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MEASURING SKILLS FOR YOUTH WORKFORCE DEVELOPMENT

How-To Notes provide additional design and implementation suggestions not covered in existing USAID Policy documents related to sub-areas of the Education Strategy.

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ACRONYMS

EGRA	Early Grade Reading Assessment
MEL	Monitoring, Evaluation, and Learning
PIAAC	Programme for the International Assessment of Adult Competencies
SDG	Sustainable Development Goal
USAID	United States Agency for International Development
WORQ	Workforce Outcomes Reporting Questionnaire
YWFD	Youth Workforce Development

KEY TAKEAWAYS

- In addition to being a basic human right, **education—and the skills gained through education—is a prerequisite for improved employment and income at an individual level and for an improved economy** at a macro level. There is evidence linking five key skills to such workforce outcomes: soft skills, reading skills, math skills, digital literacy, and technical/vocational/professional skills.

- **USAID's Office of Education has five indicators to measure these five skills.** Implementers and missions are required—as applicable to programming—to report on soft skills and reading, which are standard foreign assistance indicators. Implementers and missions are encouraged to report on math, digital literacy, and technical/vocational/professional skills, which are supplemental indicators.

TABLE 1. Office of Education Indicators

INDICATOR	DEFINITION
Standard Foreign Assistance Indicator	Percent of individuals with improved soft skills following participation in USG-assisted workforce development programs—implementers should measure the skills that are relevant to the activity and context, and that have been linked to positive workforce outcomes.
Standard Foreign Assistance Indicator	Percent of individuals with improved reading skills following participation in USG-assisted youth programs—improvement in reading is defined as achieving a higher proficiency level according to a test or, in its absence, by linking the test to a standard rubric provided in this Note.
Supplemental Indicator	Percent of individuals with improved math skills following participation in USG-assisted programs—improvement for math is defined similarly as for reading. Here, math refers not only to traditional academic math knowledge and skills, but also to real-world math skills.
Supplemental Indicator	Percent of individuals with improved digital literacy skills following participation in USG-assisted programs—digital literacy includes both hard skills like using hardware and software as well as soft skills such as media literacy and digital citizenship.
Supplemental Indicator	Percent of individuals who pass a context-relevant assessment in a technical, vocational, or professional skill set following participation in USG-assisted programs—these skills refer to a coherent collection of knowledge and practical skills that are necessary for exercising a trade or occupation, whether that occupation is traditionally taught in a TVET or through professional training.

- **Implementers should carefully plan assessments to ensure validity and reliability.**

- **Implementers should undertake assessments with program participants, not just program completers.**

- **Implementers should report on all indicator disaggregates** and, if using a sample, appropriately weight and extrapolate the data onto the activity population.

- **USAID's Office of Education is interested in engaging with partners and mission staff to learn how to better measure these indicators.** Partners and missions are encouraged to contribute to key learning questions listed at the end of this piece as well as to share any learning with USAID through the Positive Youth Development Learning Network hosted by Youth Power 2: Learning and Evaluation.

1. INTRODUCTION

The United States Agency for International Development (USAID) partners with public and private sector stakeholders around the world to prepare young people to thrive in the workforce, as well as in other aspects of their lives—building positive relationships with others, avoiding violence to resolve conflicts, practicing healthy behaviors, and making meaningful contributions to their societies. Youth who are productively employed contribute to a stable and strong workforce, economic prosperity, and global security. Yet as USAID's 2018 Education Policy affirms, these outcomes cannot be achieved without supporting youth's acquisition of foundational skills.

USAID YOUTH WORKFORCE DEVELOPMENT PROGRAMMING

USAID supports youth programming in 60 countries and youth and workforce development programming in over 30 countries. Between 2011 and 2015 USAID contributed to new or improved employment for 609,000 youth, and in 2017 alone, over 200,000 youth completed USAID workforce development activities.

USAID youth workforce development (YWFD) activities use varying objectives and methods that target the specific skills necessary to succeed in a particular local labor market, as well as to achieve additional cross-sectoral objectives such as peacebuilding or adolescent health. Despite this need for contextualization, a growing body of literature suggests that there are key common skills that predict success in the workforce across countries and contexts. These skills range from foundational academic skills such as literacy to the more recently recognized set of skills known as soft skills or social and emotional skills. While still nascent and experimental in some cases, a large and growing set of tools is available to measure these key skills and, importantly, changes in these skills. This widening consensus on key skills for workforce development, and positive youth development more broadly, offers an opportunity to more precisely define the impacts of workforce development activities on skills themselves, and, under certain circumstances, to link those changes in skills to changes in earnings and employment.

Based on a review of the literature and key informant interviews with implementers and other practitioners, as well as the 2018 USAID Education Policy highlighting the importance of key skills for youth themselves and for the broader journey to self-reliance, USAID has developed indicators to measure five skills: soft skills, reading, math, digital literacy, and technical/vocational/professional skills. Activities with applicable programming are required to report on the two skill indicators that are standard foreign assistance indicators and encouraged to report on the three supplemental indicators (see Figure 1).

FIGURE 1. Indicators

SKILL	PREVIOUS INDICATOR	NEW INDICATOR
Standard Foreign Assistance Indicators (required as applicable)		
Soft Skills	EG. 6-2 Number of individuals with improved skills following completion of USG-assisted workforce development programs	EG. 6-13 Percent of individuals with improved soft skills following participation in USG-assisted workforce development programs
Reading	N/A	ES.1-54 Percent of individuals with improved reading skills following participation in USG-assisted youth programs
Supplemental Indicators (encouraged as applicable)		
Math	N/A	Percent of individuals with improved math skills following participation in USG-assisted programs
Digital Literacy	N/A	Percent of individuals with improved digital literacy skills following participation in USG-assisted programs
Technical/ Vocational/ Professional Skills	N/A	Percent of individuals who pass a context-relevant assessment in a technical, vocational, or professional skill set following participation in USG-assisted programs

Objective of this How-To Note

This How-To Note presents USAID's justification for choosing these five skills for measurement as well as important information about measuring the corresponding skills indicators. This How-To Note complements other resources and guidance on USAID Office of Education indicators:

- Standard foreign assistance indicator PIRS and supplemental indicator PIRS provide basic guidance on measuring and reporting.
- FAQs provide additional information on measuring and reporting on each indicator. FAQs are updated regularly.
- More general information on the Office of Education's indicator framework can be found in the Office of Education's Indicator Toolkit, which details reporting expectations for missions and implementing partners.
- Specific information on measuring and reporting on employment and earnings indicators can be found in Measuring Employment and Earnings Using the Workforce Outcomes Reporting

Questionnaire (WORQ): A Toolkit, which provides details on implementing and analyzing USAID's Workforce Outcomes Reporting Questionnaire (WORQ).

