21ST CENTURY SKILLS: WHAT POTENTIAL ROLE FOR THE GLOBAL PARTNERSHIP FOR EDUCATION?

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GPE Transforming Education

Contents

Acknowledgments

Acronyms

21CS	21st-century skills
A4L	Assessment for Learning
ATC21S	Assessment and Teaching of 21st Century Skills
CASEL	Collaborative for Academic, Social, and Emotional Learning
DCP	developing country partner
ERCE	Regional Comparative and Explanatory Study
ERI-Net	Asia-Pacific Education Research Institutes Network
ESD	Education for Sustainable Development
ESP	education sector plan
ESPIG	education sector plan implementation grant
GAP	Global Action Programme
GBC-Education	Global Business Coalition for Education
GCED	Global Citizenship Education
GPE	Global Partnership for Education
ICCS	International Civic and Citizenship Education Study
ICILS	International Computer and Information Literacy Study
ICT	information and communications technology
KIX	Knowledge and Innovation Exchange
LLECE	Latin American Laboratory for Assessment of the Quality of Education
LMTF	Learning Metrics Task Force
LSCE	Life Skills and Citizenship Education
MENA	Middle East and North Africa
NEQMAP	Network on Education Quality Monitoring in the Asia-Pacific
OAA	Optimizing Assessment for All
OECD	Organisation for Economic Co-operation and Development
P21	Partnership 21
PASEC	Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SDG	Sustainable Development Goal
SEA-PLM	Southeast Asia Primary Learning Metrics
STEP	Skills Toward Employment and Productivity
TALENT	Teaching and Learning: Educators' Network for Transformation
TIMSS	Trends in International Mathematics and Science Study
TVC	transversal competencies
TVET	technical and vocational education and training
UIS	UNESCO Institute for Statistics

UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Fund
WCD	whole child development
YEFG	Youth Employment Funders Group

Executive Summary

The goal of this review is to consider the role that the Global Partnership for Education (GPE) could take in supporting developing country partners (DCPs) in embedding 21st-century skills or equivalent within their systems. The report recommendations consider the different levers that GPE has as its disposal as well as the core principles underlying GPE's work, including evidence-based policy dialogue, country ownership, harmonization and aid alignment, and the promotion of mutual accountability. As GPE develops its next strategic plan, the present report can serve as a reflection of the current landscape as well as a think piece in considering how best to support partner countries and the wider partnership in aspirations toward ensuring that children and young people are equipped with the broad range of skills that they need to be active, engaged and productive members of their communities, countries and the globalized world more broadly.

Twenty-first-century skills (21CS), also referred to variously as "non-cognitive," "soft," "whole child development," "transversal," "transferable" or "social-emotional" skills or competencies, have become an increasing area of focus in the international education discourse, with more and more countries across the globe striving to ensure that their education systems go beyond the cognitive domains such as reading and mathematics and equip children and young people with these skills. While GPE puts an emphasis on improving learning outcomes and learning assessment systems in its DCPs front and center in its current strategic plan (GPE 2020), the GPE Secretariat has had limited explicit engagement with the issue of 21CS to date. Therefore, this report presents a landscape review undertaken by the Secretariat on the integration of 21CS in the education systems of developing countries to inform reflections on what role GPE can play in this space in the future. The review is undertaken under the framework of GPE's Assessment for Learning (A4L) initiative, which aims to strengthen national learning assessment systems and to promote a more holistic measurement of learning.

The review uses a definition of 21CS adapted from Binkley et al.:[1]

> ***Twenty-first-century skills are abilities and attributes that can be taught or learned in order to enhance ways of thinking, learning, working and living in the world. The skills include creativity and innovation, critical thinking/problem solving/decision making, learning to learn/metacognition, communication, collaboration (teamwork), information literacy, ICT literacy, citizenship (local and global), life and career skills, and personal and social responsibility (including cultural awareness and competence).***

The key findings of the review are as follows:

- ***There has been a rich history of framing work and initiatives at a global level on 21CS.***
  This is encapsulated most explicitly in the broad scope of the Sustainable Development Goal (SDG) 4 on education, which includes targets on skills for decent work as well as the skills needed to promote sustainable development, including human rights, global citizenship and appreciation of cultural diversity. Prior to this, initiatives such as the Assessment and Teaching of 21st Century Skills (ATC21S), the Partnership for 21st Century Learning (P21), the Learning Metrics Task Force (LMTF) and the Skills for a Changing World research of the Brookings Institution undertook foundational work in this realm. In addition, efforts such as UNICEF's Life Skills and Citizenship

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[1] M. Binkley et al., "Defining Twenty-First Century Skills," in *Assessment and Teaching of 21st Century Skills,* edited by P. Griffin et al. (London: Springer, 2012).

Education (LSCE) initiative in the Middle East and North Africa and the Collaborative for Academic, Social, and Emotional Learning (CASEL) have undertaken work to advance a systems approach to 21CS, which as noted subsequently would be a natural area of focus for any future support by GPE in this realm.

- ***GPE partner countries prioritize 21CS in education sector plans (ESPs), but there are gaps in implementation at the system level.***
  Based on a stocktake of ESP and grant documents from a sample of 15 DCPs in Africa and Asia, the review notes that all the countries reference 21CS (or equivalent) in their ESP policy priorities. This is notable, especially given that the ESPs are developed through GPE support, and reflects country interest in orienting their systems to promote these skills and seeing them as a priority. However, only three of the 15 countries in the sample included activities related to 21CS within their education sector plan implementation grants (ESPIGs). Knowing that ESPIGs are but one of the financing windows through which an ESP may be implemented and that governments themselves and/or other partners may be funding 21CS-related activities as referenced in the ESP, this is not in and of itself problematic. However, the evidence suggests a disconnect between countries' sector plans, where references to 21CS feature strongly, and systemwide implementation. This misalignment may stem from perceptions that 21CS are extraneous to the context of developing countries, a lack of knowledge of how these skills actually develop or a view that other areas should be prioritized. In addition, while existing implementation may focus on some components (for example, teacher training), it appears that there is a lack of knowledge and experience of how to approach implementation at a whole sector or system level, including practical frameworks and guidance for doing so.

- ***Assessment tools applied in GPE partner countries have potential to capture 21CS.***
  Looking specifically at the realm of learning assessment, a deep dive on this issue, using the same 15 DCPs in Africa and Asia that were analyzed for the stocktake, aimed to understand what assessment tools, if any, these countries use at the classroom and national levels that directly or indirectly target 21CS. This analysis reveals that while none of the sampled tools are specifically designed to measure 21CS, there are promising opportunities to capture these skills through these tools. This nonetheless requires more work to understand the nature and development of 21CS, to support their effective integration in curricula and to better equip teachers to teach and assess them.

- ***Across the partnership, substantial work has occurred in the realm of 21CS, yet there are gaps in the realms of research, knowledge sharing, capacity development and advocacy focused on systemwide implementation in developing countries***.
  While A4L is the first Secretariat-led initiative to include work related to 21CS, GPE partners have been quite active in this space for many years. International organizations such as UNESCO, UNICEF and the World Bank and other partners spanning civil society, private sector and foundations, and others have undertaken conceptual work, the development of curricula and learning materials, teacher training, assessment and measurement initiatives, programs to link youth with job providers and opportunities, and advocacy efforts. What appears to be absent in this ecosystem is work on integrating 21CS from a systemwide implementation lens. Despite the proliferation of initiatives across the partnership, there is little in the way of research, knowledge sharing, capacity development and advocacy around what it means to integrate and promote 21CS throughout an education system, particularly in developing countries. Given the partnership's unique mandate and role, GPE is well placed to leverage the expertise of the range

of different partners who have contributions to make in this space, encouraging knowledge generation and exchange, capacity development and global advocacy for systemwide integration of 21CS. GPE's Knowledge and Innovation Exchange (KIX) initiative may have a particular role to play in this regard.

Based on these findings, the review notes a number of opportunities that GPE may consider in promoting the integration of 21CS in its support to education systems in developing countries. The overall principle underpinning these potential levers is as follows:

> *GPE, harnessing the partnership, can deploy global policy dialogue and advocacy, financing and knowledge investments to support partner countries to implement their policy aspirations in regard to 21CS, particularly at the system level.*

This translates into a number of specific opportunities:

- *Signal that GPE stands ready to accompany partner countries in supporting their children and young people's acquisition of 21CS.*
  This landscape review reveals that many DCPs espouse a vision of ensuring that their children and young people are equipped with the skills and competencies needed to thrive in a world of increasing complexity. This points to a momentum across national systems. Given that GPE has had limited explicit engagement with the issue of 21CS to date from the standpoint of the Secretariat, countries have typically not considered GPE as a partner who can support this aspiration. However, the publication of the present report and its active dissemination can help signal that GPE stands ready to accompany its partner countries in implementing their ambitions to prepare their children and young people for the globalized world of today. This could potentially lead more countries to use their GPE financing to support related activities.

- *Participate in global policy dialogue and advocacy in regard to 21CS.*
  Given GPE's convening power and influence in the international aid architecture, the partnership has a unique potential to vocalize and draw attention to the importance of 21CS for the holistic development of learners. This potential should be harnessed, mobilizing the broad and multi-stakeholder range of GPE partners who are already working on these issues. The platforms through which an advocacy effort can be deployed are many and could include participation in key global meetings and conferences in this area as well as in relevant international mechanisms and initiatives, such as the Global Alliance to Monitor Learning, Generation Unlimited and others. In addition, GPE can consider active involvement in global policy dialogue and platforms that touch on related issues, such as the future of education and skills as a whole. GPE's engagement in these forums and broader advocacy efforts should particularly underscore the importance of a systems approach to 21CS integration, reflecting its unique mandate and role.

- *Encourage research on what it means to translate policy aspirations on 21CS into practice and to integrate 21CS throughout an education system.*
  The stocktake of the 15 DCPs revealed that while countries have well-articulated goals about integrating 21CS, implementation is a challenge, with the three countries in the sample that used ESPIG funding for work on 21CS each focusing on teacher training and pedagogy as the entry point. Additional research, such as that done under the Skills for a Changing World work of the Brookings Institution, has shown that while a large number of countries have stated policy aspirations for a broad range of skills, about half of these countries showed evidence of

integration in their curriculum, suggesting that curriculum is also a common entry point. But there is a gap in the knowledge of integration of 21CS across these components and *throughout* the education system, with a lack of examples of concrete implementation of such an approach. Given GPE's increasing desire to move beyond planning toward implementation, the partnership is well placed to encourage more research in this regard. Such an effort can build on existing frameworks and research that advance a systems perspective in relation to these skills, such as UNICEF's LSCE initiative in the Middle East and North Africa and the CASEL framework, but it must be further contextualized in relation to the realities of developing countries. GPE can work to mobilize the broader partnership to engage in knowledge generation and conceptual work in this regard.

- ***Support global and regional work that promotes capacity development, knowledge exchange and innovation in 21CS.***
  The research on assessment tools that capture or have the potential to capture 21CS that was conducted in the sample of 15 DCPs as an input to this review showed that one of the reasons why developing countries struggle to operationalize the promotion of 21CS (whether through assessment or teaching or other components) is a lack of understanding around what these skills truly are and how they develop. GPE's KIX initiative provides an opportune window to support capacity development, knowledge exchange and innovation work on 21CS in developing countries. It could potentially be operationalized through investments—global or regional grants—to support the development of frameworks, guidance and tools to support systemwide integration of 21CS. KIX is also establishing four regional hubs to promote learning and exchange between partner countries, and these may also be valuable forums to advance this agenda. Similarly, GPE's Education Out Loud initiative may also offer opportunities in this regard, particularly for civil society partners who wish to undertake greater advocacy work around 21CS.

This landscape review and the opportunities highlighted are a starting point for dialogue within GPE as it develops its next strategic plan and considers these and other contributions that it can potentially make toward ensuring that education systems equip children and young people with the broad range of skills that they need to be active, engaged and productive members of their communities, countries and the globalized world more broadly.

1. Introduction

The Global Partnership for Education (GPE) is the world's premier multi-stakeholder partnership and fund for education in developing countries. Working with a range of partners, GPE supports the development and implementation of education sector plans (ESPs) in 68 developing country partners (DCPs) to date. GPE's current orientation and work are guided by its strategic plan for the 2016-2020 period, known as GPE 2020. GPE 2020 focuses on the improvement of learning and equity through stronger education systems. This translates into three strategic goals: (1) improved and more equitable learning outcomes; (2) increased equity, gender equality and inclusion; and (3) more effective and efficient education systems.

While the learning outcomes that are the focus of GPE 2020 are de facto in relation to the foundational areas of literacy and numeracy, the need for young people to develop a broad range of other skills and competencies has been emphasized for a number of years now. Given the rapidly changing and global nature of today's economy, success in today's job market requires flexibility and adaptability, creativity, collaboration, complex problem solving, critical thinking and the ability to successfully engage with information and communications technology (ICT). Actors as diverse as the Education Commission to the World Economic Forum to the International Labour Organization to McKinsey to the Education for All Global Monitoring Report have all highlighted this, noting in particular the large numbers of unemployed or underemployed youth as well as the mismatch between the skills that youth develop through education and training and the skills needed by employers.[2]

Beyond economic and workforce considerations, there is also an increasing recognition that the globalized world in which we live, with its unprecedented levels of mobility and migration, civil and political unrest and environmental degradation, mandates that young people must also possess civic-mindedness and a sense of citizenship (both local and global), environmental awareness and personal and social responsibility. It is, of course, not realistic to expect schools and education institutions alone to cultivate all these attributes in children and young people, but considering the major role that they play during these formative years of life, they cannot be ignored. The work of Heckman, researchers associated with the Collaborative for Academic, Social and Emotional Learning (CASEL) and others have further emphasized this, suggesting that "soft" skills or "socio-emotional" learning are associated with a range of improved short- and long-term outcomes, including mental health, social skills, academic achievement (such as an 11 percentile-point gain on standardized achievement tests, according to one meta-analysis), economic mobility and pro-social behavior. Some of this research points to the possibility that these skills potentially have even greater effects on life success than cognitive skills.[3]

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[2] Education Commission, *The Learning Generation: Investing in Education for a Changing World* (New York: Education Commission, 2016); World Economic Forum, *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution* (Cologny, Switzerland, WEF, 2016); International Labour Organization, *World Employment and Social Outlook 2016: Trends for Youth* (Geneva: ILO, 2016); UNESCO, *Youth and Skills: Putting Education to Work.* Education for All Global Monitoring Report 2012 (Paris: UNESCO, 2012).

[3] J. Heckman and T. Kautz, "Hard Evidence on Soft Skills," NBER Working Paper 18121 (National Bureau of Economic Research, Cambridge, MA, 2012); J. Heckman and T. Kautz, "Fostering and Measuring Skills: Interventions That Improve Character and Cognition," NBER Working Paper 19656 (National Bureau of Economic Research, Cambridge, MA, 2013); J. A. Durlak et al., "The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions," *Child Development* 82, no. 1 (2011): 405-32; R. D. Taylor et al., "Promoting Positive Youth Development Through School-Based Social and Emotional Learning Interventions: A Meta-Analysis of Follow-Up Effects." *Child Development* 88, no. 4 (July 2017): 1156-71. OECD, *Social and Emotional Skills: Well-being, Connectedness and Success* (Paris: OECD, 2018).

