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Improving Teaching and Learning

A Knowledge and Innovation Exchange
(KIX) Discussion Paper

Acknowledgments

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A note on the KIX consultation process

The Global Partnership for Education's Knowledge and Innovation Exchange (KIX) thematic funding will support global and regional initiatives that use knowledge exchange, evidence and innovation to help developing countries solve critical educational challenges. It will support:

- **Capacity development and knowledge exchange among developing countries:** Activities that strengthen national capacity through peer review and exchange; creation of learning modules and diagnostic tools, and face-to-face exchange
- **Evidence and evaluation:** Activities that aim to consolidate and/or extend knowledge about how to improve educational outcomes and national education systems
- **Innovation pilots:** Piloting of approaches, methods, tools or products that solve persistent educational challenges

Investments will be guided by the priorities of developing country partners and allocated through a competitive process managed by an independent grant agent. Knowledge products, innovation pilots and related tools developed through KIX funding will be shared through the Learning Exchange to amplify their uptake.

The purpose of this paper is to describe the current landscape in improving teaching and learning and spark discussion and debate around potential areas for KIX investment. The paper is part of a series of discussion papers, drafted to support the engagement and consultation of developing country partners and technical experts in the initial design of the GPE Knowledge and Innovation Exchange. The ideas presented in the initial version of this paper served as a starting point for discussion and were modified significantly based on the consultation process, thereby resulting in this updated version.

Acronyms and Abbreviations

CPD	continuous professional development
CSO	civil society organization
DCP	developing country partner
DFID	U.K. Department for International Development
ESP	education sector plan
FCAC	fragile and conflict-affected countries
GPE	Global Partnership for Education
GPE 2020	Strategic Plan 2016-2020
GRA	Global and Regional Activities
IICBA	International Institute for Capacity Building in Africa
IIEP	International Institute for Educational Planning
ILO	International Labour Organization
INEE	Inter-Agency Network for Education in Emergencies
ITE	initial teacher education
KIX	Knowledge and Innovation Exchange
NGO	nongovernmental organization
PASEC	Programme d'Analyse des Systèmes Educatifs de la CONFEMEN
SABER	Systems Approach for Better Education Results
SDG	Sustainable Development Goal
SDI	Service Delivery Indicators
TEP	transitional education plan
TMIS	teacher management information system
Teachers Task Force	International Task Force on Teachers for Education 2030
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

Executive Summary

Improving teaching and learning in developing countries

Progress made in improving access to education has not translated into improvements in learning for many children, especially those from disadvantaged backgrounds and in conflict areas. The UNESCO Institute for Statistics (UIS) estimates the number of children and adolescents not achieving minimum proficiency levels in reading and mathematics is 6 out of 10, or 617 million worldwide. The learning crisis is greatest in Sub-Saharan Africa, where 85 percent of children do not reach minimum levels of learning despite being in school.¹

Specific features of developing country education systems, including system capacity, governance, accountability structures and political dynamics, determine whether reforms result in improved teaching and learning. The solutions are not entirely technical and must consider cultural, political and economic dimensions. This discussion paper describes the challenges facing the Global Partnership for Education's developing country partners (DCPs) to improve learning levels and reviews existing efforts to address those challenges through global goods. It identifies remaining knowledge and innovation gaps and offers a set of areas in which the partnership could invest through the new Knowledge and Innovation Exchange (KIX) initiative.

Challenges in improving teaching and learning

A wide range of challenges at the school, household, community and national levels affect children's learning outcomes. This discussion paper narrows this broad scope to focus on teachers and their work,² and on three important sets of challenges that affect them:

1. The quality of support to **teacher development**. This includes weak content and pedagogical knowledge and classroom skills (including instructional practices) among teachers, often because of low quality of pre- and in-service teacher training. This is related to inadequate standards and accreditation for teachers and a lack of ongoing support and coaching from head teachers and other administrative leaders.
2. **Teaching methods and learning materials**. This includes a lack of textbooks and other learning materials; language issues, particularly around mother-tongue teaching; and teaching that is not aligned with children's current level of understanding.
3. **Systems for recruiting, managing and engaging teachers**. This includes attracting and retaining the most qualified individuals to the teaching profession, deploying teachers to areas of the country with the greatest need, reducing unauthorized teacher absences and maximizing instructional time, and engaging teachers in policy dialogue and reform.

How the Global Partnership for Education supports teaching and learning

The Global Partnership for Education (GPE) supports DCPs to address these challenges and has made the delivery of quality education one of the top priorities of the partnership. Its Strategic Plan 2016-2020 (GPE 2020) names improved and more equitable learning outcomes as the first of three goals and highlights the critical role of teachers in building effective and efficient education system. This commitment is further captured in its results framework, which outlines five indicators specific to improving teaching and learning.

¹ UIS, *More Than One-Half of Children and Adolescents Are Not Learning Worldwide*, fact sheet 46 (Paris: UNESCO Institute for Statistics, 2017).

² The KIX thematic papers, *Strengthening Learning Assessment Systems* and *Meeting the Data Challenge in Education* cover elements of improving learning outcomes through better measurement and data.

GPE invests in strengthened sector planning by helping countries diagnose challenges via an education sector analysis and adopt strategic lines of action in sector plans to improve the quality of teaching and learning. The GPE funding model also enables DCPs to use results-based financing to focus attention on teachers, teaching and learning in the policy dialogue, and to identify transformative strategies with evidence-based results chain to improve learning. Among the targeted improvements DCPs have embarked upon are reducing pupil-teacher ratios in the most disadvantaged regions, increasing the proportion of female teachers and delivering effective teacher development and training.

GPE's implementation grants are a key mechanism through which the partnership supports improvements in teaching and learning, targeting a country's specific needs. As of June 2018, all 37 active implementation grants were investing in teacher development. This includes activities such as pre-service and in-service training; mentoring and pedagogical support for teachers; policies, standards and frameworks for professional development; and the infrastructure and systems necessary to prepare and support teachers.

Teacher management, which includes activities that aim to recruit, deploy, manage and motivate teachers, is supported by half of the grants (19 out of 37). Nearly all the grants (89 percent, or 33 out of 37) also invest in relevant and quality content for instruction through the development or revision of curriculum and or learning materials. The partnership's Global and Regional Activities (GRA) program also provided regional grants to partner organization to improve teaching and learning, with particular attention to the early grades.

Global goods, networks and innovations to improve teaching and learning

Current investments for improving teaching and learning in developing countries fall into three main categories: (1) tools, data and evidence; (2) networks; and (3) innovations.

In the area of tools, data and evidence, there are tools for system- and classroom-level analysis, tools for capacity building, data on teacher policies and their implementation and evidence from systematic review of teaching and learning interventions. Data on teachers is also gathered through surveys and as part of regional learning assessments. The World Bank and the United Nations Educational, Scientific and Cultural Organization (UNESCO) in particular have devoted resources to multiple global goods in this area.

At least five networks focus on building capacity for improving teaching and learning. Some focus on convening teachers and other practitioners; others focus on policymakers and global actors.

Additionally, a number of innovations are showing promising results for improving teaching and learning. Some innovations focus on motivating teachers, others on adjusting teaching practices to learners' abilities. Some work with governments to improve the teaching workforce and others work with civil society organizations to get teaching and learning materials into the hands of those who need them.

Gaps in current investments in teaching and learning and their application

The global goods, networks and innovations described in the previous section tend to focus on developing and analyzing policies for teaching and learning, with a few examples of implementation approaches. Several tools and data sources are available, but they are mostly accessible to policymakers and international actors. There is a growing international research base on effective interventions to improve teaching and learning, and models for effective classroom practices. But there is a need for more support for developing countries to extend this research, adapt it and apply it appropriately in specific contexts to inform curricula, teaching materials and teacher development.

Several international policy guides on teacher training and teacher management exist, including some specific to countries affected by fragility and conflict, but few resources to support their implementation. A number of existing networks could be leveraged for this purpose. Some interesting approaches support teachers and have been shown to accelerate improvements in learning, but few are scaled up to the national government level. In particular, there are three areas in which GPE's KIX initiative could fund investments in teaching and learning:

- Effective sharing of evidence and good practices related to implementing teacher standards and professional development policies
- System-level approaches to aligning teaching, curriculum and learning materials
- Support for effective teacher management and engagement

Proposed activities for KIX investment

To ensure KIX investments in these opportunities respond to the needs and landscape, several areas of investment are required:

- Building capacity through knowledge transfer, capacity development and learning exchange on issues where there is a sufficient evidence base
- Building evidence and evaluation of what works on topics where there are some solutions, but where more synthesis is needed to develop a solid evidence base
- Innovation in teaching and learning approaches on topics where new thinking and solutions are needed

These areas of investments should focus on system elements where global public goods are currently limited: data on teachers and teaching; teacher recruitment, selection and retention; accountability, incentives and rewards; teacher preparation and professional learning; enabling school and system factors; and finance, planning and deployment.

1. Introduction

For all the progress that has been made in improving access to education in the past two decades, it has not translated into improvements in learning for many children, particularly those from disadvantaged backgrounds and in conflict areas. International and cross-national comparable learning assessments show that proficiency levels in reading, mathematics and science for learners in developing countries are low and fall far short of international benchmark levels, with only limited progress for a small minority of countries.³ The UIS estimates the number of children and adolescents not achieving minimum proficiency levels in reading and mathematics to be 6 out of 10, or 617 million worldwide. The challenge is greatest in Sub-Saharan Africa, where 85 percent of children do not reach minimum levels of learning despite being in school.⁴ Evidence from research increasingly shows that teaching and learning are two areas that need attention to address this gap.

The evidence base on how to improve teaching and learning seems lacking, especially evidence from developing country settings. What is clear is that specific features of developing country education systems, their system capacity, domestic characteristics of governance and accountability structures, and political dynamics are critical factors determining the outcome of reforms to improve teaching

³ UNESCO, *Accountability in Education: Meeting Our Commitments*, Global Education Monitoring Report 2017/18 (Paris: UNESCO, 2017).

⁴ UIS 2017.

and learning. It is also clear that problems of teaching and learning are not purely technical. Ensuring that technocratic solutions to the learning crisis consider cultural, political and economic dimensions is key to finding solutions to challenges confronting teaching and learning in developing countries.

One way that GPE and many others support countries to improve the quality of teaching and learning is through the production of global goods.⁵ Global goods can be defined as “institutions, mechanisms and outcomes that provide near universal benefits, reach across borders and extend across generations”;⁶ that is, tools, products and approaches—including data, assessment tools, standards and research outcomes—that, once developed as the outcome of one particular intervention, can be adapted to create a tool or approach that is applicable, with appropriate customization, to other contexts.⁷ This discussion paper describes the challenges that GPE’s developing partner countries face to improve learning levels and reviews existing efforts to address those challenges through global goods. It identifies remaining knowledge and innovation gaps and offers a set of areas in which the partnership could invest through the new Knowledge and Innovation Exchange initiative.

2. Paper development and consultation process

A senior author was commissioned to write the discussion paper on teaching and learning and, working in coordination with a GPE education specialist, gathered information from GPE documents and sector plans and analysis, conducted a desk review and consulted with 27 DCPs and 11 international experts. The senior author drafted an initial discussion paper in December 2018, which included a summary of key challenges in the area of teaching and learning, existing global goods, gaps that emerged from the desk review and suggestions for potential areas in which GPE may invest in through the KIX initiative. The draft was reviewed by the GPE Secretariat and in January 2019 the senior author shared a revised discussion paper.

To short-list key challenges and preliminary list of potential global goods, three set of consultations were held, which resulted in feedback from 34 DCPs and 14 international experts. In-person consultations were held at Benin at a DCP meeting on November 2018, in which ministry officials from 27 DCPs participated. Additionally, an online survey was created and shared with DCPs and international experts who attended the 11th Policy Dialogue Forum of the International Task Force on Teachers for Education 2030 (also called the Teachers Task Force), in November 2018. The respondents to the survey included ministry-level experts from five DCPs and six technical experts including partners, practitioners and others. Lastly, an online consultation was held in February 2019 that led to responses from two DCPs and eight international experts.

3. Challenges in improving teaching and learning

Teaching and learning is a broad area, potentially encompassing all of the many challenges at the learner, school, household, community and national levels that affect children’s learning outcomes. To narrow the scope, this discussion paper focuses on teachers and their work. In particular, evidence from research and countries making progress in improving teachers and teaching suggest three main “wheels” have to work in tandem to secure the improvements. These are **(a) quality of support to**

⁵ See section 5 for a list of the many existing global goods that help improve teaching and learning.

⁶ Kaul et al. (1999), as cited in UNESCO, “Fulfilling Our Collective Responsibility: Financing Global Public Goods in Education,” Policy Paper 34, UNESCO, Paris, 2018.