Intended Use and Structure of the How-To Note

There are two primary audiences who will find this How-To Note helpful, though it is by no means limited to them. First, the How-To Note assists USAID's **implementing partners** as they develop designs for new activities and craft their monitoring, evaluation, and learning plans. The How-To Note particularly assists partners in calculating and reporting on the new indicators. Second, the How-To Note serves as a reference for **USAID mission staff** as they manage activities reporting on the indicators and aggregate indicator data to report to Washington.

The How-To Note is structured as follows. It begins with a summary of key take-aways that provides a high-level view of the note's content. Then it turns to a justification, based on the literature and practitioner experience, for measuring the five skills featured in these new indicators. The note then provides details on each of the five indicators as they are described in the PIRS, including recommended methods for measurement and suggested tools. Next, the note provides detailed instructions on how to calculate and report each of the indicators. Finally, the note discusses how USAID, missions, and implementing partners can use and learn from this data. Contact information for feedback and questions is provided in the conclusion.

This How-To Note will be most useful to key audiences if used in the following ways:

- **Implementing partners** preparing to use and report on any of the five skills indicators should, at a minimum, read the sub-sections of the Standard Foreign Assistance Indicators and/or Supplemental Indicators sections that correspond to the indicators the partner intends to use; the Measurement, Calculations, and Reporting Requirements section; and the Conclusion on using data and learning. Partners are also encouraged to read the Case for These Five Skills section, which provides a justification for the five skills chosen for indicator reporting.

- **Mission staff managing activities** reporting on any of the five indicators should pay close attention to the Key Take-Aways and the Measurement, Calculations, and Reporting Requirements sections so that they are prepared to assist implementing partners with appropriate reporting. Mission staff are also encouraged to read the Case for These Five Skills section, which provides a justification for the five skills chosen for indicator reporting.

- **Mission staff aggregating indicators for reporting** to Washington should pay special attention to the Measurement, Calculations, and Reporting Requirements section, which contains important information on how data should be reported by implementing partners to missions. Mission staff are also encouraged to read the Case for These Five Skills section, which provides a justification for the five skills chosen for indicator reporting.

2. THE CASE FOR THESE FIVE SKILLS

USAID recognizes the role of human capital—an individual's knowledge, skills, and experience—in employment and economic growth. In addition to education being a basic human right, USAID sees human capital as a prerequisite to improved employment and income at the individual level and to an

improved economy at the macro level.[1] While there are many other factors affecting employment and economic growth, there is significant consensus that knowledge and skills play a powerful role in individual and national prosperity.[2] As a result, many development activities seek to have an impact on the supply of a qualified workforce via improvements in education and training.

Human capital has often been measured simply in terms of years of schooling. It is increasingly clear, however, that it is not sufficient to measure human capital in such general terms. What matters more is determining the particular skills that youth need to gain, whether in school or through other means, and finding direct ways to measure their attainment. Through a targeted literature review and expert interviews with implementing organizations, researchers, USAID Mission staff, and other stakeholders, USAID uncovered five skill domains that are key to youth's work outcomes: soft skills, literacy, math, digital literacy, and technical/vocational/professional skills. These skills are not exhaustive of all the skills youth may draw upon to succeed;[3] however, these five skills domains currently have the greatest evidence of meaningful impact on positive workforce outcomes, including employment, retention, salary, and entrepreneurial success. Following is a summary of how each of the selected five skills has been empirically linked to workforce outcomes, sometimes causally, though more often via correlational studies, and how each continues to be the subject of active research and interest for scholars and practitioners.

Soft Skills

Over a decade and a half of economic research has shown that soft skills affect employment outcomes for individuals.[4] Economists Heckman and Kautz, for example, have advocated for greater attention to personality and character skills, including conscientiousness, persistence, work motivation, extraversion, emotional stability, social skills, and tolerance for risk. While measurement of such skills is complex, significant advancements have been made in this area as well.[5]

USAID—alongside other agencies such as the OECD and UNESCO—has spearheaded recent efforts to advance research and consensus on these skill domains. In particular, the large-scale USAID-funded literature review *Key "Soft Skills" That Foster Youth Workforce Success: Toward a Consensus Across Fields*[6] has encouraged programs to focus on at least a core set of five soft skills with the most widespread research support for malleability during the youth years and impact on positive workforce outcomes:

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1 2019 USAID Employment Strategic Framework. See also World Bank. (2018). "The World Development Report 2018: Learning to Realize Education's Promise." https://www.worldbank.org/en/publication/wdr2018; and Becker, G. (1994). Human Capital Revisited. Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education (3rd Edition). The University of Chicago Press. http://www.nber.org/chapters/c11229.pdf.

2 Fox, L., and Kaul, U. (2017). "What works for youth employment in low-income countries?" USAID.

3 Other foundational skills that are featured in some research on workforce outcomes include the "scientific method" and "financial literacy," with the latter of particular relevance for international development programming and included in many activities that focus on livelihoods and entrepreneurship. Given the relatively less well-developed state of research justifications, definition, and measurement of these two skills, they have not been adopted as standard foreign assistance indicators at this time, although this by no means suggests that projects should not consider addressing them in their programming. Where skills such as these constitute a core aspect of project goals, projects should measure them and record achievements through custom indicators specific to their projects.

4 World Bank (2017), "10 steps to build a work readiness assessment tool."

5 Heckman, J.J., and Kautz, T. (2013). Fostering and measuring skills: Interventions that improve character and cognition (No. w19656). National Bureau of Economic Research.