It is thus perhaps not surprising that the Sustainable Development Goal (SDG) 4 on education, adopted in 2015, espouses a broad view of the nature and purpose of education. With learning front and center of SDG 4 and the Education 2030 agenda, the international community embraced the notion that this learning should not only be about the fundamental areas of literacy and numeracy, but also encompass skills more broadly, including technical and vocational skills for employment, jobs and entrepreneurship, as well as knowledge and skills related to sustainable development and lifestyles, human rights, gender equality, a culture of peace and nonviolence, global citizenship and appreciation of cultural diversity.[4]

Nonetheless, consensus around this holistic vision of education is not apparent in all circles, with some researchers in particular claiming that the emphasis on 21CS is fantastical and irrelevant. Rotherham and Willingham (2010) and Mishra and Kereluik (2011) argue that the demand for these skills are not new and have been around for centuries.[5] In another perspective, Spaull and Hoadley (2017) frame the learning crisis of this century as being centered on students' inability to read, write and perform basic arithmetic tasks (particularly in low-income contexts).[6] They center the discussion on students' need to master foundational skills in literacy and numeracy rather than on exploring the need for students to learn skills within an integrative manner.

However, the promotion of literacy and numeracy versus 21CS are not necessarily contradicting or either-or camps. As will be elaborated in the third section of this report, many frameworks and definitions for 21CS outline the need for foundational knowledge just as much as they emphasize the importance of skills such as global citizenship, problem solving and empathy. In fact, even skeptics of 21CS have noted that academic success often occurs when these skills complement the development of foundational skills.[7] Discussions around an intentionally integrative approach to building and measuring 21CS throughout the learning cycle can emerge as an evolution of this debate.

In regard to GPE, GPE 2020 affirms that education contributes to peace, tolerance, human fulfillment and sustainable development and focuses on three core strategic goals as elaborated previously, including improved and more equitable learning outcomes. The first indicator in the GPE results framework, which looks at the proportion of DCPs showing improvement on learning outcomes in basic education, is one of the measures of this core goal. It specifically examines whether countries have made positive and statistically significant improvements in learning scores over time. While the methodology used to compute the indicator allows for scores from a range of subject areas to be applied, in practice only scores in the foundational subjects of mathematics and reading are used. This stems from the fact that very few DCPs have learning outcomes data that are comparable over time in *any* domain, and to the extent that they do, this is generally confined to mathematics and reading, which are also the subjects in which minimum proficiency is expected at the global level, as per SDG 4 indicator 4.1.1.

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[4] UNESCO, *Education 2030: Incheon Declaration and Framework for Action for the Implementation of Sustainable Development Goal 4* (Paris: UNESCO, 2015).

[5] A. Rotherham and D. Willingham, "21st-Century Skills: Not New but a Worthy Challenge," *American Educator,* Spring 2010, 17, https://www.aft.org/sites/default/files/periodicals/RotherhamWillingham.pdf; P. Mishra and K. Kereluik, "What 21st Century Learning? A Review and a Synthesis," in *Proceedings of SITE 1101–Society for Information Technology & Teacher Education International Conference* (Nashville: Association for the Advancement of Computing in Education, 2011), 3311, https://www.learntechlib.org/primary/p/36828/.

[6] N. Spaull and U. Hoadley, "Getting Reading Right: Building Firm Foundations," in *South African Child Gauge 2017,* edited by L. Jamieson, L. Berry, and L. Lake (University of Cape Town, 2017), 77-83.

[7] Rotherham and Willingham, "21st Century Skills: Not New but a Worthy Challenge." See also Mishra and Kereluik, "What 21st Century Learning? A Review and a Synthesis."

Recognizing nonetheless that countries are increasingly interested in a more expansive conception and measurement of learning, in 2017 GPE launched the Assessment for Learning (A4L) initiative, an endeavor aiming to strengthen national assessment systems and to promote a more holistic measurement of learning. As part of the latter objective, the Secretariat is undertaking this present "landscape review" of what we are calling "21st-century skills." While there is a plethora of terms in use to describe these skills, including "non-cognitive," "soft," "whole child development," "transversal," "transferable" or "social-emotional" skills or competencies, the underpinning notion is that children and young people need these skills to participate constructively in the world of work as well as to be active and engaged members of their communities and societies. For this review, the following definition, adapted from Binkley et al.,[8] is used for 21CS:

> ***Twenty-first-century skills are abilities and attributes that can be taught or learned in order to enhance ways of thinking, learning, working and living in the world. The skills include creativity and innovation, critical thinking/problem solving/decision making, learning to learn/metacognition, communication, collaboration (teamwork), information literacy, ICT literacy, citizenship (local and global), life and career skills and personal and social responsibility (including cultural awareness and competence).***

The goal of this review is to inform future directions in relation to this vital area. As GPE develops its next strategic plan, this report can serve as a think piece in considering how best to support partner countries in their aspirations toward ensuring that their children and young people are equipped with the broad range of skills that they need to be active, engaged and productive members of their communities, countries and the globalized world more broadly.

2. Structure

This landscape review has been prepared by the GPE Secretariat, under the framework of the A4L initiative as noted above. It is composed of four main sections:

1) A scan of key definitions, frameworks and initiatives
2) A stocktake of the education sector plans (ESPs) and education sector plan implementation grant (ESPIG) documents of a sample of GPE DCPs to assess the degree to which 21CS are reflected
3) A deep dive on the assessment of 21CS in the same sample of GPE DCPs
4) A snapshot of 21CS-related initiatives on the part of selected GPE partners

These four sections come together to inform the last section, which notes opportunities for future GPE work in this area. The methodology used to develop each section is detailed in those sections respectively, but an overview of each piece follows below.

The scan of key definitions, frameworks and initiatives, undertaken through a simple literature review, provides conceptual clarity around the terminology of 21CS and an understanding of some of the prominent frameworks that have been developed to understand these skills. This section notes the momentum driven by the SDG 4 agenda, as well as a summary of some of the important initiatives (past and present) related to 21CS, which can be helpful for GPE as it thinks about the history of this work and

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[8] Binkley et al., "Defining Twenty-First Century Skills."

considers how any future efforts can build from these. The increasing integration of 21CS in a number of large-scale, cross-national learning assessments is also highlighted.

In recognition that the core mandate of GPE focuses on supporting countries in the development and implementation of sector plans, the next section is a stocktake that aims to analyze the extent to which 21CS are reflected in the education sector plans of selected DCPs and the GPE grants that support the implementation of these plans. The country selection was based on a convenience sample of 15 DCPs across Asia and Africa (Bhutan, Cambodia, Chad, Cote d'Ivoire, Democratic Republic of Congo, The Gambia, Kenya, Lesotho, Mali, Mongolia, Nepal, Pakistan, Senegal, Vietnam and Zambia), which self-selected into the "mini-studies" coordinated by the Brookings Institution, detailed in the following section. The stocktake examines these countries' most recent ESPIGs as of January 2019 and the ESPs on which these are based to understand the degree to which these reference 21CS, which of the skills if any are reflected and which education system components (for example, curriculum development, teacher training and pedagogy, assessment) are leveraged for this purpose.

The fifth section offers a deep dive on the assessment of 21CS in the countries sampled for the stocktake. This analysis builds on two mini-studies in Asia and Africa that were undertaken by the Brookings Institution through two UNESCO networks. These mini-studies attempt to illustrate the degree to which 21CS are reflected—either directly or indirectly—in national- and classroom-level assessment tools of the sample countries, how and in which subjects and learning domains the tools are embedded, and whether there is potential to adapt existing tools to better integrate these skills. Although the focus here is on assessment, the findings from these studies offer valuable insight on what efforts are needed to better understand the nature and development of these skills and to promote their integration in the education system more broadly.

Recognizing that GPE is a partnership encompassing many actors beyond the Secretariat, the last section gives a snapshot of some 21CS-related initiatives led by GPE partners, including international organizations as well as civil society, private sector and foundations and other actors. Considering the rich landscape of work in this area, this scan (based on interviews with the respective partner organizations) is important for understanding what gaps may remain that GPE may be well placed to address.

All these sections inform the final section on opportunities, which notes where GPE may consider focusing its efforts in the future in a manner that is complementary and useful, especially given its core mandate and operating model. The recommendations consider the different levers that GPE has as its disposal as well as the core principles underlying GPE's work, including evidence-based policy dialogue, country ownership, harmonization and aid alignment and the promotion of mutual accountability.

3. Scan of key definitions, frameworks and initiatives

While 21CS are viewed by some as extraneous rather than complementary to academic skills in certain contexts, there is an emerging general consensus, as noted earlier, that emphasizing and promoting them within the formal education system as well as through alternative, nonformal or informal pathways is critical for preparing children and young people for a future of change and uncertainty. Nonetheless, the field of education has yet to reach a shared vision on how schools, educational institutions and research organizations should approach the integration, teaching and measurement of 21CS. This section addresses the conceptual dimension of this subject, commencing with the overall framework provided by

the Sustainable Development Goals and Education 2030 agenda, which endorse a holistic view of learning and thus provide a broad foundation for much of the current thinking around 21CS. It then presents information on the various definitions and frameworks for understanding 21CS that are in currency and a scan of relevant global initiatives. It also provides an overview of how a number of large-scale assessment initiatives are attempting to integrate the measurement of some of these skills.

SDG 4: A new opportunity

With the adoption of the SDGs, including SDG 4 (*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*) in 2015, the international community ushered in a new era where learning came to the forefront of the global education agenda, unlike with the Education for All and Millennium Development Goals, where the focus was very much on access. Five of SDG 4's seven targets include indicators on learning and knowledge and/or skills. Targets 4.4 and 4.7 are particularly interesting from the perspective of 21CS, given their respective focus:

- **Target 4.4:** *By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.*
- **Target 4.7:** *By 2030, ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development.*[9]

Focusing on target 4.7, the global indicator (mandatory for countries to report on) looks at the extent to which global citizenship education (GCED) and education for sustainable development (ESD), including gender equality and human rights, are mainstreamed at all levels in national education policies, curricula, teacher education and student assessment. Building upon the efforts of UNESCO as the global lead for SDG 4 as well as the lead United Nations agency for both GCED and ESD (further detailed in the section on partner efforts), the reporting on this global indicator has to date focused on countries' self-reporting on their implementation of the 1974 *Recommendation on Education Concerning International Understanding, Cooperation and Peace and Education relating to Human Rights and Fundamental Freedoms*, a normative instrument on which UNESCO member states are supposed to report every four years.

In addition to the global indicator, target 4.7 also has two thematic indicators that focus on the demonstration of learning outcomes in a subset of the domains captured by the target:

- **Indicator 4.7.4:** *Percentage of students by age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability*
- **Indicator 4.7.5:** *Percentage of 15-year-old students showing proficiency in knowledge of environmental science and geoscience*

A number of methodological challenges with these indicators are still being addressed. Nonetheless, the inclusion of the overall targets 4.4 and 4.7 and the broader endorsement of the notion that quality education "fosters creativity and knowledge, and ensures the acquisition of the foundation skills of

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[9] UNESCO, *Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators* (Paris: UNESCO, 2016), 20, https://unstats.un.org/unsd/statcom/47th-session/documents/2016-2-SDGs-Rev1-E.pdf.

literacy and numeracy as well as analytical, problem-solving and other high-level cognitive, interpersonal and social skills" and "develops the skills, values and attitudes that enable citizens to lead healthy and fulfilled lives, make informed decisions and respond to local and global challenges"[10] provides an overarching normative basis that coalesces prior and ongoing notions of an expanded vision of learning and skills.

Defining 21CS

Despite the underpinning offered by SDG 4, there is no uniform definition of the skills referred to as 21CS in this review. In fact, a number of frameworks have been adapted to different contexts and environments around the globe. In regard to terminology, a number of monikers have been used more or less interchangeably with the term "21CS," including "non-cognitive skills," "whole child development skills," "soft skills," "transferable skills," "transversal competencies," "life skills" and "social-emotional skills," to name but a few. While the psychology literature sometimes makes a distinction between knowledge, skills, competencies, values or attitudes and behaviors, most of the prominent definitions and frameworks tend to compound these different categories.

Appendix A offers a summary of some key frameworks for understanding 21CS that have been influential over the last decade, while the rest of this section highlights some of the broader initiatives that underpin these frameworks. Each framework in Appendix A was selected for the role it has played in shaping international discourse on 21CS. While some of the frameworks were developed in the West and/or in high-income countries, some of them have been endorsed and applied in settings around the globe, including in developing countries.

Though there are unique features to each of these definitions/frameworks, all of them encompass a similar array of domains and cross-cutting skills that fill those domains. Most of the skills referenced in the Binkley et al. definition of 21CS that guides this landscape review appear in all or most of these frameworks, including ***creativity and innovation, critical thinking/problem solving/decision-making, communication, collaboration, information or ICT literacy, citizenship*** and ***personal and social responsibility***.

Initiatives to support integration, advocacy and research on 21CS

Beyond the definitions and frameworks given above, it is important to review some of the most relevant global initiatives that have influenced the promotion of 21CS worldwide. The work of these initiatives has in some cases included conceptual work to define these skills. For example, the Assessment and Teaching of 21st Century Skills (ATC21S) was a research collaboration led by the University of Melbourne that offered a new definition for 21CS, separating key skills into four areas: Ways of Thinking, Ways of Working, Tools for Working and Ways of Living in the World. Partnership 21 is another organization that has been highly influential in defining and spearheading the promotion of 21CS worldwide (it has now been incorporated into a larger organization known as Battelle for Kids). Meanwhile, other initiatives have supported advocacy and research in the area of 21CS, such as the Learning Metrics Task Force (LMTF), which was a collaboration across 118 countries that defined seven "domains of learning," outlined key recommendations to support countries in achieving this agenda and focused on strengthening assessment

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[10] UNESCO et al., *Incheon Declaration - Education 2030: Towards Inclusive and Equitable Quality Education and Lifelong Learning for All* (Paris: UNESCO, 2015).

systems to implement these recommendations. The Brookings Institution has also conducted research on 21CS through its Skills for a Changing World project.

UNICEF's Life Skills and Citizenship Education (LSCE) initiative in the Middle East and North Africa and the CASEL are worth particular mention because they both have advanced notions of a systems approach to the skills laid out in their respective frameworks. UNICEF's LSCE notes that change at the classroom level in reference to these skills is predicated on system-level changes, including in policies, plans and strategies, human resources/teacher development, curriculum, assessment and more, and espouses a vision of all these components working together to ensure that these skills can be delivered and developed. This initiative also affirms that these skills can be delivered through multiple pathways (formal, nonformal and informal education, at school, home, play time, and more) and modalities (for example, curricular, co-curricular and extra-curricular, stand-alone and integrated, and through self-learning, face-to-face, online or other modes). The CASEL framework also introduces the notion of a systemic approach to social and emotional learning, cutting across classrooms, schools, homes and communities and harnessing myriad approaches. These include explicit social and emotional learning skills instruction, teacher instructional practices, integration with academic curriculum areas and organizational, culture, and climate strategies.

A more detailed analysis of these initiatives is presented in Appendix B.

An increasing feature of cross-national, large-scale assessments

While the holistic SDG 4 framework and the different initiatives noted above have contributed to an increasing emphasis on 21CS globally, a number of the cross-national, large-scale learning assessments are increasingly directing attention toward measuring these skills, thereby making an even more tangible contribution to this shift. Descriptions of these programs can be found in Appendix C, but the salient point is that many cross-national assessment programs, including those in which DCPs participate, are beginning to include skills and competencies such as citizenship (local and global), social-emotional skills, ICT literacy and problem solving.

The Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA)[11] has included an "innovative domain" in each of its recent rounds, including creative problem solving in 2012, collaborative problem solving in 2015, and global competence in 2018. The Southeast Asia Primary Learning Metrics (SEA-PLM), a regional assessment that is being administered for the first time in 2019, assesses foundational skills as well as the domain of global citizenship. In Latin America, the Latin American Laboratory for Assessment of the Quality of Education (LLECE) is including a module on socio-emotional skills for the first time in its assessment of sixth grade students in 2019, focusing on the concepts of conscience, valuing of others, self-regulation and self-management. Two specific cross-national assessments focus on civics and citizenship (the International Civic and Citizenship Education Study [ICCS]) and ICT literacy (the International Computer and Information Literacy Study [ICILS]), though neither study has included DCPs to date. The rising inclusion of 21CS across these assessment programs serving both low-income and wealthier countries suggests that a universal demand exists for these competencies and that countries are seeking methods to measure student learning in 21CS areas.