⁷ Education Commission, *The Learning Generation: Investing in Education for a Changing World* (Washington, DC: The International Commission on Financing Global Education Opportunity, 2016).

teacher development, (b) teaching methods and learning materials that are sufficient and aligned to the context; and (c) strengthening systems for recruiting, managing and engaging teachers.

Challenges in support to teacher development

Teacher training is one of the fundamental areas for support for teacher development and improving the quality of teachers. The scale of the challenge in producing quality teachers is huge for many developing countries. According to estimations by the UIS, 68.8 million new teachers are needed to provide every child with primary and secondary education by 2030, including 24.4 million primary school teachers and 44.4 million secondary school teachers.⁸ According to the 2013/4 Education for All Global Monitoring Report, from 31 of the 96 countries with data after 2012, less than 75 percent of primary school teachers were reportedly trained according to national standards in 2014. In some countries in Sub-Saharan Africa, less than 50 percent were trained. To compound the problem, many trained teachers lack the competencies required to make them effective teachers. It is well established in the research literature that having access to quality teachers is a life-changer, especially for students from disadvantaged backgrounds.⁹ Understanding the inputs that make a quality teacher is key to improving learning and the life chances of millions of disadvantaged children.

From a synthesis of the research evidence and consultations with DCPs and international experts, there are three main areas that highlight the challenges many developing countries face in supporting teacher development: **(1) weak subject content and pedagogical knowledge, and classroom skills; (2) poor quality pre- and in-service teacher training, and inadequate standards, certification and accreditation procedures; and (3) lack of ongoing support from head teachers, schools and districts.**

First, the relationship between teacher quality and student achievement strongly suggests that teachers' subject matter (or content) knowledge matters. In the Africa region, evidence suggests that teachers with higher subject content knowledge also produce students with higher scores overall, and interventions that *increase* teacher subject knowledge also help *raise* student achievement. Besides, when weaker students are taught by teachers with strong subject matter knowledge, they learn better and increase their learning outcomes.¹⁰ Several DCPs in Francophone countries consider this to be particularly problematic and rank it together with teachers' pedagogical knowledge as requiring the most attention in their system.¹¹

Low cognitive attainment among prospective teachers can impede learning outcomes among their future students, which in turn affects the quality of the future teacher recruitment pool.¹² There is also mounting evidence that in many developing countries, the primary school teachers' pedagogical

⁸ UIS, *The World Needs Almost 69 Million New Teachers to Reach the 2030 Education Goals*, fact sheet 39 (Paris: UNESCO Institute for Statistics, 2016).

⁹ UNESCO, *Teaching and Learning: Achieving Quality for All*, EFA Global Monitoring Report 2013/14 (Paris: UNESCO, 2014).

¹⁰ Jan Bietenbeck, Marc Piopiunik and Simon Wiederfold, "Africa's Skill Tragedy: Does Teachers' Lack of Knowledge Lead to Low Student Performance?" *Journal of Human Resources*, 2017, doi: 10.3368/jhr.53.3.0616-8002R1; Njora Hungi, "Accounting for Variations in the Quality of Primary School Education," Working Paper 7, SACMEQ (Southern and Eastern Africa Consortium for Monitoring Educational Quality), Gaborone, Botswana, 2011; Deon Filmer, Ezequiel Molina and Brian Stacy, "What Goes on Inside the Classroom in Africa? Assessing the Relationship Between What Teachers Know, What Happened in the Classroom, and Student Performance," paper for the Service Delivery Indicators initiative, World Bank, Washington, DC, 2015; Nadir Altinok, "The Impact of Teacher Knowledge on Student Achievement in 14 Sub-Saharan African Countries," Background paper for EFA Global Monitoring Report 2013/14, *Teaching and Learning: Achieving Quality for All*, UNESCO, Paris, 2013.

¹¹ A teachers' clinic held at the DCP meeting in Benin on November 29, 2018.

¹² Sajitha Bashir et al., *Facing Forward: Schooling for Learning in Africa* (Washington, DC: World Bank, 2018), 280.

knowledge base is weak; as a result, many teachers are unable to produce conceptual understanding in the students they teach.¹³

Teachers with effective classrooms practices have shown to improve learning outcomes for children. However, this is an area where classrooms in developing countries lag behind; for instance, classroom observations show that teachers do not ask questions or provide feedback to gauge and inform students' learning. Moreover, classroom practices is an area that can be leveraged by teachers, for instance, to challenge gender stereotypes and set positive behavior expectations for students that facilitate improvement in outcomes beyond the classroom. Evidence shows that a teacher's value added in a single year predicts key later-life outcomes such as teen pregnancy, college attendance and labor market earnings long after students have left a teacher's classroom.¹⁴ The challenge of training teachers in classroom practices is usually addressed through a classroom observation tool that can highlight areas for improvement for teachers. In the developing world context, there has been some progress in developing technical tools; however, more research and evidence are needed to identify practices and supporting structures for improving teachers' classroom practices.

Second, many pre-service training (or initial teacher education) programs in developing countries are considered too weak to produce teachers capable of improving student learning. Pre-service training is important but not sufficient for the preparation of teachers to improve student learning.¹⁵ The reality is that teacher preparation in many developing countries is front-loaded, with most inputs allocated to formal initial teacher education—countries spend much more on it, leaving little to be spent on services to support early career teachers to improve their practices. In addition to formal training, access to continuous professional development (CPD) is necessary to hone teachers' competence on an ongoing basis. But CPD does not necessarily boost learning outcomes unless it provides teachers with specific skills that can directly improve student learning, such as skills to interpret and act on student learning data.¹⁶ Also, CPD that combines theory and a strong component of practical experience is often lacking in many developing countries including mentorship, coaching and participation in teacher and professional development networks. The follow-up support after the training is crucial—teacher training by itself does not translate into changes in instructional practice or in outcomes. Hand-holding, demonstrating, mentoring and monitoring need to happen on an ongoing basis to support teaching.¹⁷

At a recent meeting in Benin attended by experts from 30 DCPs, those from some English-speaking countries identified their teacher training institutions as mediocre, lacking tutors and teaching materials. They pointed to the lack of qualifications and competencies of teacher training institution staff and instructors as reasons for the low calibre of trained teachers. Experts from nine DCPs felt that their teacher training institutions had limited capacity to respond to the scale of need to update skills and knowledge, and that governments often saw improving teacher skills as a low budget priority.

Another group of DCPs and international experts who took part in a KIX teaching and learning survey as part of the preparation for this consultation paper felt strongly that standards for professional

¹³ Martin Carnoy, Moses Ngware and Moses Oketch, "The Role of Classroom Resources and National Educational Context in Student Learning Gains: Comparing Botswana, Kenya, and South Africa," *Comparative Education Review* 59, no. 2 (May 2015): 199-233.

¹⁴ Raj Chetty, John N. Friedman and Jonah E. Rockoff, "Measuring the Impacts of Teachers, I: Evaluating Bias in Teacher Value-Added Estimates," *American Economic Review* 104, no. 9 (2014): 2593-632.

¹⁵ Bashir et al. 2018.

¹⁶ UNESCO 2017.

¹⁷ Rukmini Banerji and Madhav Chavan, "Improving literacy and math instruction at scale in India's primary schools: The case of Pratham's Read India program," *Journal of Educational Change* 17, no. 4 (2016): 453-475.

development of teachers aligned with standards for teacher training institutions and providers are needed to improve teacher quality in their respective countries.¹⁸ They noted that standards are particularly needed in the basic education subsector as well as in other subsectors, including early childhood education and technical and vocational education, and that these standards need to be *realistic, feasible and enforceable*.

Finally, ongoing support from head teachers and school and district leaders is necessary for sustainability of teacher training. The professional support teachers receive from head teachers makes a big difference to their ability to improve learning given that head teachers have the requisite training.¹⁹ DCPs and international experts surveyed for this consultation paper unanimously agreed that providing teachers with professional support is vital but often lacking in many countries. Many countries also lack mechanisms for teachers to learn from each other. In addition, professional development for contract and community teachers is seldom provided.

There is also insufficient training for head teachers to provide leadership for learning in many schools in developing countries. Whereas the professional development needs of teachers have been highlighted in several education sector plans as needing policy attention, training to improve the capacity of head teachers to provide quality leadership for school improvement has not received that much attention.

Challenges in teaching methods and learning materials

Inputs such as teacher training and support and effective teacher management are necessary but not sufficient for improving teaching and learning. Other inputs like structured teaching content, teaching materials (for example, teacher guides, scripted lesson plans) and their coherence with contextual factors like mother tongue and learning levels of children are important for improving learning. Analysis of various interventions that boost learning points to the importance of ensuring that investment is spread across the key inputs of initial teacher education, ongoing teacher support, adequate teaching and learning materials, and mother-tongue instruction in the early years.²⁰ All these elements contribute to improving teaching as a whole. Synthesis of research evidence highlights three challenges in this area: **(1) Lack of quality inputs like structured teaching content and materials; (2) teachers are often expected to teach in a language that they, or their students, do not speak well; and (3) lack of alignment between teaching and content with learning level of children in classrooms.**

First, providing inputs and ensuring that there is alignment within inputs (like teacher training, structured content and teaching materials) result in better student outcomes. An impact evaluation of the Northern Uganda Literacy Project illustrates that the version of the program that had highly structured content for mother-tongue literacy instruction, teachers' guides with scripts for each lesson, student materials (primers, readers and slates), intensive teacher training by a local nongovernmental organization (NGO) and parent and community engagement had better outcomes for children, compared with the low-cost version that had fewer inputs.²¹ In Kenya's case, combining teacher professional development and teacher instructional support and coaching, a 1:1 student book ratio, structured teacher lesson plans added to student books, professional development and instructional support made the greatest impact on learning outcomes in a primary Math and Reading

¹⁸ Based on responses to a 2018 KIX teaching and learning survey that involved five DCPs represented by experts from education ministries and six technical experts from NGOs, INGOs, etc.

¹⁹ Bashir et al. 2018.

²⁰ Bashir et al. 2018.

²¹ Birte Snilstveit et al., *The Impact of Education Programmes on Learning and School Participation in Low- and Middle-Income Countries*, Systematic Review Summary 7 (London: International Initiative for Impact Evaluation, 2016).

Initiative.²² A recent study found that structured teachers' guides improve learning outcomes, but that overly scripted teachers' guides are somewhat less effective than simplified teachers' guides that give specific guidance to the teacher but are not written word for word for each lesson in the guide.²³ An essential caveat here is that simply providing textbooks and instructional materials has been found to be ineffective—for example, in government schools in Kenya.²⁴ Instead, interventions that combine instructional materials with well-aligned efforts to improve teacher capacity produce strong results. An intervention in Honduras adopted this approach and led to positive student learning results: The combination of classrooms that had adequate instructional materials and teachers with frequent access to in-service training linked to instructional methods and who missed fewer days of instruction significantly improved learning outcomes.²⁵

Second, teaching in a language in which the students and teachers are not fluent is a challenge. The benefits of mother-tongue instruction, particularly in early grades, are well documented.²⁶ Synthesis of research on mother-tongue instruction shows that programs that were delivered or designed in a national language rather than the children's mother tongue had only small effects on learning.²⁷ Research in Kenya found that mother-tongue instruction can improve early grade reading skills even without the support of stakeholders.²⁸ Among Sub-Saharan African countries participating in the Programme d'Analyse des Systèmes Educatifs de la CONFEMEN (PASEC), Burundi is the only country that also conducted the assessment in the mother tongue, which seems to have been a factor in the achievement of higher learning outcomes than in other countries in the region. Teachers are also unable to teach effectively if they aren't fluent in the language the curricula and textbooks are written in.

Third, classrooms where teaching and content are aligned with the learning level of children produce better student outcomes.²⁹ Classrooms in developing countries may have wide variation in learning levels in the same grade, with the learning level of a significant number of children below grade level and having weak literacy and numeracy skills.³⁰ In these cases, strictly following the prescribed grade-level curriculum further exacerbates the classroom-level challenges. To teach effectively in such classrooms, teachers need to be trained to determine the learning level of their learners through classroom-based assessment and to pitch their teaching to this level, which may be foundational skills in some contexts.³¹ For this to happen, teachers may need access to differentiated learning materials and curricula that are appropriate for different learning levels. Many rural schools in developing

²² Benjamin Piper et al., *Effectiveness of Teachers' Guides in the Global South: Scripting, Learning Outcomes, and Classroom Utilization* (RTI Press Publication No. OP-0053-1805) (Research Triangle Park, NC: RTI Press, 2018).

²³ Piper et al. 2018.