6 Lippman, L., Ryberg, R., Carney, R, and Moore, K. (2015). Key "Soft Skills" that Foster Youth Workforce Success: Toward a Consensus Across Fields. Washington, DC: USAID Workforce Connections. Retrieved from https://www.usaid.gov/sites/default/files/documents/1865/KeySoftSkills.pdf

social skills, higher-order thinking skills, self-control, positive self-concept, and communication. Other studies under the USAID YouthPower activity analyzed the most important skills for cross-sectoral positive youth outcomes, including sexual and reproductive health as well as violence prevention,[7] and provided guidance on how these skills can be taught[8] and measured.[9] Nonetheless, this discussion is still in its formative stages, with new evidence and approaches being generated each year and significant need for further investigation and consolidation of priorities and methods.

Reading and Math

Literacy—reading and writing—and math are the skills that researchers have most often emphasized when discussing skills and human capital. Literacy skills and math skills are widely considered to be prerequisites to any higher levels of education—including workforce training—and to nearly all types of higher-earning work. Yet poor-quality early education, coupled with school drop-out, leaves many youth lacking these core skills.

Research has also consistently confirmed the importance of literacy for both employment and earnings—independently of an individual's years of formal education.[10] A similar research consensus affirms the importance of math for workforce outcomes, although its significance is often difficult to disentangle from that of literacy, since these two skill levels are so closely correlated in most populations.[11] Analysis of the OECD Program for the International Assessment of Adult Competencies (PIAAC, which measures the skills of those aged 16 and older), for example, has confirmed that higher wages are strongly correlated to reading, writing, and math skills—and that these skill levels as confirmed by direct assessment are more predictive than years of education alone.[12] A sophisticated longitudinal study of changes in literacy levels and earnings has also confirmed that there is a positive relationship between improved literacy skills and improved earnings.[13] While effects may not be identical between contexts, the evidence is sufficiently strong to continue influencing national and international agendas, including the 2018 USAID Education Policy and the Sustainable Development Goals (SDGs), both of which emphasize the importance of teaching and measuring literacy and math for children and youth.

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7 Gates, S., Lippman, L., Sadowen, N., Burke, H., Diener, O., and and Malkin, M. (2016). Key Soft Skills for Cross-Sectoral Youth Outcomes. Washington, DC: USAID YouthPower: Implementation. Retrieved from http://www.youthpower.org/resources/key-soft-skills-cross-sectoral-youth-outcomes

8 Soares, F., Babb, S., Diener, O., Gates, S., and and Ignatowski, C. (2017). Guiding principles for building soft skills among adolescents and young adults. Washington, DC: USAID YouthPower Implementation.

9 Galloway, T., Lippman, L., Burke, H., Diener, O., and and Gates, S. (2017). Measuring soft skills and life skills in international youth development programs: A review and inventory of tools. Washington, DC: USAID YouthPower: Implementation.

10 Shomos, Anthony. (2010) "Links Between Literacy and Numeracy Skills and Labour Market Outcomes." Productivity Commission Staff Working Paper, August 2010. Available at SSRN: https://ssrn.com/abstract=1802872. Also see Oxenham, J., Diallo, A. H., Katahoire, A. R., Mwangi, A. P., and Sall, O. (2012). "Skills and literacy training for better livelihoods: A review of approaches and experiences." Journal AED—Adult Education and Development. Available at https://www.dvv-international.de/en/adult-education-and-development/ausgaben/number-58/literacy-and-livelihoods/skills-and-literacy-training-for-better-livelihoods/

11 Parsons, Samantha and Bynner, John. (2005). "Does numeracy matter more?" London, UK: National Research and development Centre for Adult Literacy and Numeracy.

12 Grotlüschen, A. et al. (2016). "Adults with Low Proficiency in Literacy or Numeracy," OECD Education Working Papers, No. 131, OECD Publishing, Paris. http://dx.doi.org/10.1787/5jm0v44bnmnx-en, citing Hanushek, E.A., Schwerdt, G., Wiederhold, S., and Woessmann, L. (2013). "Returns to skills around the world: Evidence from PIAAC." Paris: OECD Education Working Paper No. 101.

13 Reder, S. (2010). "Adult literacy development and economic growth." National Institute for Literacy. https://files.eric.ed.gov/fulltext/ED512441.pdf

Standards for literacy and math development are well established in most contexts, and there are a wide variety of assessments, particularly for literacy. Historically, the discussion around adult learning in these areas focused on simply attaining "basic" skills—such as reading simple words or sentences—that make an adult "literate." However, the discourse has shifted in the past decade or so toward a recognition of literacy as a continuum of different proficiency levels along which one can move in the course of a lifetime. Different levels of proficiency may be related to different types of work opportunities, and, therefore, there is a need for assessments that allow people to demonstrate their literacy and math skills at a range of different levels.[14]

Digital Literacy

There is an ongoing debate internationally as to whether digital literacy should also be considered a foundational capacity on par with traditional text-based literacy and math. Scholarship on the "digital divide" has emphasized how lack of access to computers and digital devices, as well as lack of digital skills, maps onto other forms of disadvantage to create entrenched barriers for the economic advancement of certain populations and impedes political participation and learning more generally.[15]

While there is growing evidence of the importance of digital literacy for employability and entrepreneurial market access,[16] it is not as well-developed as that for literacy and math. Nonetheless, digital literacy is considered a key youth and adult skill in the SDGs, and it is the only youth workforce skill indicator selected for SDG global measurement.[17] The USAID Education Policy also emphasizes the importance of digital literacy skills. A wide range of assessments—many of them commercial—now exists to measure the ability to use certain hardware and software; there has also been work on assessing related issues such as information and media literacy. This is a rapidly evolving area of discourse and practice.

Technical, Vocational, and Professional Skills

Technical, vocational, or professional skills are defined as "the knowledge, practical competencies, know-how, and attitudes necessary to perform a certain trade or occupation in the labor market."[18] A key feature of many workforce development activities, technical, vocational, and professional training in low and middle income countries has been shown to have positive and significant—though varied—effects on paid employment, formal employment, and monthly earnings, but not on self-employment earnings.[19] While such training, assessment, and even certification does not automatically lead to better employment or business opportunities and is not a mechanism for job-creation, lack of occupation-specific skills can often hinder the ability to earn a livelihood.