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[11] In an attempt to make PISA more relevant to the context of developing countries, the OECD launched the PISA for Development (PISA-D) initiative, which included five DCPs (Bhutan, Cambodia, Honduras, Senegal and Zambia) and for which the results were released in 2018-2019.

While these assessment programs demonstrate progress in adopting 21CS as an area of measurement, it is also important to note the absence of 21CS in other cross-national, large-scale assessments. For example, the Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN (PASEC), Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), Trends in International Mathematics and Science Study (TIMSS), and Progress in International Reading Literacy Study (PIRLS), which serve many DCPs, still continue to focus on assessing foundational skills rather than 21CS. For a complete chart outlining DCP participation in cross-national assessments, see Appendix D.

4. Stocktake of selected countries' sector plans and GPE funding in relation to 21CS

Methodology

The purpose of this analysis was to take stock of countries' policy orientations as well as the investments that GPE is making to support the area of 21CS. To do so, this study collected information on 21CS integration in the most recent ESPIGs available as of January 2019,[12] along with the corresponding ESPs, from a sample of 15 DCPs.

The guiding questions for the stocktake included the following:

- How many ESPs reference 21CS?
- How many GPE grants include activities defined as related to 21CS?
- Are there any observable patterns in how these skills are referenced in ESPs/ESPIGs across vision/mission statements, policy orientations, major components and so on?
- Are there any observable patterns in how these skills are referenced in ESPs/ESPIGs across components of the education system, such as curriculum development, teacher training and pedagogy, assessment and so on?

Country selection was focused on the same countries that self-selected into the "mini-studies" examining the assessment of 21CS, which were coordinated by the Brookings Institution and are detailed in the next section: Bhutan, Cambodia, Chad, Cote d'Ivoire, Democratic Republic of Congo, The Gambia, Kenya, Lesotho, Mali, Mongolia, Nepal, Pakistan, Senegal, Vietnam and Zambia.

The stocktake methodology involved looking first at the ESPs from the 15 countries and analyzing which 21CS were referenced in their vision/mission/guiding principles statements and policy priorities/strategies, as well as the frequency of these references. In regard to the policy priorities, the stocktake examined which component(s) of the education system was foreseen to be used to deliver 21CS, at which level of education and the degree to which this prioritization was reflected in the ESP's results and implementation framework or action plan. As another dimension of the analysis, the methodology considered whether the ESP included a technical and vocational education and training (TVET) program and whether 21CS were referenced therein. The ESPIG documents were then analyzed, looking at which 21CS were referenced in their program components and the frequency of these references. The ESPIG analysis also examined which component of the education system (teacher training and pedagogy, classroom activities and materials, curriculum development, school environment,

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[12] "Most recent ESPIGs available as of January 2019" implies both ESPIGs that were active as of this date as well as completed ESPIGs, if such a completed ESPIG was the latest implementation grant for that particular country.

assessment, policy/governance) was being used to deliver 21CS and at which levels of education. The degree of integration of 21CS in TVET programs supported by the ESPIG was also analyzed. An extensive description of the stocktake methodology is provided in Appendix E.

Findings

Looking at both the ESPs and ESPIGs of the 15 selected countries, there were altogether 79 references to 21CS. Across the different skills in the framework, all of them except for learning to learn/metacognition are reflected in either ESPs or ESPIG grant documents. However more than a third of the 21CS references were in relation to *ICT literacy*, while *personal and social responsibility* and *citizenship* comprised 18 percent and 16 percent of the references, respectively. References to these and the other 21CS in the coding framework are shown in Figure 1.

Figure 1. Distribution of total references to 21CS by skill in ESPs and ESPIGs
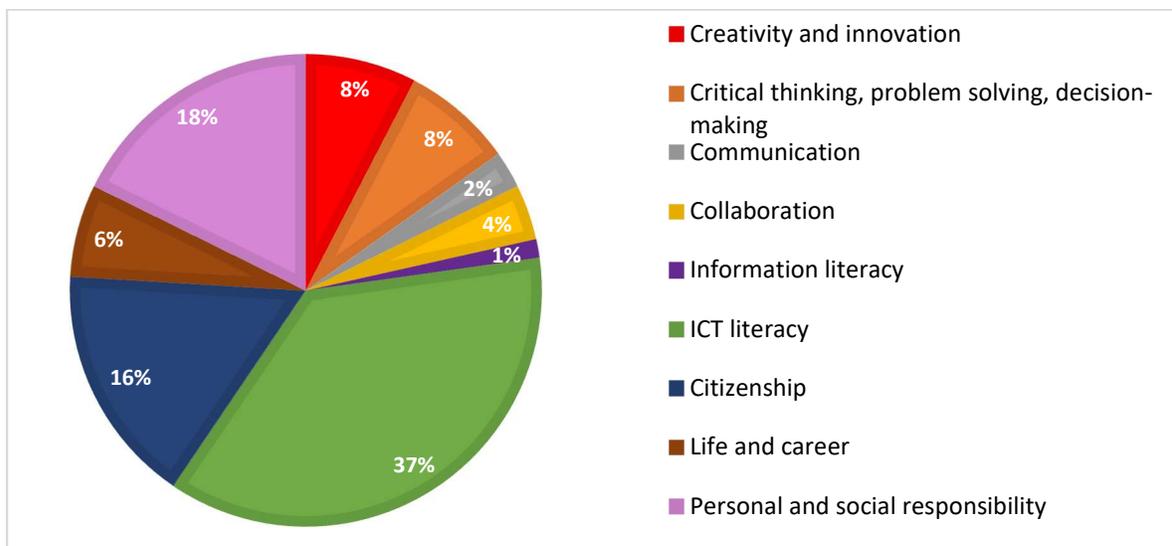
ESPs

Of the 79 references to 21CS across the plan and grant documents, it is telling that 74 of them were found in the ESPs. **In this regard, *all* 15 countries in the sample reference 21CS within their ESPs, revealing that countries generally have stated objectives in regard to promoting 21CS when it comes to the planning phase.** Looking more specifically at the ESPs, nine countries specifically refer to these skills (particularly personal and social responsibility, citizenship and ICT literacy) in their vision or mission statements.

In this regard, it is interesting to consider some of the language used by countries in referring to 21CS in this part of their ESPs. The Gambia's Education Sector Strategic Plan 2016-2030, for example, refers to a number of aims of education, including to "develop the physical and mental skills which will contribute to nation building—economically, socially and culturally in a sustainable environment," to "encourage creativity and the development of a critical and analytical mind," and to "create an awareness of the importance of peace, democracy and human rights, duties and responsibilities of the individual in

fostering these qualities."[13] Cambodia's Education Strategic Plan 2014-2018 cites a long-term objective of achieving "the holistic development of Cambodia's young people," including "a sense of national and civic pride, high moral and ethical standards and a strong belief in young people's responsibility for the country and its citizens."[14]

But beyond vision and mission statements, when examining articulated policy priorities within ESPs, it is interesting to note that *all* 15 countries refer to the skills within these. For example, in Kenya's National Education Sector Plan 2013-2018 the policy priority on education quality has a specific component focused on ICT for education and training. This is situated as a broader "21st-century learning skill" and is articulated with stated objectives and strategies.[15] Bhutan's Education Blueprint 2014-2024 articulates eight recommended shifts to transform the education system, two of which are relevant to 21CS: leveraging ICT for learning and enhancing values and well-being in education.[16]

The breakdown of references to each of the specific skills in the framework within the different components of the 15 countries' ESPs is given in Table 1.

Table 1. 21CS references within ESPs

21CS	Vision/Mission/Principles	Policy priorities (including TVET/special education)
1 = Creativity and innovation	2	4
2 = Critical thinking, problem solving, decision-making	1	5
3 = Learning to learn, metacognition	0	0
4 = Communication	0	1
5 = Collaboration (teamwork)	0	3
6 = Information literacy	0	1
7 = ICT literacy	5	22
8 = Citizenship	7	5
9 = Life and career	2	3
10 = Personal and social responsibility	6	7
TOTAL	23	51

Interestingly, the majority of countries do not appear to consider TVET as a vehicle of promoting 21CS. Though eight countries refer to TVET programs within the basic education cycle, only two countries (Lesotho and Nepal) explicitly refer to promoting 21CS (specifically communication, ICT literacy and citizenship) through TVET within the policy priorities of their respective ESPs. As such, one can surmise that general education seems to be considered the primary entry point for promoting 21CS.

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[13] Ministries of Basic and Secondary Education and Higher Education Research Science and Technology – The Gambia, *Education Sector Strategic Plan 2016-2030: Accessible, Equitable and Inclusive Quality Education for Sustainable Development* (Banjul, 2017).

[14] Ministry of Education, Youth and Sport – Cambodia, *Education Strategic Plan 2014-2018* (Phnom Penh, 2014).

[15] Ministry of Education, Science and Technology – Kenya, *National Education Sector Plan. Volume One: Basic Education Programme Rationale and Approach 2013/2014 – 2017/2018* (Nairobi, 2014).

[16] Ministry of Education – Bhutan, *Bhutan Education Blueprint 2014-2014: Rethinking Education* (Thimphu, 2014).

ESPIGs

What is most telling from the stocktake is that while all 15 countries reference 21CS within their ESPs, strong references to 21CS are generally not present in their respective grant documents. Only three out of the 15 countries (Cambodia, The Gambia and Mali) refer to 21CS in their ESPIG program components. **This suggests that while ESPs may reflect ambitious vision and prioritization of 21CS , this generally does not translate into application of GPE grant funding toward the concrete implementation of activities to promote the integration and development of these skills through ESPIGs.** This does not preclude the fact that countries may be applying their own national resources or those of other partners, including GPE partners, toward these activities. The reasons for the dichotomy in terms of GPE grant funding are unknown, but there appears to be a gap in understanding how to promote and deliver 21CS at a system level and from a whole system implementation perspective.

With regard to the breakdown of the specific skills, as noted above the ESPs show references to nine of the 10 skill areas in the framework. However, only four of these nine skills (ICT literacy, citizenship, personal and social responsibility, communication) then appear—sparingly—in the ESPIG program components of the three countries noted above. Figure 2 shows a comparison between 21CS citations in ESPs policy priorities and ESPIG program components.

Figure 2. Reflection of 21CS in ESPs versus ESPIGs
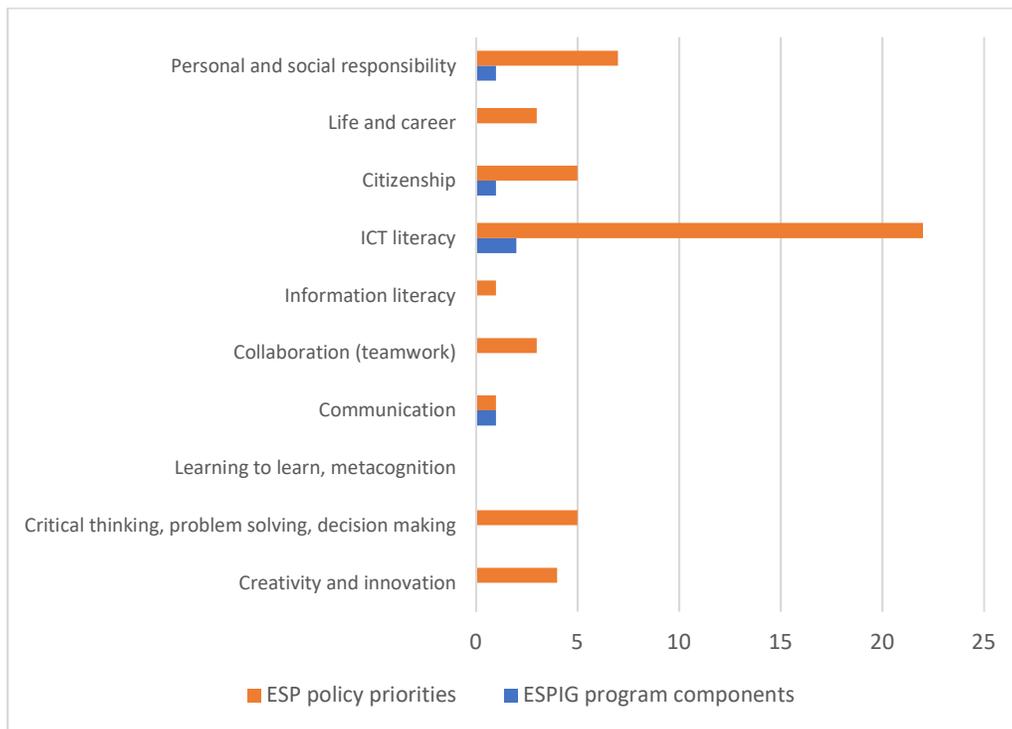
For the three countries with 21CS referenced within their ESPIG grant documents, all three specifically identify ***teacher training and pedagogy*** as the component through which the work to promote the respective skills is to be delivered. More specifically, in Cambodia (2018-2021) a program component on restructuring of teacher training colleges includes an activity to establish and upgrade ICT training

laboratories within the colleges (***ICT literacy***). In The Gambia (2018-2022), within the subcomponent on improved teacher training and professional development, a framework for teacher training that includes provisions for technology-enabled interactive classroom learning is included (***ICT literacy***). In Mali (2013-2017), the ESPIG included support for displaced and at-risk youth who were affected by political instability. One component aimed to strengthen the technical and pedagogical capacity of the education system primarily through teacher training. There were two sub-components, teacher training and pedagogical support to students, and both included an emphasis on training teachers in 21CS, including fostering a culture of peace in classrooms, civic education, human rights and developing students' communication skills (***citizenship***, ***personal and social responsibility***, ***communication***). But generally speaking, the largely singular emphasis on teacher training and pedagogy suggests that a systems approach (covering different components of the education system, including not only teacher training and pedagogy but also curriculum reform, textbooks, learning assessment, school environment, overall system management and so on) is generally not followed in promoting these skills.

Overall conclusions

The stocktake exercise reveals that while all 15 DCPs reference 21CS in their ESP policy priorities, only three countries include activities related to 21CS within their ESPIGs: Cambodia, The Gambia and Mali. While the countries in the stocktake represent only a small subset of the broader 68 GPE partner countries, and while other countries may indeed be including 21CS-related activities in their ESPIGs, we can generally surmise that this area does not receive much funding support in implementation grants more broadly. **This highlights a potential disconnect between countries' vision, mission, principles, general orientation statements and policy priorities as enshrined in their sector plans, where references to 21CS feature strongly, and what they choose to prioritize in ESPIG funding.** As stated before, this does not mean that they do not implement these activities through other means, including their own funding or that of partners, but there does seem to be a general lack of implementation at a system level.

However, a systems approach is a necessary orientation for countries to successfully integrate 21CS in teaching and learning. Such an approach considers the interactions between the different components of an education system and aims to understand how they work together, rather than considering them separately. It can shed light on misalignment between different elements and between these components and overall education goals.[17] Taking a systems approach to 21CS integration would require the development of policies and frameworks to provide overall guidance, appropriate curriculum and textbook reform, teacher training and professional development in these skills and relevant assessment through appropriate means, among other things. But there are very few, if any, examples of countries, particularly developing countries, taking such an approach.