²⁴ Paul Glewwe, Michael Kremer and Sylvie Moulin, "Many Children Left Behind? Textbooks and Test Scores in Kenya," *American Economic Journal: Applied Economics* 1, no. 1 (2009): 112-35; Paul Glewwe et al., "Retrospective vs. Prospective Analyses of School Inputs: The Case of Flip Charts in Kenya," *Journal of Development Economics* 74, no. 1 (2004): 251-68.

²⁵ Patrick J. McEwan, "Improving Learning in Primary Schools of Developing Countries: A Meta-Analysis of Randomized Experiments," *Review of Educational Research* 85, no. 3 (2015): 353-94.

²⁶ For a summary of research on this topic, see <https://learningportal.iiep.unesco.org/en/issue-briefs/improve-learning/curriculum-and-materials/language-of-instruction>.

²⁷ Snilstveit et al. 2016.

²⁸ Benjamin Piper, Leila Schroeder and Barbara Trudell, "Oral Reading Fluency and Comprehension in Kenya: Reading Acquisition in a Multilingual Environment," *Journal of Research in Reading* 39, no. 2 (2016): 133-52.

²⁹ World Bank, *World Development Report 2018: Learning to Realize Education's Promise* (Washington, DC: World Bank, 2018).

³⁰ "Teaching at the Right Level to Improve Learning," Abdul Latif Jameel Poverty Action Lab, accessed April 10, 2019, <https://www.povertyactionlab.org/case-study/teaching-right-level-improve-learning>.

³¹ World Bank 2018.

countries are de facto multigrade,³² and so it becomes particularly important to align teaching to the levels of individual learners.

To help teachers pitch teaching to the level of their students, interventions like using community teachers to provide remedial lessons to the lowest performers, reorganizing classes by ability or using technology to adapt lessons have been implemented. In many cases, it does not require a significantly greater teacher effort; rather, it relies on restructuring classes or providing remedial lessons for the lowest performers.³³

Determining the learning level of students through classroom-based assessments is a prerequisite for teachers to pitch teaching to the level of children.³⁴ When teachers use classroom-based assessments to assess learning regularly and use the results to inform their teaching, it can raise learning levels for students.³⁵ In Liberia, an intervention that taught teachers to better evaluate their students was effective, especially when combined with training and additional materials.³⁶ Respondents in the KIX teaching and learning survey also highlighted the need for better assessment data to identify and support struggling students.

Providing teachers with teaching content that addresses multiple learning levels in the classroom is important for teachers to teach to level of children. There are studies that highlight the need for restructuring of pre-existing curriculum and teaching materials to address the needs of multigrade classrooms. Teachers in de facto multigrade schools should not be expected by higher authorities to adapt curriculum and teaching materials to their multigrade circumstance, as is often the case. In most monograde systems teachers are not expected to exercise such levels of professional autonomy (and indeed are often discouraged from so doing). Instead, reorganization of pre-existing curriculum framework and standards by official authorities could facilitate teaching in multigrade classrooms.³⁷

Challenges in recruiting, managing and engaging teachers

Many developing countries struggle to achieve equitable access to a well-trained teacher workforce effectively managed to maximize their performance. Research and DCPs and international experts acknowledge four areas as challenging and needing investments to improve teaching and learning in developing countries: (1) attracting and retaining the best teachers, (2) deploying teachers where they are most needed, (3) reducing unauthorized teacher absences and maximizing instructional time, and (4) involving teachers in policy dialogue and reform.

First, developing countries struggle to attract the best candidates to the teaching profession and then retain them over time. Moreover, training capacity in many countries is low, a situation often caused by years of low investment to increase or expand training facilities and a lack of flexible training modalities. Data from the UIS show that in Sub-Saharan Africa the ratio of pupils to qualified primary teachers remained almost twice the global average (53 compared with 26) from 2013 to 2017 and disproportionately affects the disadvantaged.³⁸

³² Angela W. Little, ed., *Education for All and Multigrade Teaching: Challenges and Opportunities* (Berlin: Springer Science & Business Media, 2006).

³³ World Bank 2018.

³⁴ Ibid.

³⁵ Little 2006.

³⁶ Benjamin Piper and Medina Korda, "Early Grade Reading Assessment (EGRA) Plus: Liberia," program evaluation report, Research Triangle Institute, Research Triangle Park, NC, 2011.

³⁷ Little 2006.

³⁸ UNESCO Institute for Statistics (database), Montreal, accessed January 17, 2019, <http://data.uis.unesco.org>.

In education systems struggling to produce enough trained teachers to fill trained teacher gaps, especially in rural areas, contract teachers are seen as a viable option.³⁹ In a Service Delivery Indicators survey undertaken by the World Bank, the content and pedagogical knowledge of contract teachers in primary schools in Africa was found comparable with that of regular teachers, raising questions about the quality of official teacher training. The impact of contract teachers on student learning achievement varies depending on country context, teacher demographics and working conditions.⁴⁰ Countries that are considered to employ good practice, such as Ghana, Madagascar and Mali, tend to use minimum qualification standards and access to a career pathway to support contract teachers.⁴¹ But this can have huge budget implications. In Indonesia, hiring contract teachers increased the salary bill for basic education by 35 percent.⁴²

An attractive career pathway is important to attract the best teachers and retain them. Unfortunately, many teacher career pathways are not linked to professional development or attractive pay. In Bangladesh, for example, career progression opportunities are limited and, coupled with a lack of avenues for continued professional development, make the profession unattractive. Lack of clear criteria for career development or promotion is seen as a major challenge affecting teacher motivation and retention in Eritrea and Liberia.⁴³ In Malawi, the absence of policy guidance on career path for teachers is seen as contributing to loss of teachers to other professions.⁴⁴

A second issue is that teachers are often not deployed to where they are most needed. Teacher pay is an issue that affects recruitment and deployment of teachers, especially the best teachers to areas where they are most needed. Related to this issue is the lack of female teachers in areas where girls are only able to enroll in schools where female teachers are present. In Afghanistan, female teachers are vital for girls to be able to enroll in school, but women face cultural barriers in seeking work in areas where they are not chaperoned by family members.⁴⁵ Many teachers and their families do not want to work in rural areas because of cultural barriers and the lack of roads, hospitals, lighting and markets, so cash incentives may still not be enough. Improvements to living conditions require the engagement of a host of government ministries, and therefore should be seen as a shared responsibility requiring a long-term strategy to attract trained teachers to disadvantaged areas.⁴⁶ But even if developing countries wish to use increased pay to attract trained teachers to areas where they are most needed, this may not be sustainable given that teacher salaries in low-income countries already account for most of the education budget. Also, even if teachers are paid a higher salary to attract them to rural areas, increased pay does not necessarily lead to improved student learning outcomes.⁴⁷

³⁹ In Francophone Sub-Saharan Africa, contract teachers make up a large share of the teacher workforce—80 percent or more in Cameroon, Chad, Madagascar, Mali and Niger; and range from 50 to 70 percent in Benin, Burkina Faso, Republic of Congo, Senegal and Togo (Bashir et al. 2018).

⁴⁰ Amita Chudgar, "Association Between Contract Teachers and Student Learning in Five Francophone African Countries," *Comparative Education Review* 59, no. 2 (2015): 261-88, 261.

⁴¹ Martial Dembélé, Amita Chudgar and Isatou Ndow, "The Use of Contract Teachers in Sub-Saharan Africa: A Review of the Situation in 24 Countries," 9th International Policy Dialogue Forum, Secretariat of the International Task Force on Teachers for Education 2030, Siem Reap, Cambodia, December 3-7, 2016.

⁴² UNESCO 2014.

⁴³ Eritrea Education Sector Analysis (ESA) 2018; Liberia ESA 2017.

⁴⁴ Malawi ESA 2015.

⁴⁵ Anders Wirak and Janne Lexow, "Evaluation of MoE/UNICEF's 'Basic Education and Gender Equality Programme' for 2006-2008 Afghanistan," Nordic Consulting Group, Oslo and Kabul, 2008.

⁴⁶ Ibid.

⁴⁷ Serena Masino and Miguel Niño-Zarazúa, "What Works to Improve the Quality of Student Learning in Developing Countries?" WIDER Working Paper 2015/033, World Institute for Development Economics Research, Helsinki, 2015.

Many countries have developed a trained teacher allocation formula; however, consistent application remains the main challenge. Part of the problem stems from a lack of input from analysis of teacher supply and demand data to provide reliable information on teacher gaps. In some contexts, this has been linked to the lack of a robust teacher management information system (TMIS) that can provide education planners at national, regional and district levels with reliable information on teacher gaps. In the absence of such a system, tracking teacher movements is difficult and can lead to distortion in data on qualified teachers in classrooms and unreliable estimates of the actual teacher workforce in frontline classroom service. Countries that have been more successful in achieving greater equity⁴⁸ in teacher allocation have overcome these challenges by adhering to criteria-based teacher allocation procedures.⁴⁹ Though, even in these countries where teacher allocation standards and formula have been introduced, the incentive and accountability structures required for them to work alongside are either absent or ineffective.

Third, while deployment is important, it does not always guarantee a teacher will show up for their job. Teacher absenteeism can be due to a variety of issues, including illness, in-service training or because teachers have to be away from school to collect salaries. Teachers' commitment to teach classes regularly can depend on factors related to their conditions of service—for example, level of wages and the nature of their contracts (permanent versus temporary), the distance to the workplace and school facilities. Unauthorized absences are often the result of systemwide failures in accountability, low levels of pay, poor or lack of housing and transportation for teachers, or simply low expectations of teacher performance across the board.⁵⁰ In a recent study that surveyed 16,000 teachers from eight developing countries, it was found that teachers normalize certain types of absenteeism: Of the countries surveyed, in seven, more than 25 percent of teachers consider absenteeism acceptable if the assigned curriculum has been completed, students are left with work to do and the teacher is doing something useful for the community.⁵¹ There is not enough evidence on interventions for addressing absenteeism that have been designed to take into account beliefs of teachers.

Even when teachers are present in the school, they may not always be teaching, or there may not be enough teachers for all of the students. This can reduce the instructional time children receive. In a large study of teachers in Latin America, the average teacher was found to lose the equivalent of one day per week because of lost instructional time. This was due to inadequate preparation, administrative duties and physical absence from the classroom.⁵²

Finally, education reforms to improve quality are likely to fail unless teachers are actively engaged in the reforms and buy into planned changes. Interventions or reforms that work do so because they take input from key stakeholders (including teachers) or cause them to change their reasoning.⁵³ Thus, technical solutions to problems of teaching and learning in developing countries have to be backed by teacher commitments that can only be assured if their contributions are given serious attention and used to inform solutions. Yet teacher voice is often missing in policies to improve teaching and learning.

⁴⁸ Lesotho, Mauritius, Namibia, South Africa, Swaziland and Zimbabwe.

⁴⁹ Bashir et al. 2018.

⁵⁰ Gabriela Guerrero et al., *What Works to Improve Teacher Attendance in Developing Countries? A Systematic Review* (London: EPPI Centre, Social Science Research Unit, Institute of Education, University of London, 2012).

⁵¹ Shwetlena Sabarwal and Malek Abu-Jawdeh, *What teachers believe: mental models about accountability, absenteeism, and student learning* (Washington DC: World Bank, 2018).

⁵² Barbara Bruns and Javier Luque, *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*, Latin American Development Forum Series (Washington, DC: World Bank, 2015).

⁵³ Gill Westthorp, "Realist Impact Evaluation: An Introduction," Methods Lab publication, Overseas Development Institute, 2014.

Changing teachers' practice under a different framework of professional practice requires them to make different decisions. Through their active participation in policy dialogue we can also know which resources would enable them to implement policy reforms on the ground. DCPs and international experts consulted through the KIX teaching and learning survey felt that developing countries lack effective mechanisms and guidelines and require capacity building for engaging teachers and teachers unions effectively to impact teacher reforms.

4. How the Global Partnership for Education supports teaching and learning

GPE supports DCPs to address these challenges and has made the delivery of quality education one of the top priorities of the partnership. GPE 2020 names improved and more equitable learning outcomes as its first of three goals and highlights the critical role of teachers in building effective and efficient education systems. This commitment is further captured in its results framework, which outlines several indicators specific to improving teaching and learning (see Annex A for more information).

- **Indicator 1: Proportion of DCPs showing improvement on learning outcomes (basic education).** Using data from nationally representative school-based assessments of learning, this indicator describes how many countries have had a statistically significant increase in learning outcomes at the primary or lower secondary level.
- **Indicator 11: Equitable allocation of teachers, as measured by the relationship between the number of teachers and the number of pupils per school in each DCP.** This indicator uses the statistic R^2 to examine the consistency of the posting of teachers to determine whether all schools with approximately the same number of students have a comparable number of teachers.
- **Indicator 12: Proportion of DCPs with pupil–trained teacher ratio below threshold (<40) at the primary level.** This indicator refers to the number of pupils per trained teacher, as defined by national standards, at the primary level in a given school year.
- **Indicator 16b: Proportion of education sector plans (ESPs)/transitional education plans (TEPs) that have a teaching and learning strategy meeting quality standards.** Quality standards include whether the strategy is evidence-based, relevant, coherent, measurable and implementable.
- **Indicator 19: Proportion of DCPs with civil society and teacher representation on local education groups.** This indicator tracks the inclusion of teachers in local education groups for a more effective and inclusive policy dialogue at the country level, and affirms their important role in the planning, implementation and monitoring of the sector.