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14 UNESCO. (2006). "Understandings of Literacy" in Education for All Global Monitoring Report. p. 149-150
15 Norris, Pippa. 2001. Digital divide: Civic engagement, information poverty, and the Internet worldwide. Cambridge, UK: Cambridge University Press.
16 Garrido, M., Sullivan, J., and Gordan, A. (2012). "Understanding the links between ICT skills training and employability: An analytical framework." Information technologies and international development, Vol. 8, No. 2.
17 https://unstats.un.org/sdgs/metadata/
18 UNESCO-UNEVOC Glossary. https://unevoc.unesco.org/go.php?q=TVETipedia+glossary+A-Z&filt=all&id=666
19 Tripney, J., Hombrados, J., Newman, M., Hovish, K., Brown, C., Steinka-Fry, K., and Wilkey, E. (2013). "Technical and Vocational Education and Training (TVET) Interventions to Improve the Employability and Employment of Young People in Low- and Middle-Income Countries: A Systematic Review." The Campbell Collaboration: Oslo, Norway.

Most countries have a vocational qualification and certification system. Although these are of varying quality, globally there is a well-established practice of industry, professional, and labor organizations determining the skills someone must possess—and how these skills will be assessed—before an individual is accepted to work in a certain field. Increasingly, such assessments are also used to prove capacity with respect to certain types of self-employment and entrepreneurship, including online freelancing. The focus of assessment in this skill domain is typically on demonstrating a certain degree of proficiency in the required subject-specific knowledge and routine expertise needed to safely or effectively perform a range of tasks.[20]

* * *

It is clear that the current state of the field allows for the definition and measurement of specific skill domains that are relevant for workforce outcomes. The following sections provide additional information on measuring these five skills, starting with the two skills that are measured through standard foreign assistance indicators.

3. STANDARD FOREIGN ASSISTANCE INDICATORS

Soft Skills

The new standard indicator for soft skills measures the "**Percent of individuals with improved soft skills following participation in USG-assisted workforce development programs**." Following the definition adopted in the 2018 USAID Education Policy, "soft skills" are defined as "a broad set of skills, competencies, behaviors, attitudes, and personal qualities that enable people to effectively navigate their environment, work well with others, perform well, and achieve their goals" (Lippman et al. 2015).

Soft skills measured and reported under this indicator should include skills that are relevant for programming or are specifically in demand for a targeted sector. Implementers will need to consider participant characteristics and their existing soft skills, activity goals, and the preferences of employers in the particular implementation context, among other factors. Where activities target workforce development outcomes, measurement of soft skills for this indicator should prioritize skills that have some broader evidence of influence on positive workforce outcomes as stated in USAID's "Key 'Soft Skills' that Foster Youth Workforce Success" (see pages 37-38 and 40, summarized in Figure 2), if they are relevant to programming.

USAID encourages missions and implementers to become familiar with the internationally published research and to conduct their own context analyses in order to determine the soft skills that have the greatest impact on the youth workforce development goals for their targeted populations.[21]

20 World Bank. (2017). "Work readiness assessment tools in comparison: From administration to z-scores"
21 Different tools and publications cited in this document can help with this prioritization. For one example of a soft skills activity design and curriculum planning tool, see Honeyman, Catherine. (2018). "Soft Skills Development: Guiding Notes for Project and Curriculum Design and Evaluation." World Learning. https://www.youthpower.org/resources/soft-skills-development-guiding-notes-project-and-curriculum-design-and-evaluation

Assessment Approach

For this indicator, soft skills should be measured using a longitudinal[22] pre/post assessment in which the same individuals are assessed at the beginning and the end of the program. The indicator measures the total number of individuals, extrapolated from the sample to all participants, who demonstrated a meaningful improvement from the pre-test composite score (typically a sum or average of all test items) to the post-test composite score.

Assessments of soft skills may rely on self-reporting or self-assessment methods because these are still the most common form of existing validated assessment tools. However, USAID welcomes efforts to explore other assessment options, such as direct assessment or assessment provided by a teacher or employer, as well. Direct assessment includes scenario-based questions, observation of the skill as it is being performed, or completion of an assigned task that requires the application of certain soft skills. Such direct assessment methods can provide greater insight into participant ability to exercise a skill in practice. At the same time, these methods pose particular challenges for both assessment validity and reliability. Known challenges include potential cultural bias, problems with inter-rater reliability, and inconsistent participant interpretation of situational judgment or task-based prompts. Answer keys or rubrics must be carefully developed and tested to detect and then mitigate these problems through revisions and reconfirmation.

FIGURE 2. SOFT SKILLS

Soft skills correlated with positive YWFD outcomes (considering employment, job retention, income, and entrepreneurial success together) with the greatest research support:

- Social skills
- Higher-order thinking skills
- Self-control
- Positive self-concept
- Communication

Other soft skills correlated to WFD outcomes with secondary broad research support:

- Hard work and dependability
- Self-motivation
- Teamwork
- Responsibility
- Positive attitude

Additional soft skills correlated specifically to successful entrepreneurship with some research support:

- Initiative
- Adaptability
- Creativity
- Goal-orientation

Once assessment choices have been made, implementers must determine what constitutes an improvement in soft skills in terms of these assessment measures. Implementers should only report "meaningful" improvements in soft skills, and should define what "meaningful" means before analyzing endline data. What constitutes a "meaningful" improvement in soft skills will differ depending on context and assessment tool. In defining what constitutes meaningful change, implementers should consider factors such as:

22 Given the nature of USAID's YWFD programming—which takes place in diverse settings and time horizons—and its emphasis on individual employment and earnings outcomes, longitudinal comparison of individuals' skill development over time is strongly encouraged.