This scarcity may be a factor driving the disconnect observed through the stocktake, as there is a lack of experience and knowledge as to what system-level implementation means in regard to this issue. Additional factors could be the perception that exists in reference to some low-income country contexts that integrating and teaching some of the 21CS is something extraneous. The more "basic" aspects of education, such as ensuring adequate supply of schools and classrooms, sufficient textbooks and learning materials and trained teachers, may be prioritized in such settings. To the extent that learning in and of itself is a concern, there can be a tendency to see the foundational subject areas (for example, reading and mathematics) and domains as priorities and in opposition to the types of skills that are categorized as 21CS. Yet this "either-or" thinking is a misperception, as most successful examples of 21CS promotion are

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

rooted in principles of integration within core subjects, using existing resources and working from the ground up. More advocacy is needed around these possibilities.

In addition, the next section of this report, featuring a deep dive on the assessment of 21CS in the sampled countries, indicates that another part of the conundrum may lie in a lack of knowledge of how these skills actually develop and thereby how they can be taught and assessed within education systems. Such knowledge is crucial for supporting countries in moving from rhetoric to action in the integration of 21CS.

5. Deep dive on the assessment of 21CS in selected countries

The Brookings Institution, on behalf of GPE, coordinated "mini-studies" in Asia and Africa on the topic of assessment of 21CS (referred to as "transversal competencies" in Asia).[18] The 15 DCPs involved in the two studies were the same as those in the stocktake and were selected because of their voluntary interest in study participation. A detailed explanation of the research methodology for these mini-studies is provided in Appendix F. This section discusses the findings from the two regional mini-studies as synthesized by Brookings. The Asia study has been published in 2019 by UNESCO Bangkok's Network on Education Quality Monitoring in the Asia-Pacific (NEQMAP), while the Africa study will be published in early 2020 by UNESCO Dakar's Teaching and Learning: Educators' Network for Transformation (TALENT).

As the feasibility of integrating 21CS into the fabric of learning experiences for students in low-income contexts is continually explored, it is valuable to investigate and evaluate the resources already available to educators. Several research studies conducted by UNESCO Bangkok through NEQMAP and the Asia-Pacific Education Research Institutes Network (ERI-Net) have provided a framework for the concept of transversal competencies (TVC)—the regionally preferred term for the notion of 21CS—and explored educational policy, teaching practices, teacher training and assessment implementation in these competencies within the Asia-Pacific region. Each TVC study offered insights into the presence of 21CS within different facets of educational systems. The Brookings mini-studies went further, examining the assessment tools that directly or indirectly capture TVC that are available to educators within the 15 participating countries.

The mini-studies attempt to illustrate the degree to which 21CS are reflected—either directly or indirectly—in national- and classroom-level assessment tools of the sample countries, how and in which subjects and learning domains these are embedded and whether there is the potential to adapt existing assessment tools to better integrate these skills. Although the focus here is on assessment, the findings from these studies offer valuable learning on what efforts are needed to better understand the nature and development of these skills and to promote their integration in the education system more broadly.

Asia

The Asia mini-study produced a number of interesting findings.[19] The characteristics of the tools provided demonstrate that most tools are used for summative or accountability purposes rather than for formative purposes that enrich teaching and learning. The items are typically multiple choice or dichotomous choice,

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[18] The Asia region mini-study was coordinated by NEQMAP, a regional network on learning assessment coordinated by UNESCO Bangkok, while that of the Africa region was coordinated by TALENT, a similar network coordinated by UNESCO Dakar. Both studies were undertaken with funding support from GPE through the A4L initiative.

[19] E. Care, A. Vista, and H. Kim, *Assessment of Transversal Competencies: Current Tools in the Asian Region* (Bangkok: UNESCO, 2019).

and they are usually scored to capture and report raw scores. There are instances where tools solicit more open-ended responses from students, which provide a greater opportunity to capture TVC.

Though the convenience sampling of these assessment tools does not allow for representative conclusions about the countries, **the majority of tools in this sample were not designed to specifically capture TVC. Rather, they were designed to capture student performance on a particular subject domain (for example, mathematics or science), but they had the potential of capturing TVC indirectly**. Many of the tools with this potential were found within core learning subjects and were most commonly cited in language, followed by sciences and then social studies. Since the country researchers possessed varying degrees of familiarity with TVC, many of the tools presented as examples of "TVC assessment tools" were over-interpreted by the country researchers. In reality, these tools were assessing content knowledge in a particular TVC domain rather than the actual skill or competency. **However, researchers concluded that if tools and their scoring rubrics were re-adapted, some of the over-interpreted tools do have the potential of being repurposed to assess TVC skills, which leads to the conclusion that some traditional assessments can indeed be extended to assess TVC.**

Among the major findings and issues highlighted in the Asia mini-study is the need for better understanding of the nature of TVC or 21CS, requiring more research at the regional and international levels on their substance and how they develop such that they can be appropriately integrated at the right junctures within curricula. In addition, the difficulty of advancing and assessing the social skills within TVC—such as communication and collaboration—was noted, highlighting that teachers need more support to teach these skills in particular. Looking at specific subject domains and skills, the study also notes that certain subjects may lend themselves to the teaching and assessment of particular TVC or 21CS (for example, science for problem solving, literature for creativity), which leads to the conclusion that these realities must be reflected in curriculum design and pedagogy, as well as throughout the broader system. **This underscores the need to have a shared understanding of what the implementation of a 21CS agenda looks like at a system level.**

Though more research is required and some of the tools were possibly over-interpreted, the most promising core finding of the study is that current assessment tasks have the capacity to encompass TVC or 21CS. This validates the notion that we do not have to start from scratch when thinking about how to assess these skills. It also underscores that teachers need greater capacity in assessment and that assessment expertise should not be isolated from the classroom. An aligned approach bringing together these different components of the education system is therefore crucial.

Africa
In general, as in Asia, the findings of the Africa study indicate that of the tools collected, none of them were deliberately designed for 21CS and thus they do not *directly* assess these skills.[20] While countries are aware of this gap, they note a lack of knowledge about assessments that might identify whether students can develop and apply these skills.

However, a little less than a third of the 91 tools were identified as clearly having the potential to *indirectly* capture these skills. Similar to Asia, the majority of these tools are from the subject domains of language and literacy, mathematics or science and technology. Critical thinking and problem solving, followed by analytic skills, were the skills most commonly identified as being targeted by these tools. Though the countries claim that they prioritize other skills such as collaboration, learning to learn and self-

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[20] H. Kim, E. Care, and A. Vista, *Assessment in Sub-Saharan Africa: Capturing 21st Century Skills?.* (Dakar: UNESCO, forthcoming).

management, there is no evidence of existing tools being able to assess these skills, even indirectly. This may be due to the recent prioritization of these skills, lack of knowledge about how to assess them and the very nature of these skills, which are broad and complex.

A fundamental challenge in this regard, as also highlighted in the Asia mini-study, is the lack of understanding of the nature of the actual learning and teaching that is implied by 21CS. In addition, despite a recognition of the importance of these skills and a desire to integrate them, existing education systems focus on subject-based skills. Additional challenges are a lack of assessment and teaching resources and professional development for teachers and a lack of alignment of goals with current curriculum, assessment, and teaching approaches. The limited test formats that are used for assessment generally, consisting of mostly dichotomously scored (correct-incorrect) items, also compound the inability to capture 21CS within these areas.

Nonetheless, the country researchers see promising potential to adapt some of their tools to assess 21CS, noting that they can be modified for this purpose. The research in Africa therefore provides an interesting perspective on what may be possible in the assessment of 21CS. The findings from this mini-study, similar to Asia, show that we do not necessarily have to start from scratch; rather, we can adapt existing tools and items and leverage the keen desire shown by the countries participating in the study to integrate these skills.

Overall conclusions

The mini-studies on assessment of 21CS in Asia and Africa both show that while countries generally do not have many existing assessment tools that directly assess 21CS, there is rich potential to adapt existing tools and items to indirectly capture some of these skills. To facilitate such processes, the field needs more research on the nature and development of these skills. In addition, there is a need for knowledge generation and sharing as to how these skills can best be integrated in curricula (particularly through existing subjects), how teachers can be better equipped to teach in these areas and how these skills can be assessed in ways that are authentic and connected to the realities of classrooms and schools. **This underscores the importance of a systems approach to 21CS integration, integrating these different components and ensuring that they work together in an aligned manner.**

6. Snapshot of selected 21CS initiatives in the partnership

GPE Secretariat

This landscape review is a major output of the Secretariat's A4L initiative, aiming to inform how GPE can best support work around 21CS in the future. Another aspect of the A4L initiative supported the development and application of tools to promote classroom-based assessment of selected 21CS. Under this workstream, the Brookings Institution (under the aegis of its Optimizing Assessment for All [OAA] initiative) has been working collaboratively with three countries in both Asia and Africa—the two A4L target regions—to develop or adapt classroom-based assessment tools to target selected 21CS. In Asia, the three countries are Cambodia, Mongolia and Nepal, which have developed and pilot tested classroom-based assessment tools to assess the skills of critical thinking, collaboration and problem solving in classes of grades 5 or 6. In Africa, the Democratic Republic of Congo, The Gambia, and Zambia are engaged in a similar process, though in this context the focus is on the adaption of existing tools. GPE has supported convenings of the OAA countries as a contribution to this work.

GPE partners
However, GPE is not just the Secretariat, and a number of GPE partners are very active in the area of 21CS. This section offers insights based on a scan of some of their initiatives. This scan is by no means exhaustive and focuses on key partners with known initiatives in the realm of 21CS, while recognizing that other partners may also conduct relevant work. These conversations followed a standardized interview protocol. An analysis of the partners/initiatives across different categories is offered in Appendix G, while a full narrative summary of each partner's work is given in Appendix H.

Many GPE partners promote 21CS from a normative or rights-based perspective. UNESCO has a long history of promoting peace education, ESD and GCED and other related concepts through a number of global advocacy initiatives. In addition, the agency is also working on the development and measurement of social-emotional skills in Latin America through LLECE and a technical training program for secondary school students in Peru called Horizontes, which includes a component on socio-emotional skills. UNICEF is currently developing a global framework for holistic learning and has launched the SEA-PLM as well as the Life Skills and Citizenship Education (LSCE) initiative to promote the measurement of holistic learning. Porticus supports the integration of whole child development into assessment systems under its Measuring What Matters program. Education International has conducted extensive research on the role of teachers in developing 21CS and is emphasizing "breadth of learning" for students. Like Education International, Oxfam IBIS conducts its work across a wide range of 21CS areas and has provided several skill development services and assistance throughout many low-income contexts.

Other partners' work in this area is driven by an orientation that sees the development of these skills in children and young people as a vital contribution to their success in the job market and workplace as well as to their broader life outcomes. The Global Business Coalition for Education collaborates with corporations to support youth development in skills for the future workforce. It has partnered with UNICEF to launch Generation Unlimited, matching youth with employment and entrepreneurial opportunities. The coalition Youth Employment Funders Group recently published the report *What Works in Soft Skills Development for Youth Development?: A Donors' Perspective*, highlighting youth soft skills development. The World Bank, through its Skills Toward Employment and Productivity (STEP) skills measurement program, evaluates the workforce skills of youth and adults, including social-emotional skills.

Overall conclusions
This snapshot of selected 21CS initiatives in the partnership, furthered detailed in Appendices G and H, demonstrates that the contributions of GPE partners to the field are rich and dynamic. From a substantive perspective, the work of these partners has supported everything from conceptual work and the elaboration of frameworks and reports detailing what these skills are, to the development of curricula and learning materials for certain subsets of skills, training of teachers in these areas, assessment and measurement (both the integration of 21CS into larger assessment programs and bespoke assessments of certain skills), programs to link young people with job providers and opportunities, and advocacy efforts. What may be absent is understanding of how to implement a 21CS agenda from a whole system perspective. There seems to be a clear need for research, capacity development, knowledge exchange, global advocacy and leverage of the expertise of a range of different partners who have contributions to make in this space, particularly focused on developing countries. Considering GPE's unique mandate and role, the partnership may be well placed to contribute in these areas.

7. Future opportunities for GPE

The findings from this review of the landscape reveal a number of opportunities for how GPE can promote the integration of 21CS in its support to education systems in developing countries. Recognizing that this is already a crowded ecosystem and that any new GPE actions should not duplicate efforts already underway by partners, the opportunities noted here are intended to be complementary and useful and in alignment with GPE's core mandate and operating model. The overall principle underpinning these potential directions is as follows:

> *GPE, harnessing the partnership, can deploy global policy dialogue and advocacy, financing and knowledge investments to support partner countries to implement their policy aspirations in regard to 21CS, particularly at the system level.*

This translates into a number of specific opportunities:

- *Signal that GPE stands ready to accompany partner countries in supporting their children and young people's acquisition of 21CS.*
  This landscape review reveals that many DCPs espouse a vision of ensuring that their children and young people are equipped with the skills and competencies needed to thrive in a world of increasing complexity. Given that GPE has had limited explicit engagement with the issue of 21CS to date from the standpoint of the Secretariat, countries have typically not considered GPE as a partner who can support this aspiration. However, the publication of the present report and its active dissemination can help signal that GPE stands ready to accompany its partner countries in implementing their ambitions to prepare their children and young people for the globalized world of today. This could potentially lead more countries to use their GPE financing to support related activities.

- *Participate in global policy dialogue and advocacy in regard to 21CS.*
  Given GPE's convening power and influence in the international aid architecture, the partnership has a unique potential to vocalize and draw attention to the importance of 21CS for the holistic development of learners. This potential should be harnessed, mobilizing the broad and multi-stakeholder range of GPE partners who are already working on these issues. The platforms through which an advocacy effort can be deployed are many and could include participation in key global meetings and conferences in this area as well as in relevant international mechanisms and initiatives, such as the Global Alliance to Monitor Learning, Generation Unlimited and others. In addition, GPE can consider active involvement in global policy dialogue and platforms that touch on related issues, such as the future of education and skills as a whole. GPE's engagement in these forums and broader advocacy efforts should particularly underscore the importance of a systems approach to 21CS integration, reflecting its unique mandate and role.

- *Encourage research on what it means to translate policy aspirations on 21CS into practice and to integrate 21CS throughout an education system*
  The stocktake of the 15 DCPs revealed that while countries have well-articulated goals in regard to integrating 21CS, implementation is a challenge, with the three countries in the sample that used ESPIG funding for work on 21CS each focusing on teacher training and pedagogy as the entry point. Additional research, such as that done under the Skills for a Changing World work of the Brookings Institution, has shown that while a large number of countries have stated policy

aspirations for a broad range of skills, about half of these countries showed evidence of integration in their curriculum, suggesting that curriculum is also a common entry point. But there is a gap in the knowledge of integration of 21CS across these components and *throughout* the education system, with a lack of examples of concrete implementation of such an approach. Given GPE's increasing desire to move beyond planning toward implementation, the partnership is well placed to encourage more research in this regard. Such an effort can build on existing frameworks and research that advance a systems perspective in relation to these skills, such as UNICEF's LSCE initiative in the Middle East and North Africa and the CASEL framework, but it must be further contextualized in relation to the realities of developing countries. GPE can work to mobilize the broader partnership to engage in knowledge generation and conceptual work in this regard.

- ***Support global and regional work that promotes capacity development, knowledge exchange and innovation in regard to 21CS.***
  The research on assessment tools that capture or have the potential to capture 21CS that was conducted in the sample of 15 DCPs as an input to this review showed that one of the reasons that countries struggle to operationalize the promotion of 21CS (whether through assessment or teaching or other components) is a lack of understanding around what these skills truly are and how they develop. GPE's Knowledge and Innovation Exchange (KIX) initiative provides an opportune window to support capacity development, knowledge exchange and innovation work on 21CS in developing countries. It could potentially be operationalized through investments—global or regional grants—to support the development of frameworks, guidance and tools to support systemwide integration of 21CS. KIX is also establishing four regional hubs to promote learning and exchange between partner countries, and these may also be valuable forums to advance this agenda. Similarly, GPE's Education Out Loud initiative may also over opportunities in this regard, particularly for civil society partners who wish to undertake greater advocacy work around 21CS.