GPE's operational model supports DCPs to address issues of teaching and learning throughout the policy cycle. GPE invests in strengthened sector planning—helping countries diagnose challenges via an education sector analysis and adopt strategic lines of action in sector plans to improve the quality of teaching and learning. The GPE funding model enables DCPs to use results-based financing to focus attention on teachers, teaching and learning in the policy dialogue; and to identify transformative strategies with evidence-based results chain to improve learning. DCPs have selected a range of targets to access the results-based portion of the funding, including targeted improvements in pupil-teacher ratios in the most disadvantaged regions, increasing the proportion of female teachers and delivering effective teacher development and training.

GPE's implementation grants are a key mechanism through which the partnership supports improvements in teaching and learning, targeting a country's specific needs. As of June 2018, all 37 active implementation grants were investing in teacher development. This includes activities such as pre-service and in-service training; mentoring and pedagogical support for teachers; policies, standards and frameworks for professional development; and the infrastructure and systems necessary to prepare and support teachers. For example, in the Democratic Republic of Congo, a large component of the grant (US\$27.2 million) is dedicated to improving teacher effectiveness. This component finances activities related to in-service training, standardized tools for class observation and workshops to develop national and subnational in-service training plans. The project also finances a study to inform the organizational design of the Teacher Training Directorate.⁵⁴

Teacher management, which includes activities that aim to recruit, deploy, manage and motivate teachers, is supported by half of the grants (19 out of 37). In Cameroon, GPE financing (US\$31.4 million) is being used to increase teacher availability in public primary schools through the conversion of community teachers into contract teacher status and the recruitment of new contract teachers in priority disadvantaged areas of the country.⁵⁵

Nearly all of GPE's implementation grants (89 percent, or 33 out of 37) also invest in relevant and quality content for instruction through the development or revision of curriculum or learning materials, or both. In Kenya, as part of an early grade mathematics program, affordable and high-quality textbooks, teacher guides, student workbooks and learning aids will be made available to about 23,000 primary schools to support the learning process.⁵⁶

The partnership's GRA program, which formally closed in 2018, also provided regional grants to partner organizations to improve teaching and learning, with particular attention to the early grades. This included a project to improve early grade reading in Burkina Faso, Niger and Senegal through integration of the curriculum, teaching, learning materials and assessments (US\$2.9 million); a project piloting bilingual literacy programs in eight Sub-Saharan African countries (US\$1.4 million); a project to improve school readiness and early grade reading in Papua New Guinea and the Pacific islands (US\$8.5 million); and a project to improve teachers' professional practices in Burkina Faso and Initiative Francophone pour la Formation à Distance des Maîtres (IFADEM) African partner countries (US\$996,000).

In addition, GPE has supported improved engagement of teachers in sector planning and sector monitoring by strengthening the technical and organizational capacity of teacher organizations to engage in policy dialogue (US\$1.9 million). Partnering with Education International and UNESCO, national-level capacity development workshops for teacher organizations were conducted in 10 Sub-Saharan African countries. The aim was to encourage teachers to assess the current issues affecting teacher effectiveness in their respective education systems in conjunction with ministry officials and to support them to propose evidence-based policy interventions to the local education groups.

At the global level, the GPE Secretariat has also been working with key partners to strengthen planning, policies, data and knowledge sharing around teachers, including with the International Institute for Educational Planning (IIEP)-Pôle de Dakar, United Nations Children's Fund (UNICEF), the Teachers Task Force, the UIS, and the new Norwegian Teacher Initiative.

In short, GPE has been a strong supporter of quality education in DCPs by making learning the number one priority in the GPE 2020 plan; supporting DCPs to improve the quality of teachers,

⁵⁴ GPE, *Portfolio Review 2018* (Washington, DC: Global Partnership for Education, 2018).

⁵⁵ Ibid.

⁵⁶ Ibid.

teaching and learning; and supporting global and regional efforts together with partners. The KIX grants will build upon these efforts by further enabling knowledge exchange and supporting new global goods, filling any gaps and building on the existing ones outlined in the next section.

5. Global goods, networks and innovations to improve teaching and learning

Investments to improve teaching and learning in developing countries fall into three main categories: (1) global goods for tools, data and evidence; (2) networks; and (3) innovations.

Tools, data and evidence

There are various global goods in this area, including tools for system- and classroom-level analysis, tools and guidelines for capacity building, data on teacher policies and their implementation and evidence from systematic review of teaching and learning interventions. Data on teachers are gathered through surveys and as part of regional learning assessments. Tools and studies that gather data on learning outcomes are covered extensively in the KIX discussion paper on strengthening learning assessment systems and are only briefly mentioned here.

Tools

GPE's *Methodological Guidelines for Education Sector Analysis*, Volume 1, is a comprehensive resource on carrying out an education sector analysis in developing countries.⁵⁷ Chapter 4 of this volume on quality, system capacity and management provides approaches for education sector analysis in the areas of (1) learning outcomes; (2) system capacity, institutional arrangements and monitoring tools; (3) management of teacher recruitment, training and posting; and (4) management of educational resources and teaching time. The guidelines offer methods and potential data sources for each of these areas.

It is important for countries to access data that provide in-depth understanding of the quality of classroom instruction based on a representative sample of schools. The World Bank has supported two tools to gather data on the quality of classrooms—the Stallings classroom snapshot and Teach. The Stallings snapshot entails timed observations that produce quantitative data about interactions of teachers and students in classrooms.⁵⁸ It focuses on teachers' instructional practice and students' engagement, including observations of teachers' use of time, use of different learning activities and ability to keep students engaged. It includes free, open-source software currently available in English, French, Spanish and Portuguese. Teach is a more recent tool that captures the time teachers spend on learning, the extent to which students are on task and the quality of teaching practices that help develop students' socioemotional and cognitive skills.⁵⁹ Similar to the Stallings method, Teach uses a series of timed observations to record teacher and student behaviors.

The Teacher Training Initiative for Sub-Saharan Africa (TTISSA) was a 10-year UNESCO initiative, responding to the request by African member states to address the acute shortage of qualified teachers, one of the biggest obstacles to the realization of the Education for All (EFA) goals in Sub-Saharan Africa. UNESCO's *Methodological Guide for the Analysis of Teacher Issues* was published in 2011 to help countries analyze how their national education system fares on teacher education,

⁵⁷ See: <https://www.globalpartnership.org/content/methodological-guidelines-education-sector-analysis-volume-1>.

⁵⁸ "The Stallings Classroom Observation System," World Bank, accessed January 11, 2019, <https://www.worldbank.org/en/programs/sief-trust-fund/brief/the-stallings-classroom-snapshot>.

⁵⁹ See: <http://documents.worldbank.org/curated/en/949541542659103528/Teach-Observer-Manual>, accessed January 11, 2019.

working conditions, management and the social and professional context in which they work.⁶⁰ It also provides options for addressing identified challenges. The guide was developed through a participatory approach, field-tested in Benin and Uganda, and validated by an advisory group prior to publication.

The Breadth of Learning Opportunities (BOLO) tools developed by the Brookings Institution and Education International are free tools to compare the curriculum on paper with how it is implemented in schools.⁶¹ The tools document (1) whether opportunities are provided for learning across a diverse group of domains, and (2) how key components of an education system (curriculum, assessments, teacher supports, monitoring and school resources) align across the different levels of the system to support delivery of breadth of learning opportunities. The tools were codeveloped with teachers, policymakers and researchers and piloted in Kenya and Mexico.

Tools and guidelines for capacity building

Capacity building for teacher training. The Inter-Agency Network for Education in Emergencies (INEE) produced the *Teachers in Crisis Contexts Training for Primary School Teachers* package, which provides foundational teacher training content on the following topics: teacher's role and well-being; child protection, well-being and inclusion; pedagogy; and curriculum and planning.⁶² It consists of an introductory training pack and four core modules, developed around a set of 28 teacher competencies. The training pack includes a facilitator's guide, participant handbook and PowerPoint slides for each component of the training. The pack was developed by the inter-agency working group and underwent field-testing in Iraq and Kenya and an external review by a range of specialists. INEE also produced *Where It's Needed Most: Quality Professional Development for All Teachers*, a set of good practices in high-quality professional development for teachers who work in crisis situations.⁶³

UNESCO developed the guide *A Guide for Gender Equality in Teacher Education Policy and Practices*, which has chapters dedicated to curriculum of teacher education, pedagogy and instructional materials for mainstreaming gender into educational institutes.⁶⁴ Similarly, the Forum for African Women Educationalists has developed a toolkit for Gender Responsive Pedagogy and Learning for Teachers for training pre-service and in-service teachers. It provides activities that can be applied in a classroom setting and guide self-reflection for teachers to be aware of their own gender biases.⁶⁵

Capacity building for teacher management. UNESCO and the International Labour Organization (ILO) have been leading efforts for more than 50 years to establish norms and standards for the teaching profession, including the UNESCO-ILO Recommendation Concerning the Status of Teachers, adopted in 1966.⁶⁶

UNESCO supports several global and regional capacity-building initiatives. UNESCO-IIEP developed a series of training modules for education managers and planners on teacher management.⁶⁷ The seven

⁶⁰ Jean-Marc Bernard, Beïfith Kouak Tiya, Gabrielle Bonnet and Ramya Vivekanandan, *Methodological Guide for the Analysis of Teacher Issues* (2011).

⁶¹ See: <https://www.brookings.edu/research/breadth-of-learning-opportunities/>, accessed January 11, 2019.

⁶² See: <https://inee.org/resources/teachers-crisis-contexts-training-primary-school-teachers>, accessed June 17, 2019.

⁶³ See: <https://inee.org/resources/where-its-needed-most-quality-professional-development-all-teachers>, accessed June 17, 2019.

⁶⁴ UNESCO, *A Guide for Gender Equality in Teacher Education Policy and Practices* (Paris: UNESCO, 2015).

⁶⁵ Penina Muhando Mlama, *Gender Responsive Pedagogy: A Teacher's Handbook* (Nairobi: Forum for African Women Educationalists, 2005).

⁶⁶ See: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/normativeinstrument/wcms_493315.pdf, accessed January 11, 2019.

⁶⁷ See: <http://www.iiep.unesco.org/fr/modules-de-formation-axes-sur-la-gestion-des-enseignants-3336>, accessed June 17, 2019.

modules, available online in French and eventually in English, are intended to be used for effective planning, monitoring and management of teaching staff:⁶⁸

- Module 1: Teacher management: Current challenges
- Module 2: Concepts of human resource management and forward planning
- Module 3: Recruitment and teacher training: Issues and options
- Module 4: Teacher allocation and utilization
- Module 5: Monitoring tools and information systems for teacher management
- Module 6: Career and teacher assessment: Options and consequences
- Module 7: Institutional and organizational framework and mechanisms to regulate teacher management

UNESCO-IIEP has also produced books and research summaries on the topics of teacher motivation, teacher resource centers, and preparation, recruitment and retention of teachers.

Some global goods are designed specifically for teacher management in fragile and conflict-affected countries (FCAC). The INEE has developed Guidance Notes on Teacher Compensation in FCAC.⁶⁹ These provide a framework for guiding inter-agency discussion on compensation of teachers based on practices from around the world. There are also emerging efforts. The Education Financing Commission established an Education Workforce Initiative in 2017 to develop recommendations for policymakers on how to redesign, expand and strengthen the education workforce in light of the changing demands of the 21st century. The initiative has published a literature review and several short recommendation pieces, and is planning to publish a report of its findings in 2019.

To recruit female teachers, UNESCO Bangkok has published a policy brief. It provides guidance for recruiting more female teachers in schools based on country level examples. Some of the strategies listed include using specific quota targets for women, hiring committed local women without the necessary formal qualifications and working with local women's organizations to encourage them to support potential women teachers.⁷⁰

Capacity building for teacher policies. The Teachers Task Force drew upon member expertise to produce the *Teacher Policy Development Guide*, which assists countries in reviewing national teacher policies to support the achievement of the teacher targets in both the Sustainable Development Goals and Education 2030.⁷¹ The guide is available in seven languages (Arabic, Chinese, English, French, Portuguese, Russian and Spanish). In 2017, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) produced the discussion paper "Teachers and Teacher Policy in Primary and Secondary Education," which provides an overview of the global teacher gap, its causes and consequences and how teacher policies can address the gap.⁷²

A major concern of planners, managers and decision-makers is to establish a better understanding of teachers unions and to work with them as closely as possible. UNESCO-IIEP produced a booklet examining teacher engagement in policy dialogue in Latin America. *Education Reforms and Teachers' Unions: Avenues for Action* describes the situation of teachers unions in Latin America and their role

⁶⁸ See: http://www.unesco.org/education/pdf/412_36.pdf, accessed January 11, 2019.