- *The sensitivity or degree of subtlety of the chosen assessment instrument*. This is typically dependent on the number of items or tasks in the assessment, and on the response or evaluation scale for each item/task. Assessments with more items and a wider scale for each item will usually be able to detect more subtle changes in skill level, although there can be tradeoffs such as over-tasking participants' attention spans.
- *The baseline skill level of participants*. Participants with low levels of a skill at baseline might quickly develop and perform that skill as a beginner would, while participants with higher levels of a skill at baseline might make slower, smaller improvements because of the complexity of refining a skill with which they already have some experience.
- *Program characteristics.* Programs of different intensity and duration, or dosage, will expect to have different effects on participants.

In most cases, "meaningful" change should be defined in a way that is more significant than just improvement on a single item or a small percentage point increase, as such small changes may fall within measurement error rather than showing a true increase in ability. In other words, very small changes might happen randomly, such as through participant response mistakes or guessing, while larger changes are less likely to happen by accident. Further information for all of the skills indicators on assessment validation, piloting, and determining significant improvement is provided in the Measurement, Calculation, and Reporting Requirements section of this How-To Note and in USAID's Best Practices for Measuring and Reporting Youth Skills Indicators. In addition, this topic is raised as an important learning agenda item in the Conclusion.

Assessment Tools

Below are some examples of assessment tools that currently exist for soft skills,[23] presented in alphabetical order, focusing on those with published assessment items or other easy modes of access, and excluding assessments (such as the International Key 'Soft Skills' that Foster Workforce Success Civic and Citizenship Education Study) that allow only periodic controlled international application of the assessment. This table does not include any assessments that use a rotated test design.[24] However, it does include assessments for which there is no published verification of their ability to measure individual-level change: implementers will need to verify the applicability of the instrument for that purpose (please see the USAID's Best Practices for Measuring and Reporting Youth Skills Indicators for further clarification of these terms). When assessments have not been previously used in the context or with the target population, context-relevance must be established through validation or pilot testing as well.

Table 1 is an illustrative list, not a definitive or complete one, since this area of assessment is rapidly evolving and in some cases there have been multiple psychometric scales developed to measure a specific soft skill on its own, not all of which can be listed here (see, for example, the Proactive Personality Scale below). Further guidance and information can be found in the publication Measuring Soft & Life Skills in International Youth Development Programs and in the Positive Youth Development

23 For further information and discussion of assessment tool options, please see Youth Power Action (2017). "Measuring Soft Skills and Life Skills in International Youth Development Programs – A Review and Inventory of Tools"; and Youth Power Learning (2016). "Positive Youth Development Measurement Toolkit: A Practical Guide for Implementers of Youth Programs," Annex F.

24 A "rotated test design" or "matrix sampling" subdivides a large set of test items into different versions of the assessment so that each test-taker only responds to a portion of the total list of questions.

Measurement Toolkit. Implementers may also create their own assessments, following the guidance provided later in this document on ensuring validity, reliability, and context-relevance. However, unless such assessment development is explicitly provided for in an activity's budget and there is a compelling reason to develop a new tool, USAID encourages implementers to examine existing tools and published research to determine whether existing validated scales (a set of items intended to provide a reliable measure of a particular skill construct), existing validated individual items, or other existing assessment tools such as observation rubrics, could be adopted or adapted for the customized assessment.

TABLE 2. Suggested Soft Skills Assessment Tools, in Alphabetical Order

TOOL	CREATOR	RESTRICTED/ FEE CHARGED	ESTABLISHED USE CONTEXTS	SOFT SKILLS	VALIDATED FOR YOUTH	VALIDATED[25] FOR TESTING INDIVIDUAL-LEVEL CHANGE
Anchored Big Five Inventory	EDC	No	Philippines, Rwanda, Honduras, Djibouti, DRC	Conscientiousness, agreeableness, emotional stability, openness, extraversion	Yes, including out of school youth, secondary school grads and students	Unclear: analysis is reported by groups
California Healthy Kids Survey (CHKS) Resilience & Youth Development modules	California Department of Education	No, publicly released items are available	United States, Australia, China, Jamaica, South Africa, Turkey; English and Spanish	Cooperation and communication, self-efficacy, empathy, problem-solving, self-awareness, and goals and aspirations	Yes	Showed low test-retest reliability in the United States; validity for measuring individual-level change must be tested in context
Chinese Positive Youth Development Scale	Daniel T.L. Shek, Andrew M. H. Siu	No	Hong Kong	Positive self-concept, self-control, higher-order thinking, social skills, communication, goal orientation, empathy, responsibility	Yes	Yes
Jamaica Youth Survey	World Bank	No	Jamaica	Positive self-concept, self-control, higher-order thinking skills, social skills, goal orientation	Yes	Yes

25 We use "validated" to indicate that a tool has been used in a certain way or has been reported as validated for certain populations or purposes, recognizing that various practitioners and scholars use this term in different ways.

TOOL	CREATOR	RESTRICTED/ FEE CHARGED	ESTABLISHED USE CONTEXTS	SOFT SKILLS	VALIDATED FOR YOUTH	VALIDATED[25] FOR TESTING INDIVIDUAL-LEVEL CHANGE
LSMS Malawi Soft Skills Module	World Bank GLD	No, on WB website	Malawi	Grit, perseverance	No, not specifically	Yes, including with impact assessment
Passport to Success 5-question Soft Skills Assessment	IYF	No, but still in development	Portuguese, Kiswahili	Problem-solving, communication skills, teamwork, positive self-concept, self-control	Yes	No, working on testing in more contexts.
Skills to Succeed Employability Assessment Tool	Save the Children	Yes	Philippines, Mexico, Indonesia, Bangladesh, Vietnam, Ethiopia, Uganda	Positive self-concept, self-control, social skills, communication skills, problem-solving skills, job search skills	Yes	No, designed for pre- and post-assessment and group-level measurement of program effectiveness
The Proactive Personality Scale	Bateman & Crant, 1993	No - published items	U.S.-based	Measures self-motivation or initiative ("proactive personality")	Yes	Publications establish validity and internal reliability; not yet tested for detecting individual-level change
Work Readiness Assessment	IYF & ACT	Yes, will require a fee (still under development)	Mexico, El Salvador, Indonesia, India, South Africa, Jordan	Conscientiousness, integrity, cooperation/teamwork, emotional responsiveness, open-mindedness/creative orientation, and social/leadership orientation	Yes	Unclear, provides an individual report but not designed to detect change