There may be other potential opportunities for GPE to support work around 21CS, but the findings from this landscape review lead us to offer the above suggestions in particular. The hope is that this review will serve as a starting point for rich dialogue within GPE as it develops its next strategic plan and considers these and other contributions that it can potentially make toward ensuring that education systems equip children and young people with the broad range of skills that they need to be active, engaged and productive members of their communities, countries and the globalized world more broadly.

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Appendix A. Key 21CS definitions and frameworks

Name of framework	Organization	Groupings	Skills
Assessment and Teaching of 21st Century Skills (ATC21S)[a]	ATCS21S Secretariat (University of Melbourne with support from Cisco, Intel, Microsoft)	Ways of Thinking Ways of Working Tools for Working Living in the World	1. Creativity and innovation 2. Critical thinking, problem solving, decision-making 3. Learning to learn, metacognition 4. Communication 5. Collaboration (teamwork) 6. Information literacy 7. ICT literacy 8. Citizenship – local and global 9. Life and career 10. Personal and social responsibility – including cultural awareness and competence
Framework for 21st Century Learning[b]	Partnership for 21st Century Learning (P21) – now Battelle for Kids	Key subjects and 21st century themes Learning and innovation skills Information, media and technology skills Life and career skills	• English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civics • Global awareness • Financial, economic, business and entrepreneurial literacy • Civic literacy • Health literacy • Environmental literacy • Creativity and innovation • Critical thinking and problem solving • Communication • Collaboration • Information literacy • Media literacy • ICT literacy • Flexibility and adaptability • Initiative and self-direction • Social and cross-cultural skills • Productivity and accountability

			• Leadership and responsibility
		21st century support systems	• 21st century standards • Assessments of 21st-century skills • 21st-century curriculum and instruction • 21st-century professional development • 21st-century learning environments
2012 EFA Global Monitoring Report "Pathway to Skills"[c]	Global Monitoring Report (UNESCO)	Foundation skills	Literacy and numeracy
		Transferable skills	Ability to solve problems, communicate ideas and information effectively, be creative, show leadership and conscientiousness, and demonstrate entrepreneurial capabilities
		Technical and vocational skills	Technical know-how
Big Five Domains[d]	OECD	Task performance	• Achievement motivation • Responsibility • Self-control • Persistence
		Emotion regulation	• Stress resistance • Optimism • Emotional control
		Collaboration	• Empathy • Trust • Cooperation
		Open-mindedness	• Curiosity • Tolerance • Creativity
		Engagement with others	• Sociability • Assertiveness • Energy
		Compound skills (combinations of two or more individual skills)	1. Critical thinking 2. Meta-cognition 3. Self-efficacy

CASEL Framework on Social and Emotional Learning	Collaborative for Academic, Social, and Emotional Learning (CASEL)	Self-awareness	Know your strengths and limitations, with a well-grounded sense of confidence, optimism, and a "growth mind-set"
		Self-management	Effectively manage stress, control impulses, and motivate yourself to set and achieve goals
		Social awareness	Understand the perspectives of others and empathize with them, including those from diverse backgrounds and cultures
		Relationship skills	Communicate clearly, listen well, cooperate with others, resist inappropriate social pressure, negotiate conflict constructively and seek and offer help when needed
		Responsible decision-making	Make constructive choices about personal behavior and social interactions based on ethical standards, safety and social norms
Transversal Competencies[e]	UNESCO Bangkok	Critical and innovative thinking	Creativity, entrepreneurship, resourcefulness, application skills, reflective thinking, reasoned decision-making
		Interpersonal skills	Communication skills, organizational skills, teamwork, collaboration, sociability, collegiality, empathy, compassion
		Intrapersonal skills	Self-discipline, ability to learn independently, flexibility and adaptability, self-awareness, perseverance, self-motivation, compassion, integrity, self-respect
		Global citizenship	Awareness, tolerance, openness, responsibility, respect for diversity, ethical understanding, intercultural understanding, ability to resolve conflicts, democratic participation, conflict resolution, respect for the environment, national identity, sense of belonging
		Media and information literacy	

			Ability to obtain and analyze information through ICT, ability to critically evaluate information and media content, ethical use of ICT
Life Skills and Citizenship Education Initiative – Middle East and North Africa	UNICEF MENA Regional Office	Cognitive dimension or "Learning to Know" (skills for learning)	Creativity, critical thinking, problem solving
		Instrumental dimension or "Learning to Do" (skills for employability)	Cooperation, negotiation, decision-making
		Individual dimension or "Learning to Be" (skills for personal empowerment)	Self-management, resilience, communication
		Social dimension or "Learning to Live Together" (skills for active citizenship)	Respect for diversity, empathy, participation

a. M. Binkley et al., "Defining Twenty-First Century Skills," in *Assessment and Teaching of 21st Century Skills,* edited by P. Griffin et al. (London: Springer, 2012).

b. P21, "Framework for 21st Century Learning," P21 Partnership for 21st Century Learning, accessed September 24, 2018, http://www.p21.org/our-work/p21-framework.

c. UNESCO, *Youth and Skills: Putting Education to Work.* Education for All Global Monitoring Report 2012 (Paris: UNESCO, 2012).

d. OECD, *Social and Emotional Skills: Well-Being, Connectedness and Success* (Paris: OECD, 2018).

e. E. Care and R. Luo, *Assessment of Transversal Competencies: Policy and Practice in the Asia-Pacific Region* (Bangkok: UNESCO, 2016).

Appendix B. A detailed scan of key initiatives supporting integration, advocacy and research on 21CS

Assessment and Teaching of 21st Century Skills

The Assessment and Teaching of 21st Century Skills (ATC21S) was a research collaboration led by the University of Melbourne, with support from Cisco, Intel and Microsoft, that brought together 250 researchers from 60 leading universities and institutions around the globe to define a set of 21st-century skills that can be taught and assessed in schools.[21] The project offered a new definition for 21CS that separates key skills into four areas: Ways of Thinking, Ways of Working, Tools for Working, and Ways of Living in the World (see Appendix A). The ATC21S framework then provides an explanation of the knowledge, skills, and attitudes/values/ethics that comprise each skill area, forming what is known as the KSAVE model.

Though the framework for understanding 21CS offered by ATC21S is quite comprehensive, the initiative produced assessment content and materials to support educators primarily in the areas of ICT literacy and collaborative problem solving. In addition to this work, open-access resource portals have been established and made available to educators, along with a massive open online course designed to support teachers in designing assessments, with several videos and webinars. The ATC21S group also compiled a book from white papers on topics such as defining 21CS, methodological and technological issues with assessments of 21CS, classroom learning environments and formative evaluations, as well as policy frameworks for new assessments. Two more books were later published,[22] providing methods on developing systems for assessment and teaching 21CS and describing applications of the work.

Many of the ATC21S materials were piloted and tested in six different countries (Australia, Costa Rica, Finland, the Netherlands, Singapore and the United States). Nonetheless, teachers, schools, policymakers and assessment organizations all around the world, including in low-income countries, have use of these resources, with a number of educators enrolling in the online course and researchers building on this model of 21CS.

Partnership for 21st Century Learning

The Partnership for 21st Century Learning (P21) is a U.S.-based network of educational leaders, policymakers and business executives who have been highly influential in defining and spearheading the promotion of 21CS worldwide. The mission of P21 is to promote the development of 21st-century learning and to make this education accessible to students worldwide. The initiative has engaged educational and industry experts to advocate for 21st-century learning experiences from early childhood education to secondary education.

P21's perhaps most notable contribution to the field has been the P21 Framework for 21st Century Learning, which is summarized in Appendix A. Building the network members' collective expertise, the framework demonstrates the competencies and support systems necessary to ensure that students are prepared for a digital, interconnected world.

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[21] ATC21S (Assessment and Teaching of 21st Century Skills), "About the Project," accessed February 7, 2019, http://www.atc21s.org/about.html.

[22] Care, Griffin, and Wilson, eds., *Assessment and Teaching of 21st Century Skills: Research and Applications*; Griffin and Care, eds., *Assessment and Teaching of 21st Century Skills: Methods and Approach*.

The P21 network is fostered by offering tiers of membership to organizations interested in joining the partnership. P21 also further promotes the mission of 21CS by annually selecting schools as "21st Century Learning Exemplars," based upon outstanding implementation of the 21CS framework. The P21 network and activities have recently become a part of a larger network of schools and educational organizations advocating for 21st-century learning, Battelle for Kids.

Collaborative for Academic, Social, and Emotional Learning

Another influential U.S.-based body is the Collaborative for Academic, Social, and Emotional Learning (CASEL). Focused on research and support to educators and policymakers in the United States, the CASEL framework is a commonly cited model for thinking about social and emotional learning (Figure B1). Beyond the five core competencies that it identifies (self-awareness, self-management, social awareness, relationship skills and responsible decision-making), the CASEL framework also introduces the notion of a systemic approach to social and emotional learning, cutting across classrooms, schools, homes and communities and harnessing a myriad of approaches. These include explicit social and emotional learning skills instruction, teacher instructional practices, integration with academic curriculum areas and organizational, culture, and climate strategies.

*Figure B1. CASEL framework for social and emotional learning*

Learning Metrics Task Force

From 2012 to 2016, the Learning Metrics Task Force (LMTF) was led by the UNESCO Institute for Statistics (UIS) and the Center for Universal Education at the Brookings Institution. It was a collaboration between a broad range of education stakeholders across 118 different countries, including many DCPs; GPE was an active member. The LMTF focused on "strengthening assessment systems and the use of assessment data in service of moving the global agenda from access to education toward access plus learning and helping countries improve their assessment systems."[23]

Phase 1 of the task force's work (LMTF 1.0) emphasized a global dialogue on learning and the development of a series of recommendations on learning assessments. Through open consultations around the globe, students, teachers, academics, government official and experts came together to have candid conversations on what learning is important in the world of the 21st century. The underlying consensus was that a breadth of learning is important, highlighting the need for education systems to move beyond the foundational areas of literacy and numeracy. The first LMTF report emerging from this dialogue put forth a holistic framework of seven learning domains that are relevant for all students from early childhood to lower secondary, as illustrated in Figure B2: physical well-being, social and emotional, culture and the arts, literacy and communication, learning approaches and cognition, numeracy and mathematics, and science and technology.

Figure B2. Learning Metrics Task Force seven domains of learning
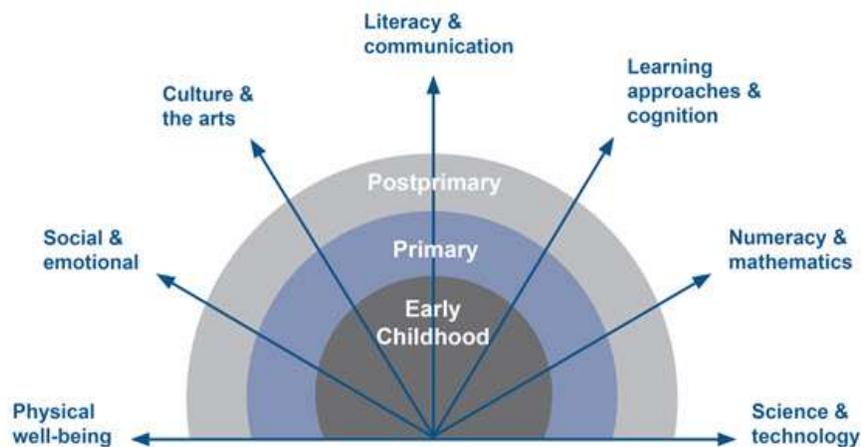
LMTF 1.0 also produced guidance on six areas of measurement to fill the data gap on learning globally as well as recommendations for how to practically measure and deliver progress toward improved learning.

The task force's second phase (LMTF 2.0) focused on implementing the rich recommendations compiled during LMTF 1.0. It became clear that effectively implementing these strategies would require a five-pronged approach, tackling technical, institutional, political, and knowledge-sharing aspects of promoting quality learning assessments as well as advocating for assessment as a public good. In respect to the technical aspect, work was undertaken to further indicator and measurement development for the different learning outcomes. Examples of this included the Measuring Early Learning Quality and Outcomes (MELQO), which focuses on data on learning and development at the start of the schooling journey, as well as UNESCO's work to develop topics and learning objectives in the area of global

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[23] UNESCO Institute for Statistics and Brookings Institution, *Toward Universal Learning: Recommendations from the Learning Metrics Task Force* (New York and Washington, DC: UIS and Brookings Institution, 2013).

citizenship education. In addition, with funding from GPE's Global and Regional Activities program the UIS undertook work to develop a Catalogue of Learning Assessments to compile information on assessments across the globe.

At the level of institutions, an emphasis was placed on understanding the need to support learning assessments at the country level and encouraging the use of data from these assessments to improve learning and policy. To address this goal, the Learning Champions initiative was launched to engage experts, government officials and educators from 15 countries, provinces and cities around the world. A handful of DCPs were represented in the initiative: Ethiopia, Kenya, Kyrgyz Republic, Nepal, Pakistan, Rwanda, Senegal, Sudan and Zambia. These "champions" worked to implement the LMTF 1.0 recommendations and experiment with innovative approaches to assessments in their contexts. The delineation of the holistic domains of learning by LMTF 1.0 set the tone for many of the implementation activities of LMTF 2.0, with several countries that participated in the Learning Champions initiative working to develop policies and assessments that incorporated 21CS.

Politically, the work of the LMTF was useful in ensuring that the international community adopted access plus learning in the eventual SDG 4 on education, as well as a more holistic view of what that learning encompasses. The LMTF also promoted knowledge sharing through its annual convenings and exchanges and promoted assessment as a public good by paving the way for GPE's own A4L initiative, as well as the Global Alliance to Monitor Learning (GAML), a platform coordinated by the UIS that works to support national strategies for measuring learning and to enable international reporting against the learning- and skills-related indicators of SDG 4.

Skills for a Changing World – Breadth of Skills (Brookings Institution)

The Brookings Institution conducts public policy research on a broad range of topics, including education in developing countries, through its Center for Universal Education. Supported by the LEGO Foundation, the Skills for a Changing World project sought "to identify how a new generation of skills can best be developed and enhanced in young children and students so they can navigate education and work in the face of changing social, technological, and economic demands."[24]

Out of this project came Brookings' research initiative on "Breadth of Skills," which investigated how countries approach the development of the skills outlined under SDG 4, including "literacy and numeracy skills, skills for employment and entrepreneurship, and skills needed to promote sustainable development." This mapping on the Breadth of Skills, conducted across 102 countries of varying levels of economic development, educational standard and political stability,[25] sought to understand how a broad range of skills is reflected in these countries' mission statements, government documents (strategic plans, national frameworks, education plans and so on), curriculum, and documents that showcase how countries expect skills to develop over time. The findings from the mapping exercise are presented in the report *Visualizing the Breadth of Skills Movement Across Education Systems*.[26]

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[24] E. Care and K. Anderson, *Skills for a Changing World: How Education Systems Approach Breadth of Skills* (Washington, DC: Brookings Institution, 2016).