⁶⁹ See: <https://inee.org/resources/inee-guidance-notes-teacher-compensation-users-guide-and-feedback-form>, accessed June 17, 2019.

⁷⁰ Jackie Kirk, "The Impact of Women Teachers on Girls' Education," policy brief, UNESCO Bangkok, 2006.

⁷¹ See <https://unesdoc.unesco.org/ark:/48223/pf0000235272>, accessed June 17, 2019.

⁷² See: <http://www.teachersforefa.unesco.org/v2/index.php/en/ressources/file/390-teachers-and-teacher-policy-in-primary-and-secondary-education>, accessed January 11, 2019.

in the implementation of recent education reforms.⁷³ It highlights the importance of collaboration between policymakers and unions and makes relevant recommendations for working together. The booklet summarizes how teachers unions in Latin America operate and discusses their foremost preoccupations; it also presents some strategies to appease conflicts and potential solutions to current problems.

To increase teacher involvement in policy dialogue, UNESCO and Education International developed the guide *Improving Teacher Support and Participation in Local Education Groups*. The guide was funded by GPE as part of the GRA program to enhance the capacity of teachers to be active and effective participants in social dialogue and policy processes, in particular through engaging with local education groups.

Capacity building for improving curriculum and learning materials. Because of the vast differences in curricula around the world, many resources for improving learning are country-specific, or tied to a particular curriculum and cost money to use. These would not qualify as global goods. However, there are a few open-source tools for improving teaching and learning across borders.

The UNESCO International Bureau of Education (IBE-UNESCO) has produced a collection of resources on improving the quality and relevance of national curricula and offers supports for linking curricula to teaching, learning and assessment. It includes an international database of more than 1,600 curricular documents from 100 countries.⁷⁴

UNICEF's *Child Friendly Schools Manual* includes practical guidance on classroom processes such as teacher-learner interaction, learning materials and pedagogic process.⁷⁵ Save the Children developed Literacy Boost and Numeracy Boost to combine assessment, teacher training and community involvement to improve learning in literacy and numeracy. Literacy Boost has been implemented in 30 countries.

For FCAC, the INEE's Guidance Notes on Teaching and Learning describe good practice on critical issues related to curricula adaptation and development; teacher training, professional development and support; instruction and learning processes; and the assessment of learning outcomes.⁷⁶ Accompanying the notes is a resource pack that includes sample tools, teaching materials and case studies. These can be used to adapt the good practices within the notes to specific contexts. The tools were developed through a consultative process and are used by government ministries, staff of NGOs, donors, teacher training institutions and the teaching community.

The Global Book Alliance is a consortium of governments, civil society organizations (CSOs), donors and the private sector working to get books to all children by 2030. The alliance launched a Global Digital Library to provide online access to reading materials. Another online platform is TeachPitch, which has both free and paid learning materials; it includes user-submitted materials and lessons.⁷⁷

Data

The World Bank's Systems Approach for Better Education Results (SABER) is designed to provide comparative data and knowledge on education policies and institutions to help countries strengthen

⁷³ See: https://publications.iiep.unesco.org/Education-reforms-teachers-unions-avenues-action?filter_tag=teacher%20effectiveness, accessed January 11, 2019.

⁷⁴ See: <http://www.ibe.unesco.org/en/ibedocs/curricular-resources>, accessed January 11, 2019.

⁷⁵ See: https://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf, accessed January 11, 2019.

⁷⁶ See: <https://inee.org/resources/inee-guidance-notes-teaching-and-learning>, accessed June 17, 2019.

⁷⁷ See: <http://globalbookalliance.org>, accessed January 11, 2019.

their education systems. It offers tools to collect and analyze data on policies to identify common challenges and promising solutions that can then be used to inform decisions on where and how to invest to improve education quality.⁷⁸ The SABER Teachers module is a rubric used to inform eight teacher policy goals with direct implications for the development of effective teachers to improve teaching and learning: (1) setting clear expectations for teachers, (2) attracting the best into teaching, (3) preparing teachers with useful training and experience, (4) matching teachers' skills with students' needs, (5) leading teachers with strong principals, (6) monitoring teaching and learning, (7) supporting teachers to improve instruction, and (8) motivating teachers to perform. While the SABER Teacher policy tool comprehensively maps out teacher policies in different areas, gaps between policy and implementation mean the tool has limited efficacy.

In addition to SABER, which focuses on policies, the World Bank's Service Delivery Indicators (SDI) provide data on implementation of education and health services. The indicators on teacher quality include the share of teachers with minimum knowledge and capacity to transmit pedagogy. The SDI also draw on survey data from the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), PASEC and SABER in the assessment of teacher subject knowledge and pedagogical knowledge. So far, data are available for eight countries—Kenya, Madagascar, Mozambique, Nigeria, Senegal, Tanzania, Togo and Uganda—and the methodology can be extended to other countries. SDI assessment on teacher quality links student achievement to teacher characteristics and observations. The indicator tool generates data for eight categories. Four focus on teachers: (1) school absence rate, (2) classroom absence rate, (3) time spent teaching per day, and (4) minimum knowledge; the four others capture data at the classroom level: (5) minimum infrastructure available, (6) minimum equipment and availability, (7) share of pupils and textbooks, and (8) observed pupil-teacher ratios.⁷⁹

Another global good is the collection and data sharing on how countries are progressing toward achieving Sustainable Development Goal (SDG) 4c.⁸⁰ The UNESCO eAtlas for Education 2030 provides a series of interactive maps organized by SDG 4 target for every country with available data.⁸¹ The main data source is statutory teacher data showing trends in teacher quantity and quality and the policy implications for bridging the gap between the two. The data allows answers to questions such as the following: Precisely how many new teachers are needed to respond to the rising demand for primary education? How do working conditions for teachers compare across countries and regions? To what extent are women represented in the teaching workforce? The UIS updates this data whenever new figures become available and uses this to produce reports comparing the state of teachers and education quality in different countries. The UIS, in cooperation with GPE, Education International, and the Teachers Task Force, is planning to launch a new initiative to develop a classification framework to develop robust definitions and classifications of qualified and trained teachers comparable at the global level. GPE supports this initiative because there is wide variation in national definition and standards for trained and qualified teachers across countries, which makes it challenging to compare this data across countries and presents a major roadblock to accurately monitor progress toward SDG 4 goals and targets.

Finally, several international studies provide data on the state of teaching and learning worldwide. The Organisation for Economic Co-operation and Development (OECD) developed the Teaching and Learning International Survey (TALIS), which includes a focus on the learning environment and working conditions of teachers in lower secondary schools. The survey was conducted in 2008, 2013 and 2018.

⁷⁸ See: <http://saber.worldbank.org/index.cfm>, accessed January 11, 2019.

⁷⁹ "Indicators," Service Delivery Indicators, accessed January 11, 2019, <https://www.sdindicators.org/indicators>.

⁸⁰ SDG 4c: By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and Small Island Developing States.

⁸¹ See: <https://www.tellmaps.com/sdg4/>, accessed June 17, 2019.

Of the 46 participating countries in 2018, two were DCPs (Vietnam and Georgia). Cross-national assessments provide data on learning and contextual factors that can be used for secondary analysis.⁸² Some of these assessments collect data on some pedagogical practices and teaching and learning resources.

Evidence

A detailed literature review has been funded by the U.K. Department for International Development (DFID) in the area of teaching and learning. Titled *Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries*, the review covers three critical questions: (1) What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries? (2) What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners? (3) How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?⁸³ The review also highlights gaps in evidence in this area and suggests direction for further reviews on the subject.

Through a partnership between DFID and the Economic and Social Research Council, the Raising Learning Outcomes in Education Systems Research Programme (RLO) was launched to commission research to explore questions on learning outcomes within education systems in developing countries.⁸⁴ Some of the research topics related to teachers and teaching include engaging teachers in peacebuilding in postconflict contexts, evaluating education interventions in Rwanda and South Africa, examining effective teaching in rural Honduran secondary schools, improving curriculum and teaching methods to influence policy and increase the quality of ECDE provision for children with disabilities in Malawi, learning outcomes and teacher effectiveness for children facing multiple disadvantages, including those with disabilities, in India and Pakistan.

The International Initiative for Impact Evaluation (3ie) also conducted a review of evidence, resulting in the report *The Impact of Education Programmes on Learning and School Participation in Low- and Middle-Income Countries*. The chapter “Schools and Teachers” looks at impact of investments in pedagogy, curriculum development and teacher training.⁸⁵

The World Bank published a study in 2018 that proposes an instrument comprising 70 indicators for reporting on professional development programs. This instrument is applied to 33 rigorously evaluated professional development programs in low- and middle-income countries and finds that programs that link participation to career incentives, have a specific subject focus, incorporate lesson enactment in the training and include initial face-to-face training tend to show higher student learning gains. The authors then apply this instrument to a sample of 139 government-funded, at-scale professional development programs across 14 countries. This analysis uncovers a gap between the characteristics of teacher professional development programs that evidence suggests are effective and at-scale teacher professional development programs.⁸⁶

⁸² Cross-national assessments include Programme d’Analyse des Systèmes Educatifs de la CONFEMEN (PASEC), Pacific Islands Literacy and Numeracy Assessment (PILNA), Progress in International Reading Literacy Study (PIRLS), Programme for International Student Assessment (PISA) and PISA for Development, Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), Tercer Estudio Regional Comparativo y Explicativo (TERCE) and Trends in International Mathematics and Science Study (TIMSS).

⁸³ Jo Westbrook et al., *Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries*, Education Rigorous Literature Review (London: Department for International Development, 2013).

⁸⁴ See: <https://esrc.ukri.org/research/international-research/international-development/esrc-dfid-raising-learning-outcomes-in-education-systems-research-programme/>, accessed April 10, 2019.

⁸⁵ Snilstveit et al. 2016.

⁸⁶ Anna Popova, David K. Evans, Mary E. Breeding and Violeta Arancibia, *Teacher Professional Development around the World: The Gap between Evidence and Practice* (Washington DC: World Bank, 2018).

Networks

At least five networks focus on building capacity for improving teaching and learning. Some focus on convening teachers and other practitioners; others focus on policymakers and global actors.

Teacher and practitioner networks

The International Task Force on Teachers for Education 2030 is a global initiative to improve teacher quality by working closely with local teacher networks and policymakers. The Teachers Task Force activities link up with networks and groups of practitioners of international reach. At the regional level, the task force is working with SDG 4—Education 2030 and aims to trigger change at the national level using task force focal points in each member country or organization as the main agents of change. The Teachers Task Force lines of action are through three main channels: (a) advocacy, through a policy dialogue forum; (b) knowledge creation and sharing, through the task force’s knowledge platform; and (c) country support and engagement, through teacher policy development guidelines.

The Teacher and Educator Network Global (TEN Global), under development by Education International, is planned as a virtual professional network of teachers and educators. It will provide a multilingual platform to enable individual teachers to connect internationally on aspects of professionalization, including professional development, innovative pedagogies and advocacy on local, national and global education policy and issues. It will also connect teachers and their classrooms to global frameworks like the SDGs.

Policy and implementation networks

The Teaching and Learning Educators’ Network for Transformation (TALENT) based at UNESCO Dakar is a task team of the Regional Coordination Group on SDG 4 (RCG-4). TALENT serves as a coordination platform to support knowledge sharing, capacity building and technical support on teaching and learning issues in Africa. The network holds workshops on a variety of topics, including one on teacher professionalization in 2016.

The Teachers in Crisis Contexts Working Group and the INEE subgroup on teachers bring together individuals and organizations working on education in crisis and emergencies. The goal is to strengthen teacher professional development and the groups have produced several global goods, including the *Teachers in Crisis Contexts Training for Primary School Teachers* training package.⁸⁷

The African Union Teacher Development Cluster, led by the UNESCO International Institute for Capacity Building in Africa, African Union, and Education International, was launched at the Pan-African Conference on Education in Kenya in April 2018 to support the implementation of the CESA 2016-2025. It adopted a teacher development work plan.

Innovations to improve teaching and learning

This category includes innovations focused on motivating teachers, adjusting teaching practices to learners’ abilities and developing new ways of improving learning outcomes.