TOOL	CREATOR	RESTRICTED/ FEE CHARGED	ESTABLISHED USE CONTEXTS	SOFT SKILLS	VALIDATED FOR YOUTH	VALIDATED[25] FOR TESTING INDIVIDUAL-LEVEL CHANGE
Work Ready Now! Credential Test	EDC	Yes, in conjunction with WRN! curriculum; may not be available	Bosnia, Philippines, Indonesia, Guyana, Macedonia, Rwanda, Senegal	Teamwork, problem-solving, customer service	Yes	Yes, pre- and post-tests
Work-Based Learning Student Skills Assessment Rubric	Tennessee Department of Education	No, available online	U.S.-based	Observation rubric: creativity and innovation, critical thinking, speaking & listening, collaboration	Yes	Unclear: included as an example of an observation-based assessment tool
Youth Leadership Index	CARE	No, free and online	Three countries; nine countries in previous version	Self-confidence, decision-making, problem solving and organizational skills, sense of voice, ability to motivate others	Yes	Unclear, but suggests use for pre- and post-tests
YouthPower Action Soft Skills Assessment	FHI360	No, produced by YouthPower Action; to be open source	Guatemala, Uganda	Positive self-concept, negative self-concept, higher-order thinking skills, communication and social skills	Yes	Yes, pre- and post-tests

Reading Skills

The new standard indicator for reading skills measures the "**Percent of individuals with improved reading skills following participation in USG-assisted youth programs**." The focus of this indicator is on skills acquired through programming that reaches youth and is often outside of the formal school system; the reading skills of children in primary school are addressed through separate standard foreign assistance indicators. Reading skills include phonological awareness, word recognition, vocabulary knowledge, oral reading fluency, and comprehension, as well as higher-level skills including locating information, paraphrasing, inferring, interpreting, integrating, evaluating competing information, and others.

This reading skills indicator does not include measurement of writing skills. Although writing skills are related to reading and have an independent relationship to improved earnings,[26] the assessment of writing is much more resource intensive. Writing assessments require test-takers to produce original text, which must then be reviewed individually,[27] a process that requires many enumerators and can lead to difficulties with inter-rater reliability. For these reasons, USAID does not wish to require activities to measure writing skills at this time, but rather to focus measurement and reporting on reading.

Assessment Approach

For this indicator, reading skills should be measured using a longitudinal[28] pre/post assessment in which the same individuals are assessed at the beginning and the end of the program. The indicator measures the total number of individuals, extrapolated from the sample to all participants, who improved their reading level from the pre-test to the post-test. The assessment should be direct, in that it requires test-takers to demonstrate their mastery of the skills in some way rather than simply reporting on their own behavior or sense of mastery.

Implementers should select assessment tools and methods that best match both the current and target reading levels of their population. It is particularly important to ensure that there are enough items at all the appropriate levels of difficulty along the spectrum from current to target levels, including some items that are slightly below the minimum and above the maximum expected performance. This helps avoid a "floor effect," in which all the items are too difficult to be answered by some participants; and a "ceiling effect," in which there are not enough difficult items to capture performance at the upper end of the participant spectrum.

For this indicator, "improvement" is defined as movement from one reading level at pre-test to a higher level at post-test, as determined by the assessment used. If the assessment does not have its own levels associated with scores or score ranges, then implementers may map assessment scores onto the reading levels rubric included below. This rubric reflects internationally validated descriptions of different reading levels and reading tasks that are meaningfully distinct from one another in terms of underlying

26 See, for example, Grotlüschen, A. et al. (2016). "Adults with Low Proficiency in Literacy or Numeracy," OECD Education Working Papers, No. 131, OECD Publishing, Paris, citing Hanushek, E. A., Schwerdt, G., Wiederhold, S., and Woessmann, L. (2013). "Returns to skills around the world: Evidence from PIAAC." Paris: OECD Education Working Paper No. 101; and Reder, S. (2010). "Adult literacy development and economic growth." National Institute for Literacy.
27 Or by using artificial intelligence systems, the design of which is also resource intensive.
28 Given the nature of USAID's YWFD programming—which takes place in diverse settings and time horizons—and its emphasis on individual employment and earnings outcomes, longitudinal comparison of individuals' skill development over time is strongly encouraged.

cognitive processes and demands.[29] These proficiency levels are used in common by a range of international assessments, led by the PIAAC assessment and also including the National Adult Literacy Survey (NALS), the International Adult Literacy Survey (IALS), the Adult Literacy and Lifeskills Survey (ALL), the Literacy Assessment and Monitoring Programme (LAMP), and Skills Toward Employment and Productivity (STEP), and they have been recommended for adoption for global SDG indicator reporting. To the standard PIAAC levels, USAID has added below some clarifications for the definition of a "Non-Reader" level and a "Reading Beginner" level that fall below the lowest level described by the PIAAC framework.

When determining benchmark levels for assessments that do not already have them defined, implementers are encouraged to consider the approaches described in USAID's Policy Linking Toolkit, which allow for contextual determination of benchmarks that are based on the levels described in the rubric below.

TABLE 3. Reading Levels Rubric to be Used in Benchmarking Improvement, Based on PIAAC Rubric with Additional Lower Levels

ACHIEVEMENT LEVEL AND SCORE RANGE	TASK TYPE DESCRIPTIONS AT DIFFERENT LITERACY LEVELS (BASED ON PIAAC TASK DESCRIPTIONS WITH ADDITIONAL LOWER LEVELS ADDED)
Non-Reader (added for this How-To Note; not defined by PIAAC)	Unable to read even a single word. Or unable to achieve above a random or chance-based score on a measure of very basic literacy skills, such as that measured by OLA, STEP, or PIAAC's "reading components."
Reading Beginner (added for this How-To Note; not defined by PIAAC)	Able to read at least one unfamiliar word. Or above a random or chance-based score on a measure of basic literacy skills.
Reading Foundations (labeled by PIAAC as "Below Level 1")	"The tasks at this level require the respondent to read brief texts on familiar topics to locate a single piece of specific information. There is seldom any competing information in the text, and the requested information is identical in form to information in the question or directive. The respondent may be required to locate information in short continuous texts. However, in this case, the information can be located as if the text were non-continuous in format. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features. Tasks below Level 1 [at Level 0] do not make use of any features specific to digital texts." (PIAAC)
Reading Level 1 (equivalent to PIAAC score of 176 – 225)	"Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. [...] Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognizing basic vocabulary determining the meaning of sentences, and reading paragraphs of text is expected." (PIAAC)

29 Murray, T. (2018). "Functional literacy and numeracy: Definitions and options for measurement of SDG 4.6." GAML/UNESCO. See p. 27.