[25] There were 43 DCPs among the 102 countries in this mapping exercise: Afghanistan, Albania, Bangladesh, Bhutan, Cambodia, Cameroon, Democratic Republic of Congo, Ethiopia, FS Micronesia, The Gambia, Georgia, Ghana, Grenada, Guinea-Bissau, Guyana, Honduras, Kenya, Kiribati, Kyrgyz Republic, Lesotho, Liberia, Madagascar, Malawi, Moldova, Mongolia, Mozambique, Nepal, Nigeria, Pakistan, Papua New Guinea, Rwanda, Saint Lucia, Senegal, Sierra Leone, Somalia, South Sudan, Tanzania, Togo, Uganda, Vanuatu, Vietnam, Zambia and Zimbabwe.

[26] E. Care, K. Anderson, and H. Kim, *Visualizing the Breadth of Skills Movement Across Education Systems* (Washington, DC: Brookings Institution, 2016).

The results (Figure B3) were then categorized by whether skills appeared in mission/vision statements (vision/mission statements), identified in government documents (skills identified), curriculum (skills in curriculum) and if there is some documentation on how skills are understood to progress (skills progression). Though a high degree of variation existed in how often countries refer to skills across the different categories of documents, skills were identified in the documentation of 76 of the 102 countries, with communication, creativity, critical thinking, and problem solving the most commonly cited skills.

Figure B3. Inclusion of skills in national documents
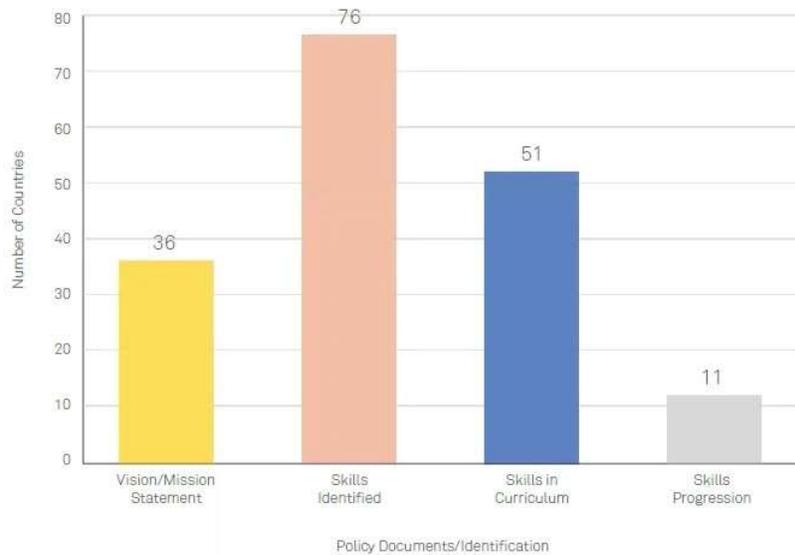
Source: E. Care, K. Anderson, and H. Kim, *Visualizing the Breadth of Skills Movement Across Education* (Washington, DC: Brookings Institution, 2016).

However, the mapping also showed that while a sizable number of countries showed evidence of these skills in the description of their curriculum or curriculum itself and a good number of countries cited these skills in the vision/mission statement underpinning their education system, very few countries mentioned progression of these skills across grades and subjects. Thus, while this research highlights the desire of a broad range of countries to equip their students with the skills necessary to succeed in the 21st century, very few countries seem to tangibly articulate a vision of how these skills can be developed over time. Additional countries were subsequently added to the mapping exercise, bringing the total to 152 countries.

The Skills for a Changing World project and the Breadth of Skills mapping paved the way for additional work by Brookings in the realm of 21CS, including the Optimizing Assessment for All initiative. Under this initiative, Brookings is working with country and regional stakeholders to build technical capacity in classroom-based assessment. This work is being implemented in close cooperation with GPE under the A4L initiative, as further detailed in this report.

Life Skills and Citizenship Education

Kicked off in 2015 by UNICEF for the Middle East and North Africa (MENA), the Life Skills and Citizenship Education (LSCE) initiative aims to support countries in that region to improve learning and to better invest such learning in individual, social and economic development by providing conceptual, programmatic and

technical resources. The initiative's main components are a conceptual and programmatic framework on life skills and citizenship education and technical support to countries on its planning and implementation. A range of partners support the LSCE, including ministries of education and national institutions from across the MENA countries as well as various universities, United Nations agencies and civil society organizations.

Although it is focused on a specific region, the LSCE framework offers an interesting perspective that is globally relevant. Beyond its specific identified dimensions of learning, skills clusters and actual skills (see Appendix A), the framework also affirms that these skills can be delivered through multiple pathways (formal, nonformal and informal education, at school, home, play time and so on) and modalities (for example, curricular, co-curricular and extra-curricular, stand-alone and integrated and through self-learning, face-to-face, online or other modes) (Figure B4). Also crucially, the framework advances a systems approach to life skills and citizenship education, noting that change at the level of the classroom is predicated on system-level changes, including in policies, plans and strategies, human resources/teacher development, curriculum, assessment and more. All these components must be working together to ensure that these skills can be delivered and developed.

Figure B4. Conceptual and programmatic framework for LSCE
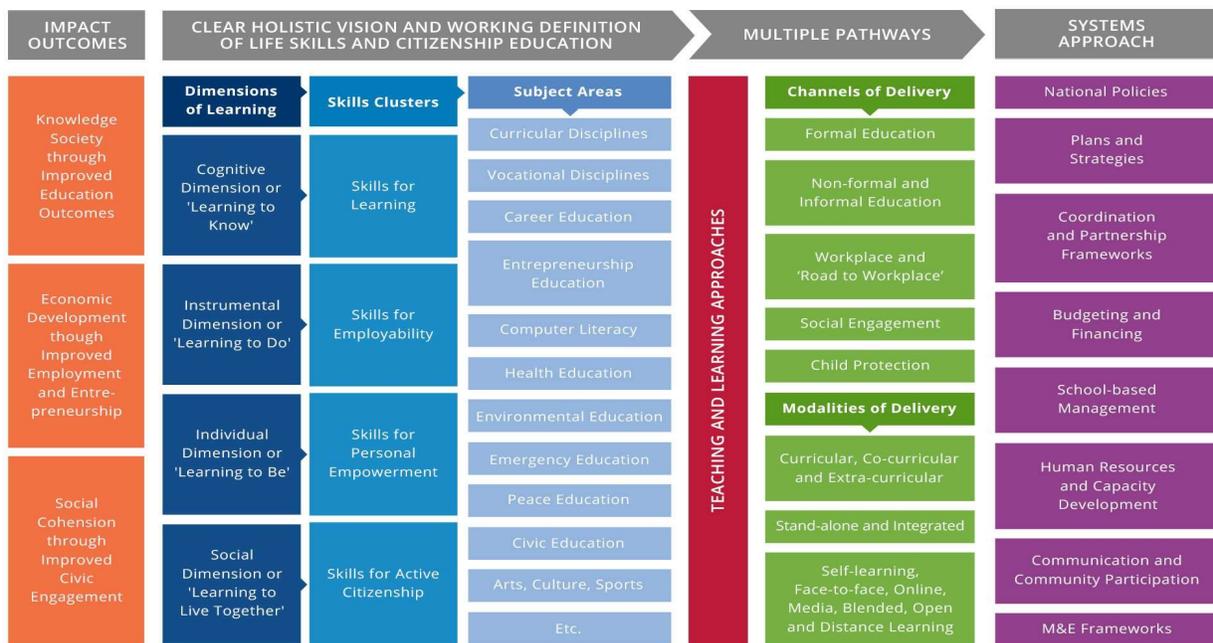
Appendix C. Cross-national, large-scale assessments that include 21CS

PISA and PISA for Development

Every three years, the OECD administers PISA to 15-year-old students around the world. PISA assesses student literacy in reading, mathematics and science and uses items that attempt to reflect real-world problems. Background questionnaires to school principals and students examine school and student characteristics, and there are optional questionnaires for teachers and parents. More than 60 countries

have participated in PISA to date, most of which are classified as middle- to high-income countries, though low-income countries are increasingly participating in this assessment. In the 2015 and 2018 rounds, four DCPs participated (Albania, Georgia, Moldova and Vietnam), and more are expected to do so in 2021. In an attempt to make PISA more relevant to the context of developing countries, the OECD launched the PISA for Development (PISA-D) initiative in 2013, which included five DCPs (Bhutan, Cambodia, Honduras, Senegal and Zambia); its results were released in 2018-2019.[27]

21CS appear in PISA's approach to evaluating literacy, "which refers to students' capacity to apply knowledge and skills in key subjects, and to analyze, reason and communicate effectively as they identify, interpret and solve problems in a variety of situations."[28] The PISA domain definitions for reading literacy, mathematical literacy and science literacy all include language on students' capabilities to use these literacies as a "reflective citizen" or to "participate in society." Since 2012, PISA has also incorporated the assessment of innovative domains, including creative problem solving in PISA 2012, collaborative problem solving in 2015, and global competence in 2018.[29] Similar to the general PISA assessment, the innovative domains are evaluated through a cognitive assessment and a background questionnaire.

International Civic and Citizenship Education Study
The International Association for the Evaluation of Educational Achievement's (IEA) International Civic and Citizenship Education Study (ICCS) evaluates grade 8 student development in civic and citizenship education by examining their knowledge, understanding, attitudes, perspectives and activities in this area. Similar to most international assessments, a cognitive test is administered to students, while questionnaires are administered to students, teachers and schools to provide complementary information that supports the analysis of the cognitive assessment results. The ICCS measures four content domains: civic society and systems, civic principles, civic participation and civic identities. It evaluates students in each area through a set of "affective-behavioral" domains labeled attitudes, values, behaviors and behavioral intentions. Though the ICCS does not assess higher-order thinking skills, the content domain definitions cover a concept of citizenship that reflects a similarity to the definition outlined by the ATC21S framework for local and global citizenship. Two ICCS studies have been conducted, with 38 countries participating in 2009 and 24 countries in 2016. To date, no DCPs have participated in the ICCS.

International Computer and Information Literacy Study
The International Association for the Evaluation of Educational Achievement's International Computer and Information Literacy Study (ICILS) attempts to measure ICT skill development in grade 8 students, particularly examining computer and information literacy outcomes that enable learners to engage in the digital age. The assessment is completely computer-based and employs real-world tasks that reference "safe and ethical use of computer-based information … [and combine] … technical, receptive, productive, and evaluative skills."[30] The cognitive assessment evaluates students across two strands, each comprising several key aspects. Strand 1 focuses on collecting and managing information and investigates aspects of how students manage, access, evaluate, and understand information. The second strand focuses on

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[27] For an evolution of DCP involvement in PISA and other cross-national, large-scale assessments, please see Appendix D.
[28] OECD, *PISA 2012 Results: What Students Know and Can Do*: *Student Performance in Mathematics, Reading, and Science,* Vol. 1 (Paris: PISA and OECD Publishing, 2014), 24, http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-I.pdf.
[29] Brookings Institution, *Use of Data from 21st Century Skills Assessments: Issues and Key Principles* (Washington, DC: Brookings Institution, 2018), 16, https://www.brookings.edu/wp-content/uploads/2018/10/EffectiveUse-Vista-Kim-Care-10-2018-FINALforwebsite.pdf.
[30] J. Fraillon et al., *Preparing for Life in a Digital Age: The IEA International Computer and Information Literacy Study International Report* (IEA and Springer, 2014), 69, https://link.springer.com/content/pdf/10.1007%2F978-3-319-14222-7.pdf.

producing and exchanging information, and this strand evaluates aspects of how students transform, create, share, and use information. Students, teachers, principals, and school ICT coordinators also complete questionnaires to provide contextual information about influences at the individual, home, school, and community levels. Similar to the ICCS, the ICILS has also been administered twice, in 2013 and 2018. The results of the 2018 ICILS round are expected to be reported sometime in 2019. Twenty-one countries participated in the 2013 ICILS, while 13 did so in 2018. No DCPs have participated in the ICILS.

Latin American Laboratory for Assessment of the Quality of Education

The Latin American Laboratory for Assessment of the Quality of Education (LLECE, for its Spanish acronym) is a regional assessment program in Latin America that currently covers 19 countries,[31] including two DCPs (Honduras and Nicaragua), and focuses its work on the Regional Comparative and Explanatory Study (ERCE, for its Spanish acronym). ERCE measures the learning achievements of grade 3 and 6 students in reading, writing, math and science, as well as the variables that might help understand and explain those achievements. In its fourth cycle, which is being implemented in 2019, ERCE is widening its scope, incorporating socio-emotional skills for the first time. The socio-emotional skills module of the present ERCE, which will be applied to grade 6 students only, focuses on the concepts of conscience and valuing of others and self-regulation and self-management, as per the framework outlined in Table C1.

Table C1. Summary of socio-emotional skills concepts to be applied in ERCE 2019

Concept	Dimension
Conscience and valuing of others	**Empathy**
	Accepting classmates that belong to different social groups
Self-regulation and self-management	Self-perception of good behavior and effort
	Self-perception of impulsivity and low frustration tolerance

Southeast Asia Primary Learning Metrics

The Southeast Asia Primary Learning Metrics (SEA-PLM), jointly coordinated by the Southeast Asian Ministers of Education Organization (SEAMEO) Secretariat and UNICEF's East Asia and Pacific Regional Office (EAPRO), is a new regional assessment focused on grade 5 students. This assessment is being administered for the first time in 2019 in six countries, including four DCPs (Cambodia, Lao People's Democratic Republic, Myanmar and Vietnam). A total of 50,000 students will be assessed, across nine different languages. The SEA-PLM is a curriculum-based assessment that measures literacy in reading, writing, mathematics and, uniquely, global citizenship. A cognitive assessment will be administered to evaluate student literacy in reading, writing and mathematics, while a questionnaire will be used to assess global citizenship values, attitudes, behaviors and skills. The SEA-PLM defines global citizenship as follows:

> *"Global citizens appreciate and understand the interconnectedness of all life on the planet. They act and relate to others with this understanding to make the world a more peaceful, just, safe and sustainable place."[32]*

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[31] Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. In the 2019 round of ERCE, all these countries with the exception of Venezuela will participate.

[32] R. Parker and W. Schulz, *SEA-PLM Global Citizenship Domain Assessment Framework* (Bangkok: SEA-PLM, 2017), 5, https://drive.google.com/file/d/0Bw2j_6JUc3aWaVBxcGVVRGFMUkRsYnFmdTNwRzcxeTk2LTRv/view.

Three subdomains of global citizenship were identified: (1) global citizenship systems, issues, and dynamics; (2) global citizenship awareness and identities; and (3) global citizenship engagement.[33] The information this assessment provides will especially support data collection for SDG indicator 4.7.4 on evaluating students' "adequate understanding of issues relating to global citizenship." The SEA-PLM is administering its first survey in 2019 and will report in 2020.

Appendix D. Participation of DCPs in cross-national assessments[34]

Assessment	Previous round		Latest/upcoming round	
LLECE	2013	Honduras Nicaragua	2019	Honduras Nicaragua
PASEC	2014	Benin Burkina Faso Burundi Cameroon Chad Congo, Rep. of Cote d'Ivoire Niger Senegal Togo	2019	Benin Burkina Faso Burundi Cameroon Chad Congo, DR Congo, Rep. of Cote d'Ivoire Guinea Madagascar Mali Niger Senegal Togo
PILNA[a]	2015	Kiribati Marshall Islands FS Micronesia Papua New Guinea Vanuatu	2018	Kiribati Marshall Islands FS Micronesia Papua New Guinea Vanuatu
PIRLS	2016	Georgia	2021	Georgia
PISA	2015	Albania Georgia Moldova Vietnam	2018	Albania Georgia Moldova Vietnam
PISA-D	N/A		2018	Bhutan Cambodia Honduras Senegal Zambia
SACMEQ/ SEACMEQ[b]	2013	Kenya Lesotho Malawi	2019	Kenya Lesotho Malawi

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[33] Parker and Schulz, *SEA-PLM Global*, 10.
[34] GPE (Global Partnership for Education), *Results Report 2019* (Washington, DC: GPE, 2019).