Innovations to improve teaching and learning

UNESCO, with funding from the OPEC Fund for International Development (OFID) is supporting “Strengthening Quality Teaching and Learning for Education for All in Eastern Africa,” a program to improve the skills of teachers and increase the supply of quality teaching tools.⁸⁸ UNESCO and the Rwanda Education Board are together modeling inclusive and innovative teaching and learning

⁸⁷ See: <https://inee.org/resources/teachers-crisis-contexts-training-primary-school-teachers>, accessed June 18, 2019.

⁸⁸ “Teacher Development for Quality and Inclusive Education,” UNESCO Regional Office for Eastern Africa, accessed January 11, 2019, <http://www.unesco.org/new/en/nairobi/education/teacher-development-for-quality-and-inclusive-education>.

methodologies in Rwanda's primary and secondary schools. In consultation with key stakeholders, Rwanda and UNESCO have developed a teacher's manual of practical activities to support the mainstreaming of inclusive education. In Uganda, UNESCO is helping promote the harmonization of teacher training programs and the development of the continuous professional development framework for effective delivery of quality education.

STiR Education is working across India and Uganda to build teacher networks to increase teacher motivation and professionalism. STiR partners with governments to run and sustain these networks. Since 2012, STiR has reached more than 200,000 teachers and an independent evaluation shows positive effects on teacher motivation and effort and student engagement and learning.⁸⁹

In a direct response to teacher motivation challenges in Africa, the International Institute for Capacity Building in Africa (IICBA) in collaboration with the African Union, Association for the Development of Education in Africa (ADEA), Education International and the ILO launched the development of the "Teacher Support and Motivation Framework for Africa." It includes a policy and planning tool that will provide member states with policy options, strategies and practical interventions to address teacher motivation concerns in African education systems. The tool is intended to be used to catalyze teacher development activities and, ultimately, foster teachers' performance. It is too early to know what the impact of this policy and planning tool will be. It is fair to say, however, that its impact will depend on how effectively the strategies are adapted to the national context. The value of this framework is that it provides a useful tool to analyze gaps in teacher incentive structures at the national level to ensure that policy responses are evidenced-based.

In Zambia, the Ministry of General Education in partnership with the Japan International Cooperation Agency (JICA) implemented Lesson Study, a peer-to-peer collaborative learning practice, from 2005 to 2015.⁹⁰ Primary and secondary teachers share knowledge and skills to continuously improve teaching through a monthly cycle of "Plan-Do-See" activities. Participation in this program has been associated with higher pass rates on the national examinations.

Teach for All is a CSO network of 48 local organizations on six continents that recruit and support leaders of all academic fields to commit two years to teach in high-need classrooms. Teach for All partner organizations have demonstrated successes in raising student achievement and retaining teachers beyond their two-year appointments.⁹¹

Since 2015, the Varkey Foundation has awarded the annual US\$1million Global Teacher Prize to an exceptional teacher who has made an outstanding contribution to their profession.⁹² This initiative was launched to elevate the status of teaching profession.

Innovations in improving learning

Teaching at the Right Level (TaRL) approach has resulted in sustainably improved outcomes for some children and involves teaching foundational skills to children by assessing students, grouping children

⁸⁹ "What We Do," STiR Education, accessed January 11, 2019, <https://stireducation.org/what-we-do/scale-and-impact.html>.

⁹⁰ See: <https://www.brookings.edu/wp-content/uploads/2016/07/FINAL-Lesson-Study-Case-Study.pdf>, accessed January 11, 2019.

⁹¹ Christina Kwauk, Jenny P. Robinson and Samantha Spilka, "Teach for All: Building a Pipeline of Future Education Leaders Around the World," Brookings Institution, Washington, DC, 2016, <https://www.brookings.edu/wp-content/uploads/2016/07/FINAL-Teach-For-All-Case-Study.pdf>.

⁹² See: <https://www.globalteacherprize.org>, accessed January 11, 2019.

by learning level and teaching to their level.⁹³ It has been implemented in multiple forms: (a) Balsakhi program – recruiting young women to lead remedial education classes for two hours during the school day; (b) Reading camps – training community volunteers to teach reading skills for two to three months over the summer, (c) Read India – which implemented a combination of approaches that included training government school teachers, community volunteers and providing teaching and learning materials, (d) Learning Enhancement Program – entailed training of government teachers to teach literacy during school hours, and (v) Learning Camps – organized 40-day camps for teaching basic math and reading during school hours. Results from evaluations of these approaches show that programs that reorient classroom instruction to teach at the level of the student are consistently effective, raising test scores by between 0.07 and 0.70 standard deviations.⁹⁴

Escuela Nueva is a pedagogical model initiated in Colombia in the 1970s. It centers on the needs of the student through the use of a flexible, participatory curriculum; community outreach; training teachers as advisers of children’s learning; and engagement with local and regional administrators. Schools using this model have demonstrated higher academic achievement and lower dropout rates.⁹⁵ The Escuela Nueva model was adopted by the Colombian government as a national education policy and has been replicated in 16 countries around the world.

Several innovation grants and prizes support improving learning. Through All Children Reading, the Australian Department for Foreign Affairs and Trade (DFAT), the United States Agency for International Development (USAID) and World Vision have supported 44 innovations since 2011. The initiative funds grant and prize competitions for innovative applications of technology to improve reading. An innovators catalog describes the work of the funding recipients.⁹⁶ The Global Book Alliance/REACH for Reading initiative, in partnership with the World Bank, supports innovations of up to US\$500,000 that get the right books to learners at the right time through results-based financing.

6. Gaps in available global goods

The global goods, networks and innovations described in the previous section tend to focus on developing and analyzing policies for teaching and learning, with a few examples of implementation approaches. Several tools and data sources are available, but they are mostly accessible to policymakers and international actors. There is a growing international research base on effective interventions to improve teaching and learning and models for effective classroom practices. But practitioners within specific countries do not necessarily have the capacity to access this research and combine it with local evidence and adaptation to develop appropriate models. Using such models—ones both informed by the international evidence and adapted to the local context—to inform national curricula, teaching materials and training systems is also likely to be difficult in many countries. International guidance and support could play a stronger role in enabling this process.

There are several international policy guides on teacher training and teacher management, including some specific to FCAC, but few resources to support their implementation. A number of networks could be leveraged for this purpose. Some interesting innovations support teachers and have been shown to accelerate improvements in learning, but few are scaled up to the national government level.

⁹³ Rukmini Banerji and Michael Walton, “What Helps Children to Learn? Evaluation of Pratham’s Read India Program in Bihar and Uttarakhand.” (2011).

⁹⁴ “Teaching at the Right Level to Improve Learning,” Abdul Latif Jameel Poverty Action Lab, accessed April 10, 2019, <https://www.povertyactionlab.org/case-study/teaching-right-level-improve-learning>.

⁹⁵ “Escuela Nueva,” Center for Education Innovations, accessed January 11, 2019, <https://educationinnovations.org/program/escuela-nueva>.

⁹⁶ See: <https://allchildrenreading.org/innovators>, accessed January 11, 2019.

In a survey of 11 DCPs and international experts, tools and guidelines for capacity building emerged as a necessary global good across a variety of dimensions of teaching and learning presented to them in the survey. DCPs also noted the need for tools, ranked second across dimensions of teaching and learning development. The following trends emerged from the survey and global goods review on gaps that need attention:

- More effective sharing of evidence and good practices related to implementing teacher standards and professional development policies
- System-level approaches to aligning teaching, curriculum and learning materials
- Support for effective teacher management and engagement

Within each of these areas, gaps are discussed in relation to tools, data, evidence, capacity development and innovations.

Global good gap 1: Sharing evidence and good practices in implanting teacher standards and professional development

Standards for professional development of teachers to improve learning experience and achievement for all students

Teacher quality indicators often focus on the qualification profiles of teachers and little on the certification standards that can be used to provide evidence of whether new teachers have acquired prerequisite professional knowledge and skills for teaching. Teaching standards refer to acceptable evidence of teacher actions/behaviors that demonstrate practical abilities to improve learning in real classroom context—for example, standards that require teachers to demonstrate knowledge and understanding of how students learn and the ability to use this to improve learning for all students. Not many countries have developed professional standards that make a meaningful distinction between teacher quality and teaching quality standards, and also ensure that both are used in the production of quality teachers.

Many countries also lack an effective accreditation system for initial teacher education (ITE) institutions and providers that utilize data for quality assurance purposes. For example, data on time allocations for different aspects of the teacher training curriculum—the amount of time spent on developing pedagogical knowledge of teaching, practical skills for teaching in real and diverse classroom learning environments, and subject content knowledge enhancement.

As noted earlier, many primary and secondary school teachers in low-income countries lack adequate subject content knowledge, yet many teacher certification standards do not include minimum standards for subject content knowledge. This would also ensure that ITE programs provide remedial instruction to raise teachers' subject content knowledge to the expected minimum standards. Also, standards for training teacher educators are lacking in most developing countries.

Regional/subregional standards that can be used to frame or inform national-level standards and allow easy comparisons between countries on the quality of teachers are lacking. Such standards will serve the useful purpose of accrediting teachers who migrate to neighboring countries or are displaced because of conflict. Although tools for teacher development in conflict and emergency settings are being produced, there needs to be alignment of standards in ITE at the subregional level so that teachers can be recruited from different countries to fill gaps that arise because of conflict or emergencies. Teachers who have been displaced by conflict can still teach if their teacher qualification meets regional or subregional standards.

DCPs and international experts emphasized the need for greater evidence on good practices and sharing documents and resources, as well as capacity building. They also noted that standards for the professional development of teachers are necessary in the basic education subsector as well as in other subsectors, including early childhood education and technical and vocational education, and that these standards need to be realistic, feasible and enforceable.

Tools and approaches to meet country needs to provide teacher professional development at scale, leveraging technology

Many developing countries struggle to provide professional development for all teachers, especially those in geographically difficult locations often in rural areas. This contributes to the widening gap in quality education between urban and rural schools. Evidence shows that technology can be used to provide quality professional development,⁹⁷ but this potential has not been adequately leveraged. More information is needed on how technology can be used to improve teachers' pedagogy and subject content mastery and to create a community of practitioners who share their knowledge and expertise.

Interest in technologies to provide online distance learning for teachers is growing but not at scale to reach all teachers, particularly those working in remote communities. While mobile technologies and ICTs, for example, can be used for professional development, DCPs and international experts noted that problems of connectivity and infrastructure make scaling up for the benefit of all teachers a significant challenge.

Support mechanisms for teachers and to produce schools focused on learning

In many developing countries, teacher development is front-loaded. States spend much more on ITE, leaving little to be spent on services to support early career teachers to improve their practices. Support for teachers, either from head teachers or district school supervisors, can be based on favoritism or chance instead of need. In particular, many countries have not evolved sustainable teacher support mechanisms to ensure that all teachers receive a basic minimum of professional support.

Some surveyed DCPs and international experts noted the need to develop communities of practice for teachers to learn from each other; others raised the issue of lack of continuous monitoring support, and incentives for teachers to engage in professional development throughout their career. But they all considered capacity building the most needed type of global good, followed by the need for tools and innovations. They also noted the need for better sharing of well-documented good practices and innovations that are already being used in the education sector.

Teachers should be able to use classroom-based assessments to assess students' progress in learning and diagnose learning difficulties for remediation. However, there is a paucity of standardized tools that teachers can adopt/adapt to track students' mastery of learning goals and assess the quality of their own instruction. Such data can help surface learning patterns and gaps that might otherwise remain unnoticed. This topic is also covered in detail in the KIX discussion paper on strengthening learning assessment systems. Programs and mechanisms to effectively implement remedial learning activities for children lagging behind is an area that most DCPs and international experts believed needs to be addressed—as one respondent noted, “there is a dire need as it would help reduce the high dropouts and repetition rate.” Tools and teaching practices that enable teachers to administer

⁹⁷ Edmond Gaible and Mary Burns, *Using Technology to Train Teachers: Appropriate Uses of ICT for Teacher Professional Development in Developing Countries* (Washington, DC: infoDev/World Bank, 2005), <https://files.eric.ed.gov/fulltext/ED496514.pdf>.

light-touch assessments of students' learning are key for teachers to teach to the learning level of children and identify those that require remediation.

Although each year countries generate primary and secondary school examinations data, their use is limited to certification and selection. Rarely is data from examinations or other system-level assessments analyzed to provide information that can be accessed by schools and teachers to improve teaching and learning. The need for more and better data was raised by three participants in the KIX teaching and learning survey—specifically, better assessment data to identify and support struggling students. Respondents to the survey also mentioned the need for capacity building (for school inspectors and district administrators), guidelines and data to deliver pedagogical leadership, coaching and ensuring sufficient instructional time.