ACHIEVEMENT LEVEL AND SCORE RANGE	TASK TYPE DESCRIPTIONS AT DIFFERENT LITERACY LEVELS (BASED ON PIAAC TASK DESCRIPTIONS WITH ADDITIONAL LOWER LEVELS ADDED)
Reading Level 2 (equivalent to PIAAC score of 226 – 275)	"At this level, the medium of texts may be digital or printed, and texts may comprise continuous, non-continuous, or mixed types. Tasks at this level require respondents to make matches between the text and information, and may require paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to • cycle through or integrate two or more pieces of information based on criteria; • compare and contrast or reason about information requested in the question; or • navigate within digital texts to access and identify information from various parts of a document." (PIAAC)
Reading Level 3 (equivalent to PIAAC score of 276 – 325)	"Texts at this level are often dense or lengthy, and include continuous, non-continuous, mixed, or multiple pages of text. Understanding text and rhetorical structures become more central to successfully completing tasks, especially navigating complex digital texts. Tasks require the respondent to identify, interpret, or evaluate one or more pieces of information, and often require varying levels of inference. Many tasks require the respondent to construct meaning across larger chunks of text or perform multi-step operations in order to identify and formulate responses. Often tasks also demand that the respondent disregard irrelevant or inappropriate content to answer accurately. Competing information is often present, but it is not more prominent than the correct information." (PIAAC)
Reading Level 4 (equivalent to PIAAC score of 326 – 375)	"Tasks at this level often require respondents to perform multiple-step operations to integrate, interpret, or synthesize information from complex or lengthy continuous, non-continuous, mixed, or multiple type texts. Complex inferences and application of background knowledge may be needed to perform the task successfully. Many tasks require identifying and understanding one or more specific, non-central idea(s) in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent. Competing information is present and sometimes seemingly as prominent as correct information." (PIAAC)
Reading Level 5 (equivalent to PIAAC score of 376 – 500)	"At this level, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence-based arguments. Application and evaluation of logical and conceptual models of ideas may be required to accomplish tasks. Evaluating reliability of evidentiary sources and selecting key information is frequently a requirement. Tasks often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialized background knowledge." (PIAAC)

Assessment Tools

Below are some examples of assessment tools that currently exist for measuring youth reading skills, presented in alphabetical order and focusing on those with published assessment items or other easy modes of access, and excluding assessments such as PISA and PIAAC that allow only periodic controlled international application of the assessment. This table does include one assessment that uses a rotated test design[30] (STEP) because of its utility as a streamlined reading assessment designed for youth and adults that covers the full range from reading beginner to higher levels; using this assessment tool would require verifying the validity and reliability of using just one of the test booklets with all participants. This

30 A "rotated test design" or "matrix sampling" subdivides a large set of test items into different versions of the assessment so that each test-taker only responds to a portion of the total list of questions.

list also includes assessments for which there is no published verification of their ability to measure individual-level change: implementers are encouraged to verify the applicability of the instrument for that purpose. Please see the Measurement section for further clarification of these terms.

This is an illustrative list, not a definitive or complete one. Implementers may also create their own assessments, following the guidance provided in USAID's Best Practices for Measuring and Reporting Youth Skills Indicators on ensuring validity, reliability, and context-relevance, as well as ensuring that the assessment is criterion-based (based on skill level standards rather than scoring participants relative to other participants) and is not subject to corruption, cheating, or score inflation. When an assessment is developed in the context of an activity, the assessment should be planned and provided for in the activity's Monitoring, Evaluation, and Learning (MEL) plan and budget.

TABLE 4. Suggested Reading Assessment Tools, in Alphabetical Order

TOOL	CREATOR	RESTRICTED/ FEE CHARGED	ESTABLISHED USE CONTEXTS	READING LEVEL	VALIDATED FOR YOUTH	VALIDATED[31] FOR TESTING INDIVIDUAL-LEVEL CHANGE	SCALE
LAMP and mini-LAMP Literacy Assessment and Monitoring Program	UNESCO Institute of Statistics	No: available by writing to UIS	Global (Jordan, Mongolia, Palestine, etc.)	Basic to high-level literacy	Yes	Unclear	100-point scale translated to 5-level rubric, similar to PIACC
OLA/ eOLA Out of School Literacy Assessment / Electronic...	EDC	Yes, but open to discussing USAID use	Liberia, Rwanda, Guyana, Ethiopia, Mali	Low levels of literacy (reading beginner to foundations)	Yes	Yes, and has different matched pre- and post-assessments	Lower than PIACC levels
People's Action for Learning assessment tools	PAL Network	No: available online	14 countries; some two dozen languages	Low levels of literacy (reading beginner to foundations)	For children, but also tested for 14-18-year-olds	Yes, individual	Own leveling system (four levels, all below PIAAC levels)
Rapid Assessment of Reading Skills	Lexia	Yes: fee charged	Unclear	Basic to high-level literacy	Yes, up to high school	Unclear	Own scoring guide

31 We use "validated" to indicate that a tool has been used in a certain way or has been reported as validated for certain populations or purposes, recognizing that various practitioners and scholars use this term in different ways.