		Mozambique Tanzania Uganda Zambia Zimbabwe		Mozambique Tanzania Uganda Zambia Zimbabwe
SEA-PLM	N/A		2019	Cambodia Lao PDR Myanmar Vietnam
TIMSS	2015	Georgia	2019	Albania – Gr 4 only Georgia Pakistan – Gr 4 only

a. PILNA regional data are publicly available. National reports and data sets are released to each participating country's ministry/department of education, with public reporting of results left to each country, if they choose to do so.

b. While SACMEQ IV was administered in 2013, the international report has not been published to date, implying that data are not publicly available. SACMEQ (also known as SEACMEQ) V was to have been conducted in 2019.

Appendix E. Stocktake data collection framework

ESP	
Vision/Mission/Guiding Principles	**Which 21CS are referenced in the Vision/Mission/Guiding Principles**: 1 = Creativity and innovation 2 = Critical thinking, problem solving, decision-making 3 = Learning to learn 4 = Communication 5 = Collaboration (teamwork) 6 = Information literacy 7 = ICT literacy Living in the World 8 = Citizenship – local and global 9 = Life and career 10 = Personal and social responsibility – including cultural awareness and competence **How many 21CS were referenced in the Vision/Mission/Guiding Principles:** **Please provide an explanation for these 21CS related expressions of commitment in the Vision/Mission/Guiding Principles:**
Policy Priorities/Strategies	**Which 21CS are referenced in Policy Priority 1:**

1 = Creativity and innovation

2 = Critical thinking, problem solving, decision-making

3 = Learning to learn,

4 = Communication

5 = Collaboration (teamwork)

6 = Information literacy

7 = ICT literacy Living in the World

8 = Citizenship – local and global

9 = Life and career

10 = Personal and social responsibility – including cultural awareness and competence

How many 21CS were referenced in activities for policy priority 1?*

Which component of the education system is being used to deliver 21CS?*

1 = Teaching Pedagogy and Training

2 = Classroom Activities and Materials

3 = Curriculum Development

4 = School Environment

5 = Assessments

6 = Policy/Governance

At which levels of Education are 21CS being delivered (as defined by the country)?*

1= Primary school

2= Secondary school

Please provide an explanation for these 21CS related policy priorities:*

Are the 21CS from Policy Priority 1 reflected in the results framework/implantation framework/action plans?

Yes/No

Please provide an explanation of how these 21CS are reflected in the framework/implantation framework/action plans:

If special education programing exists within the primary and secondary education policy priorities, does it reference 21CS?

1 = Yes

2 = No

	If yes, which 21CS are referenced in activities related to the special education program(s)? 1 = Creativity and innovation 2 = Critical thinking, problem solving, decision-making 3 = Learning to learn 4 = Communication 5 = Collaboration (teamwork) 6 = Information literacy 7 = ICT literacy Living in the World 8 = Citizenship – local and global 9 = Life and career 10 = Personal and social responsibility – including cultural awareness and competence **Which component of the education systems is being used to deliver 21CS in this special education programming**? 1 = Teaching Pedagogy and Training 2 = Classroom Activities and Materials 3 = Curriculum Development 4 = School Environment 5 = Assessments 6 = Policy/Governance **Please provide an explanation for these special education 21CS activities**: *Questions were repeated for each additional policy priority identified in the ESP
TVET in ESP	**Does the ESP include a TVET program as a policy priority?** 1 = Yes 2 = No **If yes, which 21CS are referenced in activities related to the TVET Program(s).** 1 = Creativity and innovation 2 = Critical thinking, problem solving, decision-making 3 = Learning to learn 4 = Communication 5 = Collaboration (teamwork) 6 = Information literacy 7 = ICT literacy Living in the World 8 = Citizenship – local and global 9 = Life and career

	10 = Personal and social responsibility – including cultural awareness and competence

How many 21CS were referenced in activities for the TVET Program(s)?

Which component of the education system is being used to deliver 21CS?

    1 = Teaching Pedagogy and Training
    2 = Classroom Activities and Materials
    3 = Curriculum Development
    4 = School Environment
    5 = Assessments
    6 = Policy/Governance
At which levels of Education are 21CS being delivered (as defined by the country)?
    1 = Primary school
    2 = Secondary school

Please provide an explanation for these activities: |
| **ESPIG** | |
| Program Components | **Which 21CS are referenced in Program Component 1?***

    1 = Creativity and innovation
    2 = Critical thinking, problem solving, decision-making
    3 = Learning to learn
    4 = Communication
    5 = Collaboration (teamwork)
    6 = Information literacy
    7 = ICT literacy Living in the World
    8 = Citizenship – local and global
    9 = Life and career
    10 = Personal and social responsibility – including cultural awareness and competence

How many 21CS were referenced in activities for program component 1?*

Which component of the education system is being used to deliver 21CS?*

    1 = Teaching Pedagogy and Training
    2 = Classroom Activities and Materials |

3 = Curriculum Development
4 = School Environment
5 = Assessments
6 = Policy/Governance

At which levels of Education are 21CS being delivered (as defined by the country)?*
1 = Primary school
2 = Secondary school

How much funding is allotted to this component?*

Please provide an explanation for these 21CS related activities:*

If special education programming exists within the program components, does it reference 21CS?
1 = Yes
2 = No

If yes, which 21CS are referenced in activities related to the special education program(s)?
1 = Creativity and innovation
2 = Critical thinking, problem solving, decision-making
3 = Learning to learn
4 = Communication
5 = Collaboration (teamwork)
6 = Information literacy
7 = ICT literacy Living in the World
8 = Citizenship – local and global
9 = Life and career
10 = Personal and social responsibility – including cultural awareness and competence

Which component of the education systems is being used to deliver 21CS in this special education programming?

1 = Teaching Pedagogy and Training
2 = Classroom Activities and Materials
3 = Curriculum Development
4 = School Environment
5 = Assessments
6 = Policy/Governance

Please provide an explanation for these special education 21CS activities:

	*All questions outlined above were repeated for each additional program component identified in the ESPIG.
TVET in ESPIG	**Does the ESPIG include a TVET program among the Program Components?** 1 = Yes 2 = No **Which 21CS skills are referenced in activities related to the TVET Program(s).** 1 = Creativity and innovation 2 = Critical thinking, problem solving, decision-making 3 = Learning to learn 4 = Communication 5 = Collaboration (teamwork) 6 = Information literacy 7 = ICT literacy Living in the World 8 = Citizenship – local and global 9 = Life and career 10 = Personal and social responsibility – including cultural awareness and competence **How many 21CS were referenced in activities for the TVET Program(s)?** **Which component of the education systems is being used to deliver 21CS?** 1 = Teaching Pedagogy and Training 2 = Classroom Activities and Materials 3 = Curriculum Development 4 = School Environment 5 = Assessments 6 = Policy/Governance **At which levels of Education are 21CS being delivered (As defined by the country)?** 1 = Primary school 2 = Secondary school **How much funding is allotted to this component?** **Please provide an explanation for these 21CS activities**:

Appendix F. Mini-studies methodology

The Asia region mini-study was coordinated by UNESCO Bangkok's Network on Education Quality Monitoring in the Asia-Pacific (NEQMAP), while that of the Africa region was coordinated by UNESCO Dakar's Teaching and Learning: Educators' Network for Transformation (TALENT). Both studies were undertaken with funding support from GPE through the A4L initiative, as contributions to this landscape review.

Asia

Several studies on transversal competencies (TVC)[35] have been conducted by networks coordinated by UNESCO Bangkok, notably NEQMAP and the Asia-Pacific Education Research Institutes Network (ERI-Net). These reports have provided a framework for the concept of TVC and explored policy, practice and assessment implementation as regards these competencies within the Asia-Pacific region. The Asia mini-study went further, examining the assessment tools available to educators within the eight countries participating in the study that directly or indirectly capture TVC.

The Asia mini-study examined four major research questions:

- What is the current state of skills assessment in transversal competencies or 21CS in each of the participating countries/jurisdictions?
- What are the characteristics of the available assessment tools collected?
- What transversal competency or sets of competencies predominate, and in what academic subjects or learning domains are these competencies embedded?
- Can current tools be improved or repurposed, and are there practical ways to do so?

The study focused specifically on late primary (grades 4-6) and early secondary (grades 7-9) education. Each participating country nominated a researcher or institution to collect information on the country's education structure and curriculum as well as direct and indirect assessments of TVC from a small number of schools and at the national level. Countries were asked to provide examples of TVC assessment tools: tests, test items, assessments, assessment tasks and any classroom-level measurement tool. The eight countries each provided between two and 18 assessment tools. Some were school-level tools, while others were national-level tools; some countries provided both school- and national-level tools. For school-level data collection, the researchers were encouraged to include public and private schools from both urban and rural areas and to consider identifying a diverse range of school sizes, academic performances and socio-economic backgrounds as part of the selection criteria.

The country researchers reviewed the assessment tools and provided original classifications of the skills being assessed based on the coding framework. A verification process took place to ensure that the coding of the tools identified indeed aligned with the appropriate classification. This process relied on the UNESCO Bangkok TVC framework and included the study coordinators at Brookings independently classifying skills assessed in the tools, then discussing their classifications together until consensus was reached, and finally comparing their classifications to the original classification.

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[35] In the Asia-Pacific region, "transversal competencies" is the preferred terminology for 21CS.

Africa

Similar to Asia, the Africa mini-study explored whether classroom and national assessment tools used in the nine countries of the study sample any 21CS such as collaboration, communication, problem solving and critical thinking. Since the Africa region did not have a common shared framework for which skills and competencies are important in this domain, the country researchers worked with the Brookings team to define a list of skills that were commonly perceived as important.

The research questions for the Africa study were as follows:
- What tools at classroom and national levels are currently used to assess 21CS in each of the participating countries?
- What are the characteristics of the available assessment tools collected from the countries?
    - What is their primary function (teaching and learning, grading and accountability)?
    - What are the assessment formats (for example, true-false, correct-incorrect, fill in the blanks, checklist, rating scale, open/close constructed response and so on)?
    - What are the scoring mechanisms and score reporting formats?
- What 21CS are predominant across assessment items from the participating countries? In what academic subjects or learning domains are these competencies mainly embedded?
- What are the opportunities for assessment of 21CS that are presented by items that are identified as indirectly assessing the skills?

National researchers appointed in each participating county collected examples of assessment tools used at the national and school levels from grades 3 to 8, with a particular focus on grades 6 and 8. The tools to be collected were those that were seen to either *directly* or *indirectly* capture 21CS (therefore, tools that capture only subject or domain competencies—for example, literacy or numeracy skills—were not eligible). For the collection of school-level tools, only four to five schools in each country were targeted, implying that the data collection and findings are not representative of the country, region or province and instead provide some examples of the types of tools that are available and in use. School selection was to consider schools across urban and rural areas, both government and private schools, schools of different sizes, high-, average- and low-performing schools and schools across a range of socio-economic statuses.

In addition to the tools, the countries provided coded summaries of their raw data. These summaries included descriptions of the tools, including their primary purpose (teaching, reporting, certification and more), subject and topic area, level (national or subnational) and 21CS targeted by the tool as identified by the country researcher, scoring type (dichotomous or polytomous) and reporting mechanism. The summaries from all countries were cleaned and consolidated, and overall 91 eligible tools were collected across the nine study countries.

Appendix G. Partnership review comparative map

Organization name	21CS orientations	Targeted system level(s)	Thematic focus area(s)	Type(s) of activity	Regions/ Countries	Project/Research summaries
Education International	ICT, health, life skills, education for sustainable development, personal and social responsibility, TVET	National/ International level	Teacher training and professionalism, education policy, curriculum and pedagogy	Research/ analytical work/ knowledge development, advocacy, global public goods	Worldwide	- Strong advocacy for education policy that promotes ICT, health, life skills, education for sustainable development, personal and social responsibility, TVET - Several research papers published on the importance of TVET for holistic education as well as breadth of learning in K-12 curriculum and policy - Breadth of Learning Opportunities (BOLO) initiative, which will develop a toolkit for comprehensively evaluating BOLO in educational policy
Global Business Coalition for Education	Entrepreneurship, soft skills (SEL), technical skills (TVET), workforce readiness (life and career)	Student level	Not applicable	Knowledge development, policy development and implementation (private sector)	Worldwide	- Established commissions of companies, multilateral organizations, and youth to discuss how to enhance the skill development of youth worldwide - Organizing think tank summits around the globe promoting development of 21CS - Launched a competition challenging youth around the world to create local initiatives reflecting key solutions for developing 21CS - Launched the Skills Friendly Cities Initiative - One of the main partners with UNICEF'S Generation Unlimited
Oxfam IBIS	Citizenship, personal and social responsibility, life skills, health, mother tongue literacy, the arts	School level	Teacher training and professionalism, parent associations, curriculum and	Service delivery, capacity/skills development, behavior change	Bolivia, Mozambique, Ghana	- The "Wing" schools project in Ghana - 10-month "crash course" bridge programs for out-of-school youth in Ghana - Programs in Bolivia, Mozambique and South Sudan on sexual reproductive health and rights

			pedagogy, education policy, gender equality			
UNICEF	Entrepreneurship, active and global citizenship, lifelong learning, problem-solving skills, critical thinking, life skills	National/ International level	Assessments, curriculum and pedagogy	Global public goods, service delivery, advocacy	Worldwide, Southeast Asia, Middle East, North Africa	- Global Framework on Transferable Skills - Life Skills and Citizenship Education initiative - Generation Unlimited; SEA-PLM assessment
World Bank	TVET, social-emotional skills, ICT	National/ International level	Assessment, teacher training and professionalism, curriculum and pedagogy	Knowledge development, service delivery	Worldwide	- Skills Toward Employment and Productivity (STEP) skills measurement program - Digital Economy for Africa (DE4A) - Provision of education materials and teacher training on grit in Macedonia - Pedagogical materials on growth mind-set in Peru, South Africa and Indonesia - Self-affirmation, resilience, and goal-setting and planning strategies training for Turkish youth and adults
Porticus	Whole child development (WCD) values (e.g., empathy, hope, compassion, tolerance), spirituality (e.g., faith, mindfulness), academic knowledge (e.g., literacy, numeracy), and life skills (e.g., critical thinking, collaboration, communication)	National/ International level, school level, teacher level, student level	Assessment	Knowledge development, global/public goods, service delivery, convenings and supporting sector collaborations	Worldwide	- Measuring What Matters (MWM) program embeds WCD measures in education systems globally by collaborating with partner organization

UNESCO	Education for sustainable development, global citizenship education, TVC, social-emotional skills	National/ International level, student level	Assessments, curriculum and pedagogy	Global public goods, service delivery	Worldwide, Latin America, Asia-Pacific	- UNESCO Lima office's Horizontes program, which offers technical training and a component on socio-emotional skills to secondary school students - Latin American Laboratory for Assessment of the Quality of Education (LLECE), which measures a domain on social-emotional skills - UNESCO Bangkok offers research and support for 21CS/TVC measurement through NEQMAQ and Eri-Net; education for sustainable development and global citizenship education advocacy
Youth Employment Funders Group	Soft skills	National/ International level	Not applicable	Knowledge sharing (private sector)	Worldwide	- *What Works in Soft Skills Development for Youth Development?: A Donors' Perspective* report

Appendix H. Detailed descriptions of 21CS initiatives throughout the partnership

GPE partners: International organizations

UNESCO

For UNESCO, an emphasis on 21CS has been self-evident since the founding of the organization in 1945 with a mandate to promote peace through education, culture, communication and the sciences. This "humanistic" perspective has been operationalized through work in areas such as peace education, human rights education, education for international understanding, gender, health education and others. It was also further formalized through the commissioning of the landmark *Learning: The Treasure Within* (also known as the Delors Report)[36] in 1996, which put forth the notion of the "four pillars" of education: learning to know, learning to do, learning to be and learning to live together. This vision enshrined UNESCO's conviction that education must go beyond the cognitive aspect or the vision of preparing graduates for the workforce: It must also emphasize the holistic development of the individual and his/her role as part of a broader community. In addition, UNESCO's role as a standard setter means that the agency has initiated and promoted a number of normative instruments that are broadly aligned with the notion of 21CS, such as the 1974 *Recommendation on Education Concerning International Understanding, Cooperation and Peace and Education Relating to Human Rights and Fundamental Freedoms*.