Global good gap 2: System-level approaches to aligning teaching, curriculum, teaching materials and learning context

Toolkits and support to ensure alignment within inputs

Tools and toolkits are needed to guide policymakers at the national level on how to achieve stronger alignment and coherency between inputs like ITE, in-service teacher training, teaching materials and school curriculum requirements to improve learning for every child. Currently, there are hardly any tools/toolkits appropriate for developing country systems to apply to achieve stronger alignment.

DCPs and international experts expressed mixed views on the need for tools/toolkits for ensuring system alignment and coherence in teacher development, curriculum and learning materials, classroom practices and assessments in their contexts. While DCPs saw this need as very important, the international experts' views were more mixed. This is likely because of the lack of implementation of other tools and toolkits discussed in this paper. Toolkits paired with support for implementation, including cross-country knowledge sharing, could help address this gap. Stakeholders also noted the need for guidance to engage key stakeholders, particularly teachers unions, in this exercise.

Toolkits and good practices to ensure alignment of inputs with learning context

Alignment of inputs (training, teaching materials and curriculum) with learning context is also an area that requires attention. For instance, while evidence exists on the effectiveness of mother-tongue instruction, a lot of countries struggle with implementation. Good practices are therefore needed from developing countries that have effectively transitioned to mother-tongue instruction to inform this area of improvement. Another high-need area that is affected by misalignment between inputs and learning context is multigrade teaching. Teachers assigned to multigrade classrooms already have a demanding role to manage the different academic and social needs of children in the classroom. To help teachers teach to the level of children, there is a need for tools and mechanisms to reorganize the pre-existing curriculum and standards and teaching materials and provide requisite training to teachers to address the learning needs of a multigrade classroom.

Global good gap 3: Teacher management and engagement to improve quality of teaching and learning

The quality of teachers is as good as the quality of teacher management and engagement. The following are global good gaps identified for improving teaching and learning quality.

Support to develop a teacher management information system for policy planning and reforms, integrating all sources, coordinated across all levels—national and district—and used for effective management of teachers

DCPs and international experts agreed that this is a global gap that needs attention. International experts in particular considered support to develop teacher management information system (TMIS)

for *policy planning* and *reforms* as more crucial. DCPs, on the other hand, perceived reliable data and strong management tools as global goods needed to support the development of teacher management information systems. Capacity building to develop support for teacher management information systems is seen as lacking in many countries.

In Uganda, for example, a TMIS collects teacher data electronically to harmonize teacher records management for accurate and timely registration and entrance into the teaching service. The system is able to automatically delete a teacher from the payroll as soon as they reach retirement age, helping eliminate ghost teachers. Ghana and Rwanda are two other countries exploring a systemwide TMIS. However, one gap is how the TMIS can be designed for easy access at all levels of the education system so that teacher data can be used for policy planning, reforms and teacher management decisions.

Technology offers the possibility of bringing together teacher data across all levels to ensure a more robust and effective management of teachers. However, DCPs pointed out that unless connectivity barriers and challenges related to lack of infrastructure are overcome, creating a reliable and effective TMIS will be hard to achieve.

Equitable allocation of trained teachers

Although there have been interventions offering equitable allocation of trained teachers in some developing countries, challenges still remain.

UNESCO in collaboration with IIEP Pôle de Dakar organized a Regional Workshop on Teacher Management in May 2017, to discuss challenges and gaps in effective teacher allocation in basic education in Africa.⁹⁸ Although the key gaps identified are based on the Sub-Saharan Africa context, they are still relevant to other developing countries outside this context because the technical, institutional and political challenges are similar. The gaps identified mainly relate to tools:

- Tools for harmonizing teacher requirements at local and central level (ministry or regional education directorate) to ensure alignment with teacher demand.
- Statistical tools for analyzing teacher recruitment and deployment to achieve coherent and efficient teacher allocations, and ensure that schools in rural areas receive their fair share of trained teachers. Such tools should enable coherency and transparency of teacher recruitment systems to counteract the political or social pressures that undermine equitable teacher deployment.
- Tools and guidelines to strengthen the enforcement of norms to counteract the influence of political and social pressures.
- Integrated database (from school statistics, human resources directorates, payroll and so on) that would enable cross-referencing of information on teachers that is currently available in different areas to provide a comprehensive view of the teacher supply-demand situation, and the location of each teacher.

Tools for reducing unauthorized teacher absenteeism and loss of instructional time

Collectively, from a global perspective, strong evidence suggests that the use of multiple tools can improve unauthorized teacher absenteeism,⁹⁹ but sustainable implementation at the systemwide level remains a big challenge for many countries. Monitoring tools to collect attendance data, making

⁹⁸ More than 90 participants from education ministries and their representatives, education specialists, and teacher training colleges' instructors from eastern, central and southern African countries discussed the challenges they still face in teacher allocation systems.

⁹⁹ Serena Masimo and Miguel Niño-Zarazúa, 2015.

the data visible and available to schools, districts and the national level for the appropriate decision-making, is lacking in many developing countries grappling with unauthorized teacher absences.

Although research evidence suggests that technology can be used to monitor unauthorized teacher absences, it has the potential to create a surveillance culture that communicates general mistrust of the profession, affecting all teachers irrespective of whether they are regular attenders. Research is needed to identify effective approaches that can target and de-incentivize unauthorized teacher absences.

Relatedly, loss of instructional time when teachers are in the school or class but not teaching is also an issue and more difficult to track than absenteeism. While tools like the Stallings classroom snapshot and the component on “time teachers spend on learning activities” in TEACH (classroom observation tool) have been developed to track instructional time, research and knowledge sharing is needed on ways to encourage increased time on task, including examining how to reduce teachers’ administrative duties, ensure schools are adequately staffed and increase teacher motivation.

Guidelines, data and tools for improved career pathways and progression linked to professional development, particularly for contract/community teachers

Both DCPs and international experts pointed out that in many countries there is generally no clear career path for contract and community teachers even though they fill an important gap in countries struggling to recruit, train and deploy trained teachers to disadvantaged areas. DCPs perceived lack of data as a problem, while international experts saw a gap in capacity building of contract teachers and innovation to address their professional learning needs. In addition, international experts were of the view that guidelines for developing effective teacher career pathways and progression and sharing of good practices and innovation across the sector are lacking. Teacher career progression that is driven more by evidence of accomplishment at the school/classroom level is recognized as a gap that needs attention through the sharing of good practices and successful models in developing country contexts.

Improved capacity and systems for effectively engaging teachers and teacher organizations in policy dialogue

Improving the channels for teachers to actively engage in policies that shape their profession will increase the chances of successful uptake of these policies. Often teachers are represented by teacher organizations in policy dialogue, but improving the capacity of teacher organizations to contribute to key decisions on reforms to improve teacher and teaching quality is needed. Research, case studies and tools are needed on how teacher organizations can engage effectively with their teachers so their views about can be adequately represented in policy dialogue to improve teaching and learning. The use of technology (for example, mobile technology) to gather teachers’ views can increase their voice in policy dialogue. Case studies and research are needed to demonstrate the effectiveness of teacher engagement in policy dialogue.

The DCPs and international experts pointed to guidelines (international experts more frequently) and capacity building (even frequency in both groups) as missing gaps in this area. Tools are also perceived as need; however, this global good is more relevant from the perspective of DCPs.

Potential investment areas

Many of the challenges and gaps identified by DCPs and international experts suggest that capacity building is perceived as a global good needed overall across the three wheels for improving teaching and learning. Without building the capacity of institutions, teachers and stakeholders, they will not be

able to respond to the scale of need that has been identified. Tools come next, followed by guidelines, research and innovation, and finally data.

There is equally a sense that more needs to be done to make available tools and guidelines more accessible for countries to use to improve teaching and learning in their systems. One respondent in the survey stressed the importance of global actors working together so that “instead of several flagship projects [to improve teaching and learning] they support national education sector plans.”

Although data is often ranked last overall, when mentioned, the emphasis is for *more* and *better* data to develop new understandings and solutions to the problems of teaching and learning. But also, data that can be used to leverage the appropriate responses to improve the quality of teaching and learning in all school classroom environments.

To ensure KIX investments in these opportunities respond to the needs and landscape, several areas of investment are required:

- Building capacity through knowledge transfer, capacity development and learning exchange on issues where there is a sufficient evidence base
- Building evidence and evaluation of what works on topics where there are some solutions, but where more synthesis is needed to develop a solid evidence base
- Innovation in teaching and learning approaches on topics where new thinking and solutions are needed

Table 1 presents potential global goods and is intended as a starting point for discussion among stakeholders. The dotted lines between the activities indicate that a recipient of KIX funding could potentially propose a project that covers multiple investment areas or system elements.

Table 1. Areas for investment and potential global goods

System element	Knowledge transfer, capacity development and learning exchange	Evidence and evaluation	Innovation
Data on teachers and teaching	Sharing good practices on what data are needed, generating demand for data and supporting how to use it more effectively for planning and implementation	Assessment and collation of existing data on teachers and teaching, particularly from learning assessment contextual questionnaires	Methodologies for collecting new data that provide qualitative and quantitative information on effective teachers and teaching that can be linked to impact on learning outcomes
Teacher recruitment, selection and retention	Sharing what works to recruit and retain the best in teaching and leadership in developing countries and to make recruitment accountable and transparent	Operationalizing and contextualizing the evidence of what works—how to design and implement policies that are based on the evidence of what works—processes	Innovative solutions to addressing teacher and leadership shortages that accelerate learning outcomes with high-quality recruits. Innovation to solve

		to delivery approaches for recruitment interventions	teacher shortages in FCAC and emergencies
Accountability, incentives and rewards	Sharing what works at scale to expand professionalism and motivate effective teachers	Systematic review of the current evidence base on accountability, incentives and rewards that result in improved learning outcomes—how to operationalize the evidence and design and deliver successful interventions	Innovation that improves equity of education outcomes through restructuring and incentivizing distribution of teachers
Teacher preparation and professional learning	Sharing what works to improve teaching practice at scale in pre-primary and early grades	How to realign teacher preparation and professional learning to the evidence of what works. Methodologies to assess the cost effectiveness of teacher training on classroom practice and students' learning	Innovation to realign teacher professional learning at scale so it improves classroom practice and learning outcomes for pre-primary and early grade students
Enabling school and system factors	Sharing what works to make sure that schools facilitate effective teaching	Systematic review of the evidence on the impact of leadership at school and other levels on effective teaching and learning outcomes	School-level innovation that improves classroom practice
Finance, planning and deployment	Sharing what works to align budgets, planning and the workforce with effective teaching and increasing the number of effective teachers. What works to increase accountability and transparency in budgets	What are the barriers in aligning financial and human resources to increase the number of effective teachers and improve teaching effectiveness—operationalizing and delivering interventions	Innovation in sustainably attracting and incentivizing the best teachers to the locations and grades where they are needed the most

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Annex A. GPE fact sheet on improving teaching and learning

Overview

Five results framework indicators are directly related to improving teaching and learning: 1, proportion of developing country partners (DCPs) showing improvement on learning outcomes; 11, equitable allocation of teachers, as measured by the relationship (R2) between the number of teachers and the number of pupils per school; 12, proportion of DCPs with pupil/trained teacher ratio below threshold (<40) at the primary level, 16b, proportion of ESPs/TEPs that have a teaching and learning strategy meeting quality standards;¹⁰⁰ and indicator 19, proportion of LEGs with representation from civil society and teacher organizations. Similarly to the majority of the world developing countries, GPE DCPs are facing learning challenges marked by a lack of evidence on learning outcomes and issues related to teacher training and deployment. However, DCPs are making progress on the quality of the teaching and learning strategies included in their education sector plans.

Key results

Learning outcomes (Indicator 1)

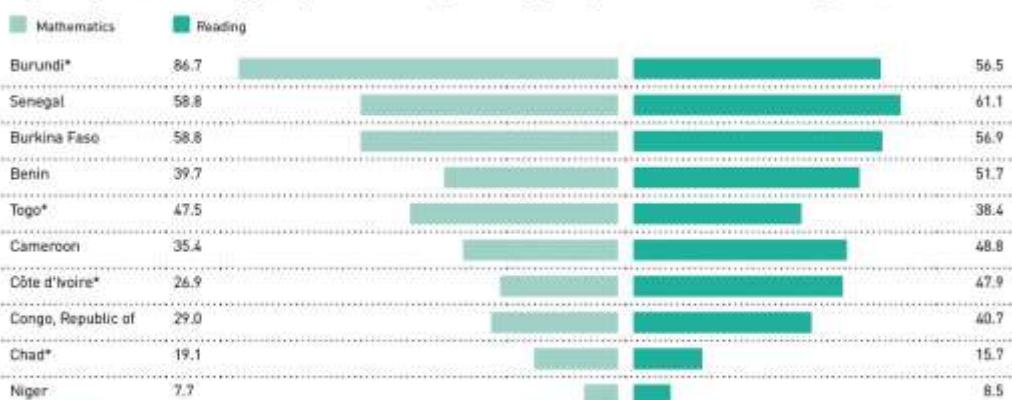
The first milestone for improvement in learning outcomes (Indicator 1) is set for 2018 (68 percent overall and 65 percent in FCAC). The 2016/2017 Results Report noted that only 20 countries had available learning assessment data at two points in time to monitor learning outcomes trends for the baseline period (2000-2015). Of these 20 DCPs, learning outcomes had improved in 13 of them (2 out of 4 FCAC). In other words, learning outcomes did not improve in 35 percent of DCPs (7 out of 20 DCPs), demonstrating a need for better support to learning outcomes improvement.

