outcomes of the innovations, IfE provides reflections on the conditions and contexts for enabling or barring innovation implementation. Here, qualitative findings have been invaluable.

Given the varied skills and capabilities required across different research methodologies, there is an important lesson here about the need for research skills development. This was particularly seen in relation to qualitative data collection and analysis where the skills needed were not widely available among local field researchers. Significant support was required from the Fund Manager, both within projects and in their overarching management, for project monitoring and evaluation. This suggests the importance of allowing for the development of monitoring and evaluation capacity in project design, to enable innovation projects to demonstrate impact with the required strength of evidence. It also suggests the need to consider deploying external evaluators to undertake monitoring and evaluation of projects, although this has cost implications associated with it.

Findings from the IfE projects show that it can be possible to see improvements in learning outcomes through innovation but this tends to only be for innovations that focus on one variable with tests coherent with that variable. Examples discussed here have included language and literacy. In projects where there was a general move towards more effective teaching, an impact on learning outcomes measured through examination results was often assumed. However, these have been shown to not always be an appropriate way to understand the impact of an innovation that seeks to improve learning and teaching.

Evidence shows that it can often take considerable lengths of time and perseverance with innovations, perhaps for five years or more, for innovations to begin to have a meaningful impact on learner outcomes. This is particularly true for innovations that aim to influence the wider environment for teaching and learning, for example through inculcating new skills amongst educators, or through introducing new ways of doing things or new materials that might require changes in behaviour and attitudes on the part of teachers and learners for change to take place. In this respect, innovation can carry risk and requires significant and long-term commitment on the part of policy makers as well as changes in attitude and behaviour of key stakeholders. Although demonstrable improvements in learning outcomes are the gold standard by which innovations are ultimately evaluated, in the short-term they may not be useful or reliable indicators of the longer-term potential of the innovation. There is a role for intermediate outcomes in evaluating the progress of innovations.





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