Two more recent 21CS-related initiatives coordinated by UNESCO bear special mention: Education for Sustainable Development (ESD) and Global Citizenship Education (GCED). The ESD initiative aims to "empower learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity."[37] UNESCO was the global coordinator of the UN Decade on ESD (2005-2014), as well as the follow-up Global Action Programme (GAP) on education for sustainable development, which concludes in 2019. A new post-GAP framework, ESD for 2030, is under finalization and will be officially launched in June 2020 in Bonn, Germany. Building on work in peace and human rights education, GCED came to the fore under the previous United Nations Secretary-General's Global Education First Initiative and aims to "empower learners of all ages to assume active roles, both locally and globally, in building more peaceful, tolerant, inclusive and secure societies."[38] While the topical focus and the international frameworks supporting ESD and GCED are different, both initiatives promote a holistic perspective on skills and emphasize three dimensions: the cognitive, the socio-emotional and the behavioral.

In both areas, UNESCO work has included global agenda setting (including advocacy and providing guidance to member states), capacity building of member states (particularly policymakers and teacher trainers), field offices and partners, production of learning materials, monitoring/reporting and research. Of particular interest are the UNESCO publications putting forth topics and learning objectives for different levels of education in the areas of education for sustainable development and global citizenship

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[36] J. Delors, "*The Treasure Within: Learning to Know, Learning to Do, Learning to Live Together and Learning to Be.* What Is the Value of That Treasure 15 Years After Its Publication?," *International Review of Education* 59, no. 3 (2013), doi:10.1007/s11159-013-9350-8.

[37] UNESCO, "Education for Sustainable Development," n.d., https://en.unesco.org/themes/education-sustainable-development.

[38] UNESCO, *Global Citizenship Education: Preparing Learners for the Challenges of the 21st* (Paris: UNESCO, 2014), https://unesdoc.unesco.org/ark:/48223/pf0000227729.

education. As mentioned in chapter 3, UNESCO is also leading the global efforts around monitoring and reporting under SDG Target 4.7, which includes these two areas, while serving as the lead agency for all of SDG 4. Looking to the future, UNESCO is also emphasizing the contribution of its program sectors toward digital literacy and digital citizenship, as well as the prevention of violent extremism.

While these different workstreams touch upon different aspects of 21CS and UNESCO does not have one overarching definition or strategy to frame its work in these areas (barring the mandate enshrined in the UNESCO Constitution itself), different UNESCO specialized institutes (particularly the Mahatma Gandhi Institute of Education for Peace and Sustainable Development [MGIEP] and the Asia-Pacific Centre of Education for International Understanding [APCEIU]) and field offices are very active on this front. Historically, UNESCO has led efforts to integrate 21CS in other subsectors of education as well, such as TVET (including through the work of its UNEVOC International Centre for Technical and Vocational Education and Training) and higher education (including through the work of the UNESCO International Institute for Higher Education in Latin America and the Caribbean – UNESCO-IESALC).

In the Asia-Pacific region, UNESCO Bangkok (the Asia and Pacific Regional Bureau for Education) has been instrumental in researching and emphasizing the importance of 21CS in education throughout the region, particularly through the work of ERI-Net and NEQMAP on transversal competencies. Discussion is taking place on the issue of learning outcomes, especially in socio-emotional and behavioral dimensions, which are often not taken into consideration in national assessment policy. As mentioned earlier, in both the Asia-Pacific region and Sub-Saharan Africa, the Brookings Institution has been working with the respective UNESCO offices (Bangkok and Dakar) for the mini-studies on assessment of 21CS as well as the development of tools for classroom assessment of some of these skills in selected countries.

In Latin America, the Latin American Laboratory for the Assessment of the Quality of Education (LLECE regional assessment program currently covers 19 countries, including two DCPs (Honduras and Nicaragua), and focuses its work on the Regional Comparative and Explanatory Study (ERCE). The LLECE is coordinated by UNESCO Santiago (the Regional Bureau for Education in Latin America and the Caribbean) and the 2019 round of ERCE will include a module focused on socio-emotional skills, which will be administered to grade 6 students. Also in Latin America, UNESCO's national office in Peru (UNESCO Lima) is implementing a program focused on secondary schools known as Horizontes, which includes technical training with double certification (secondary and TVET), work to reduce dropout rates and a component on socio-emotional skills. The latter includes three dimensions: the personal, the social and the prospective. Considering processes of contextualization and validation, the project has prepared guides and training for teachers, including a series of two-hour sessions for 30 weeks, on these skills. The Horizontes initiative also includes assessment of socio-emotional skills on the part of both students and teachers via specialized instruments and performance tests, as well as alternative mechanisms to assess these skills among those who are not literate in Spanish. The project targets four of Peru's rural regions, each of which has a large proportion of students from indigenous groups.

UNICEF

Related to most frameworks of 21CS, UNICEF identifies transferable skills (also known as life skills, 21st-century skills, soft skills, or socio-emotional skills), digital skills and job-specific skills in addition to literacy and numeracy that are needed by all children and adolescents to improve outcomes related to lifelong learning, employment and entrepreneurship, personal empowerment and active citizenship.

Within this categorization, and aligned with delivering on the results of its Strategic Plan 2018-2021 and Every Child Learns UNICEF Education Strategy (2019–2030), UNICEF programming on 21CS skills focuses on three broad strategies that are implemented from early childhood to adolescence:

1. **Direct service delivery in resource poor environments and emergencies.** For example, through the provision of quality teaching and learning (materials/teacher training/assessment) that delivers foundational, transferable and job-specific skills; the provision of education and training, including skills development, in emergencies; and community mobilization to provide a supportive and safe environment for learning
2. **Systems strengthening to deliver skills at scale.** For example, through integrating skills in national policies and plans, curricula and training; engaging community organizations in delivery of skills development programs; developing partnerships to ensure skills programming is responsive to the labor market; and supporting policies and plans that mainstream gender equity in skills development
3. **Global partnerships and public goods.** For example, through developing knowledge products and tools to improve the quality of service delivery and partnerships and dialogue with governments, civil society and private sector

To foster equity, the agency promotes this vision through multiple pathways of education and learning that can reach the most marginalized: formal education, nonformal education, youth engagement programs, employability programs and so on. While the agency works in nearly 200 countries in a highly decentralized manner, it has developed a Global Framework on Transferable Skills, a global public good, as well as various regional and global guidance products to provide a shared vision of work on the topic of skills development across UNICEF.

UNICEF is also engaged in multiple efforts to support the measurement of 21CS through different types of assessments, including formative assessments as well as summative assessments. Two initiatives are of note: First, UNICEF and the World Bank have partnered in the Middle East and North Africa to measure 21CS within the framework of the Life Skills and Citizenship Education and the Education for Competitiveness initiatives to develop a large-scale assessment instrument that will provide a standardized approach for assessing life skills proficiency targeting the lower-secondary age group at grade 7 level, or equivalent to ages 12–14, for the following skills: respect for diversity, empathy, participation, creativity, problem solving , negotiation, decision-making, self-management and communication. And second, UNICEF is a main partner with the Southeast Asia Primary Learning Metrics (SEA-PLM), a regional assessment of grade 5 students that is being implemented for the first time in 2019 in six countries of Southeast Asia. In addition to reading, writing and mathematics, the SEA-PLM will also assess the domain of global citizenship through questionnaires for students, parents, teachers and schools.

World Bank

Stemming from a recognition of the importance of a broad perspective on skills both for productivity and success in the world of work as well as welfare and broader life outcomes, the World Bank considers three different buckets of skills that are important in a contemporary perspective: cognitive skills (both foundational, such as literacy and numeracy, and higher order, such as critical thinking and problem solving), socio-emotional skills (for example, leadership, teamwork, self-control, and grit) and context-specific technical skills (referring to the knowledge and expertise needed to perform a specific job). The Bank's work on skills has included pre-employment TVET programs, support for adult learning, work to

address basic skills gaps and assessment of skills. The Bank is also engaging on the agenda of developing digital skills, including in the context of the Digital Economy for Africa (DE4A) initiative. Examples of programs focused on the development of socio-emotional skills include the development of education materials and teacher training on grit for upper-primary school students in Macedonia; the development of pedagogical materials on growth mind-set in Peru, South Africa, and Indonesia; and a brief training for youth and adults seeking jobs in Turkey, focusing on self-affirmation, resilience, and goal-setting and planning strategies.

The Bank's major initiative on assessment work in recent years has been the Skills Toward Employment and Productivity (STEP) skills measurement program. With a focus on urban youth and adults (from 15 to 64 years of age), STEP includes an assessment of reading literacy based on the OECD's Programme for the International Assessment of Adult Competencies (PIACC), self-reported information on personality, behavior, time and risk preferences (based largely on the Big Five[39] Inventory) and an assessment of job-relevant skills. Since 2012, STEP has been applied in a number of low- and middle-income countries, including DCPs such as Georgia, Ghana, Kenya, Lao PDR and Vietnam. At present, the Bank is shifting to a more customized and agile package for skills assessment, focused specifically on socio-emotional skills. This approach, which relies on both self-reports and surveys of teachers and/or employers, is being implemented in a few DCPs, including Bangladesh, Kyrgyz Republic, Moldova, Uzbekistan and Vietnam.

GPE partners: Civil society, private sector and foundations
A number of civil society organizations within the partnership are also working on the broad area of 21CS. **Oxfam IBIS,** stemming from a rights-based approach and a notion of transformative education for active citizenship, emphasizes areas such as citizenship skills, critical thinking, problem solving and collaboration. Its work has included life skills programs in fragile contexts, teacher training and support for satellite schools in remote areas, which include an emphasis on the skills cited above. More specifically, Oxfam IBIS has supported the development of curriculum for teachers on sexual and reproductive health and rights in Bolivia, while it has worked with partners in Ghana, Mozambique and Sierra Leone to model education interventions at the school level in this area. Oxfam IBIS has also worked to develop curriculum and pedagogy on intercultural education and bilingual education in Latin America. The organization also believes that supporting the engagement of citizens in local education governance and parent-teacher associations also fosters the development of 21CS in these populations.

Education International, the global union federation that represents organizations of teachers and other education employees, emphasizes a range of 21CS in its work, including digital literacy, health education, life skills, education for sustainable development and education that promotes concepts of equality, tolerance and respect for diversity. In addition, Education International is generally advocating for a commitment to the breadth of learning and has been working with the Brookings Institution to develop the Breadth of Learning Opportunities (BOLO) initiative, which has its origins in the LMTF work. This initiative includes a number of outputs, the main one being a toolkit to examine learning opportunities at policy, school and teacher levels. The toolkit has been piloted in a number of countries, including Kenya, Pakistan, Rwanda and Zambia. Education International's work has also included research on TVET specifically, highlighting the potential of taking a more holistic approach to this subsector and reconsidering the role that TVET can play in holistic, humanistic and sustainable education, as well as for social justice.

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[39] Also referred to the five-factor model or OCEAN model, the Big Five is a taxonomy for five key personality traits: openness to experience, conscientiousness, extraversion, agreeableness and neuroticism. This is slightly different from the OECD categorization of the Big Five Domains presented in Appendix A.

The **Global Business Coalition for Education (GBC-Education)** serves as social impact adviser for the business community in engaging with the global education sector, developing programs and identifying opportunities for investment and partnership. Driven by the coalition members' preoccupation with the skills of the future workforce, GBC-Education launched the Youth Skills and Innovation Initiative (YSII) to promote the development of key skills that will be expected of youth in order to thrive in the 21st century. This initiative is driven by a concern that half of all young people will potentially not have the basic skills necessary for the workplace by 2030, thus challenging the ability of the business community to compete in a connected and collaborative economy. Through the YSII, GBC-Education launched a coalition of businesses working in the area, a council of young leaders who advise and provide access to their networks and a Youth Skills and Innovation Network that leverages 50 youth-serving organizations across the world. Much of the initiative's work culminated in the report *Preparing Tomorrow's Workforce for the Fourth Industrial Revolution,* prepared with Deloitte Global. The report outlines four key competencies young people need for success in the 21st century: workforce readiness, soft skills, technical skills and entrepreneurship. At present, GBC-Education is working on localizing the solutions and recommendations outlined in the report, with a focus on young women and girls. GBC-Education is also one of the main partners of UNICEF'S Generation Unlimited initiative, which uses the YSII report as part of the evidence underpinning its work. To address the need to regionalize and localize the skill efforts, GBC-Education is launching the Skills Friendly Cities Initiative, which aims to achieve practical, rapid and relevant solutions to the youth skills crisis for communities by bringing young people, the business community and policymakers together at a city level to deliver new ways of working in the fourth industrial revolution.

Porticus is also a current partner of GPE. In its work in education, Porticus uses the lens of whole child development (WCD), with a specific focus on children and youth facing extreme adversity. A WCD approach aims to support and develop all aspects of a child, including the physical, social, spiritual, emotional and intellectual. WCD aims to support and develop all aspects of a person, in particular core values and capabilities, which include (though are not limited to) values (for example, empathy, hope, compassion, tolerance), spirituality (for example, faith, mindfulness), academic knowledge (for example, literacy, numeracy) and life skills (for example, critical thinking, collaboration, communication). As part of this work, Porticus's Measuring What Matters (MWM) program contributes to embedding WCD measures in education systems globally by working with partners to understand how to more strongly represent the breadth of skills and learning needed by children and youth to lead successful lives and to better understand how assessment can be used as a tool for inclusion. It is through this program that Porticus is supporting GPE's A4L initiative and thereby the present landscape review.

Another interesting partner in this space is the **Youth Employment Funders Group (YEFG),** which is a network led by a steering committee comprising the Inter-American Development Bank LAB, International Labour Organization, Mastercard Foundation and USAID, and recently joined by the Citi Foundation. At present, the YEFG has over 20 members, including a number of multilateral and bilateral organizations such as USAID and the Australian Department of Foreign Affairs and Trade. The group organizes regular information sharing and networking. In 2017, the Mastercard Foundation commissioned on behalf of the YEFG and published the report *What Works in Soft Skills Development for Youth Development?: A Donors' Perspective*. The report provides a form of stocktake on where the field of soft skills is generally speaking, recognizing the rapid evolution of the field and the complexity of the topic. The report focuses youth soft skills development on five sets of skills: positive self-concept, self-control, communication, social skills and higher-order thinking (which includes problem solving, critical thinking and decision-making). Recommendations include the need to build coherence around what these skills are, to deepen reform efforts, to catalyze essential partnerships, to improve program quality and to enhance assessment and

evaluation.[40] The YEFG report has been useful for some donors, including GPE partners such as the Australian Department of Foreign Affairs and Trade, to better frame and think through their work on youth and skills.

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[40] YEFG (Youth Employment Funders Group), *What Works in Soft Skills Development for Youth Development?: A Donors' Perspective* (YEFG, 2017). https://mastercardfdn.org/wp-content/uploads/2018/08/soft-skills-youth-employment-accessible2.pdf.

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