The partnership aims to reach 70 percent of DCPs showing improvement in learning outcomes by 2020. To achieve this goal, all factors affecting the quality of education will need to be addressed collectively, especially in countries with the lowest levels of achievement in learning outcomes. For example, PASEC 2014 data show that some GPE developing country partners register relatively low achievements in learning outcomes in mathematics and reading (Figure 1.2 of Results Report 2018, illustrated below). Only 8.5 and 7.7 percent of students completing primary education in Niger achieved minimum proficiency level in reading and mathematics, respectively, clearly underscoring that improvement in learning outcomes is a major challenge in this context.

¹⁰⁰ There is no breakdown by gender for indicators 11, 12 and 16b in the results framework.

FIGURE 1.2. Proportion of children achieving minimum proficiency in mathematics and reading varies considerably in GPE DCPs.

Proportion of students at the end of primary education achieving minimum proficiency level in mathematics and reading, PASEC, 2014



Source: GPE compilation based on data of the UNESCO Institute for Statistics [database], Montreal, <http://www.uis.unesco.org>.

Note: FCACs*

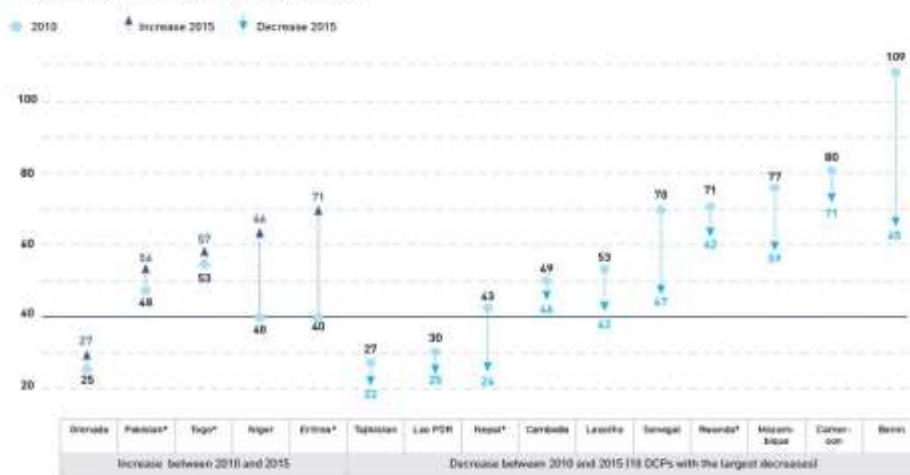
Source: GPE, *Results Report 2018* (Washington, DC: Global Partnership for Education, 2018), Figure 1.2.

Teachers' training and allocation (Indicator 11 and 12)

Teachers are considered one of the inputs for improved learning, according to the GPE theory of change. However, the results framework data show that GPE DCPs face challenges related to both teachers' training and teachers' allocation. The overall proportion of DCPs that had a pupil–trained teacher ratio (PTTR) of 40 or better was 24 percent (12 out of 49 DCPs) and the milestone for 2017 was not met. The corresponding figure for FCAC was 15 percent (3 out of 20) and the milestone for 2017 was also not met. Looking at longer-term trends at the country level, PTTRs in five out of 18 DCPs with data available deteriorated between 2010 and 2015 (see Figure 2.6 of the Results Report 2018, illustrated below).

FIGURE 2.6. Pupil-to-trained-teacher ratios have improved in several DCPs that are still above the threshold of 40 pupils per trained teacher.

Change in PTTRs in selected DCPs between 2010 and 2015



Source: UNESCO Institute of Statistics.

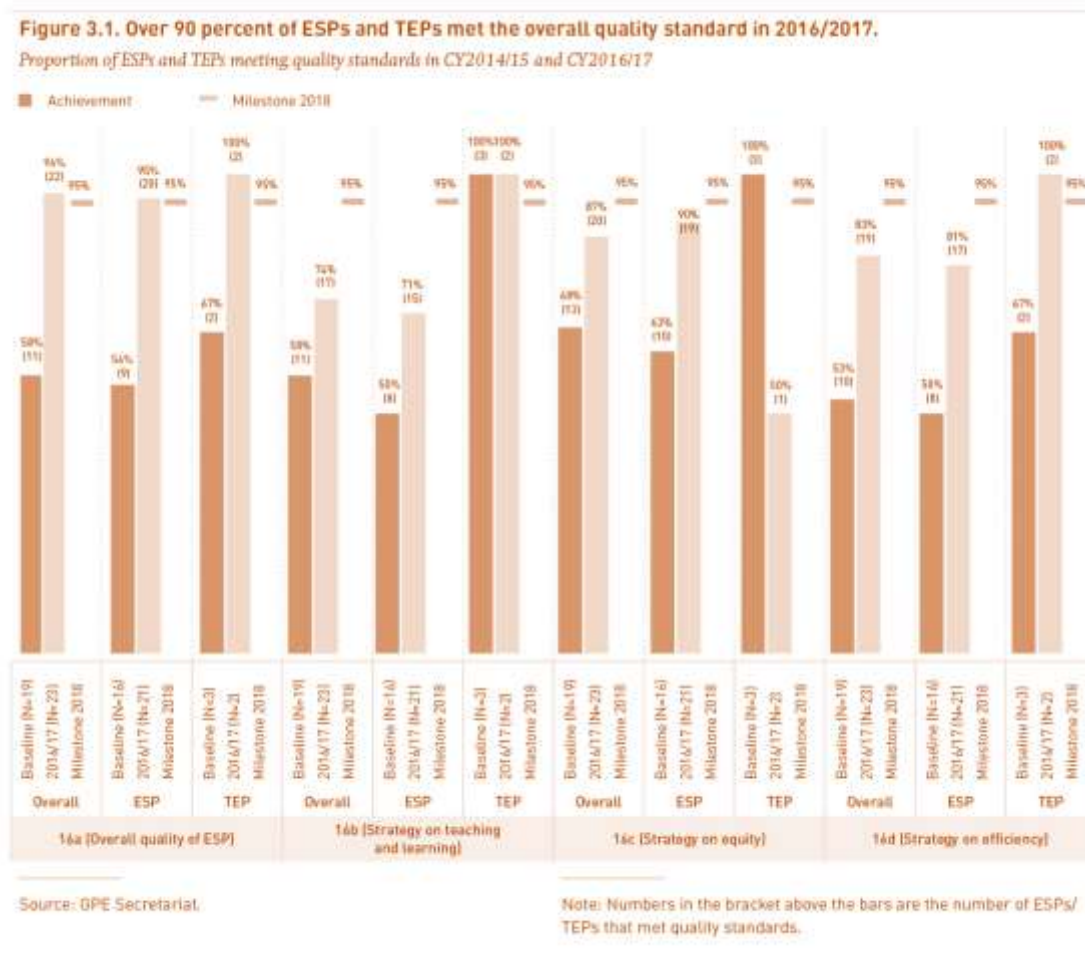
FCAC*

Source: GPE, *Results Report 2018* (Washington, DC: Global Partnership for Education, 2018), Figure 2.6.

On teachers' allocation, baseline data for Indicator 11 suggest that 29 percent (6 out of 21) of developing country partners with available data had education systems in which 80 percent of the allocation of teachers was aligned with the number of students. The next milestone for this indicator is set for 2018 (38 percent) and a target of 48 percent is set for 2020.

Teaching and learning strategy (Indicator 16b)

No milestone is set for the proportion of ESPs/TEPs that have a teaching and learning strategy meeting quality standards (Indicator 16b) for 2017. However, data show strong progress on the quality of ESPs/TEPs in general, including the teaching and learning strategy (Figure 3.1 of the Results Report 2018, illustrated below). Seventy-four percent of ESPs/TEPs (17 out of 23) met the overall quality standard on the teaching and learning strategy in 2016/2017, up from 58 percent (11 out of 19) at baseline in 2014/2015. All dimensions of the quality of the teaching and learning strategies in ESPs experienced an improvement except the implementation component (Figure 1).



Source: GPE, Results Report 2018 (Washington, DC: Global Partnership for Education, 2018), Figure 3.1.

Note: The ESP/TEP quality is assessed using GPE's quality standard, developed jointly by the GPE Secretariat and UNESCO-International Institute for Education Planning (UNESCO-IIEP). ESPs must meet at least five out of seven quality standards, and TEPs must meet at least three out of five, to reach the quality benchmark.

Figure 1. Proportion of ESPs meeting each quality standard for thematic strategies

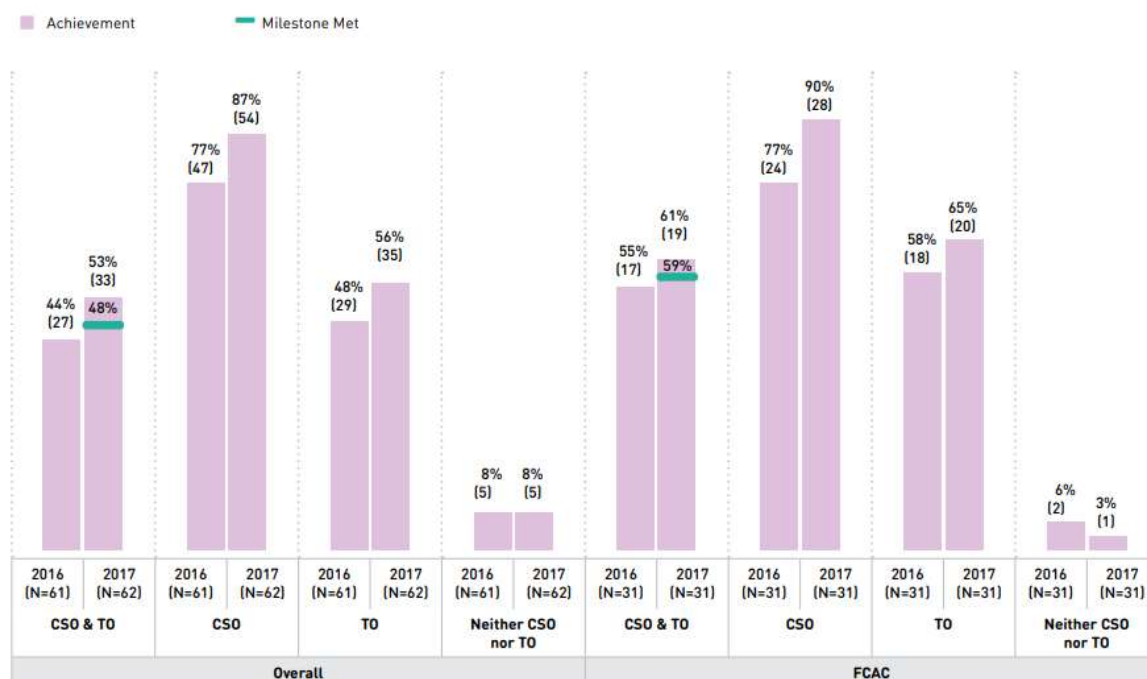
Source: GPE, *Results Report 2018* (Washington, DC: Global Partnership for Education, 2018), Appendix 3.

Representation from civil society and teacher organizations (Indicator 19)

The results framework tracks the inclusion of civil society organizations and teacher organizations in LEGs (Indicator 19). Fifty-three percent of LEGs (33 out of 62) included both CSOs and TOs, exceeding the 2017 milestone of 48 percent; this was a significant improvement from 2016 in the representation of both stakeholders in LEGs. Among FCACs, 61 percent (19 out of 31) included both groups, also surpassing the 2017 milestone of 59 percent.

Figure 3.6. More than half of the LEGs included CSOs and TOs in 2017.

Proportion of LEGs with representation of CSO and TO, FY2016 and FY2017



Source: GPE Secretariat.

Note: In 2017, the Secretariat obtained data from 62 LEGs (including LEGs at the federated states level).

Source: GPE, *Results Report 2018* (Washington, DC: Global Partnership for Education, 2018), Figure 3.6.