TOOL	CREATOR	RESTRICTED/ FEE CHARGED	ESTABLISHED USE CONTEXTS	READING LEVEL	VALIDATED FOR YOUTH	VALIDATED[31] FOR TESTING INDIVIDUAL-LEVEL CHANGE	SCALE
The STEP Skills Measurement Program	World Bank	No	Global	Basic to high-level literacy	Yes, age 15-64	No: group level; requires verifying the validity and reliability of using just one of the available test booklets for all participants	Uses PIACC rubric for literacy

There is also a very wide range of reading assessment tools that have been developed for measuring reading skills in basic education;[32] some of these, such as DIBELS,[33] are free and available online. Many of these tools may be adaptable to the youth age group and to new contexts. Language adaptation may pose more complex challenges, however. See USAID's Best Practices for Measuring and Reporting Youth Skills Indicators for further details.

4. SUPPLEMENTAL INDICATORS

In addition to the new standard foreign assistance skills indicators introduced in the previous section, USAID is also introducing three supplemental indicators with relatively defined methodologies to promote increased learning around assessing and measuring the impact of these additional skills areas. These supplemental indicators apply to math skills, digital literacy skills, and technical, vocational, and professional skills. Measurement of these supplemental indicators is not required. However, USAID encourages implementers to assess and report on them whenever feasible to add to the state of knowledge on each skill area. As learning advances, some or all of these may be adopted as standard indicators in the future.

Math

The supplemental indicator for math skills measures the "**percent of individuals with improved math skills following participation in USG-assisted programs**." The focus of this indicator is on skills acquired through programming that reaches youth and is typically outside of the formal school system; the math skills of children in primary school are addressed through separate supplemental indicators. Math skills include the skills necessary to "process, interpret, and communicate numerical, quantitative, spatial, statistical, and mathematical information in ways that are appropriate for a variety of contexts" (UNESCO).

Math skills include formal mathematical symbols and techniques, but they are not limited to such traditional academic or school-based approaches. There is ample research around the ways that math skills are developed and practiced in everyday life, and this indicator is inclusive of such informal and everyday usages.

Assessment Approach

For this indicator, math skills should be measured using a longitudinal[34] pre/post assessment in which the same individuals are assessed at the beginning and the end of the program. The indicator measures the total number of individuals, extrapolated from the sample to all participants, who improved their math level from the pre-test to the post-test. The assessment should be direct, in that it requires test-takers to actually demonstrate their mastery of the skills in some way, rather than simply reporting on their own behavior or sense of mastery.

32 http://www.readingrockets.org/article/early reading-assessment-guiding-tool-instruction; also see https://www.sedl.org/reading/rad/list.html
33 https://dibels.uoregon.edu/assessment/index/material/
34 Given the nature of USAID's YWFD programming—which takes place in diverse settings and time horizons—and its emphasis on individual employment and earnings outcomes, longitudinal comparison of individuals' skill development over time is strongly encouraged.

Implementers should select assessment tools and methods that best match both the current and target math levels of their population. It is particularly important to ensure that there are enough items at all the appropriate levels of difficulty along the spectrum from current to target levels, including some items that are slightly below the minimum and above the maximum expected performance. This helps avoid a "floor effect," in which all the items are too difficult to be answered by some participants, and a "ceiling effect," in which there are not enough difficult items to capture performance at the upper end of the participant spectrum.

For this indicator, "improvement" is defined as movement from one math level at pre-test to a higher level at post-test, as determined by the assessment used. If the assessment does not have its own levels associated with scores or score ranges, then implementers may map assessment scores onto the math levels rubric included below.[35] This rubric reflects internationally validated descriptions of different math skill levels and math tasks that are meaningfully distinct from one another in terms of underlying cognitive processes and demands.[36] These proficiency levels are used in common by a range of international assessments, led by the PIAAC assessment. To the standard PIAAC levels, USAID has added below some clarifications for the definition of a "Non-Math User" level, and a "Math Beginner" level that falls below the lowest level described by the PIAAC framework.

When determining benchmark levels for assessments that do not already have them defined, activities are encouraged to consider the approaches described in USAID's Policy Linking Toolkit, which allow for contextual determination of benchmarks that are based on the levels described in the rubric below.

TABLE 5. Math Levels Rubric to be Used in Benchmarking Improvement, Based on PIAAC Rubric with Additional Lower Levels

ACHIEVEMENT LEVEL AND SCORE RANGE	MATH SKILL LEVEL DESCRIPTIONS (BASED ON PIAAC TASK DESCRIPTIONS WITH ADDITIONAL LOWER LEVELS ADDED)
Non-Math User (added for this How-To Note; not defined by PIAAC)	Unable to achieve above a random or chance-based score on a measure of basic math skills, such as those described in the example assessments table below. Cannot recognize the meaning of written digits or positions on a number line. Has no or extremely limited mental calculation skills.
Math Beginner (added for this How-To Note; not defined by PIAAC)	Able to say, verbally understand, and read numbers up to 100. Able to compare numbers using "equal to," "more than," and "less than." Able to orally perform simple mental calculation skills including adding and subtracting within 20 OR above a random or chance-based score on a measure of basic math skills. Additional specific levels could be defined within this, as relevant for the chosen assessment.

35 USAID encourages implementers to use the approaches described in its Policy Linking Toolkit to map an assessment onto the rubric.
36 Murray, T. (2018). "Functional literacy and numeracy: Definitions and options for measurement of SDG 4.6." GAML/UNESCO. See p. 27.

ACHIEVEMENT LEVEL AND SCORE RANGE	MATH SKILL LEVEL DESCRIPTIONS (BASED ON PIAAC TASK DESCRIPTIONS WITH ADDITIONAL LOWER LEVELS ADDED)
Math Foundations (labeled by PIAAC as "Below Level 1")	"Tasks at this level require the respondents to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognizing common spatial representations in concrete, familiar contexts where the mathematical content is explicit with little or no text or distractors." (PIAAC)
Math Level 1 (equivalent to PIAAC score of 176 – 225)	"Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit with little text and minimal distractors. Tasks usually require one-step or simple processes involving counting, sorting, performing basic arithmetic operations, understanding simple percents such as 50 percent, and locating and identifying elements of simple or common graphical or spatial representations." (PIAAC)
Math Level 2 (equivalent to PIAAC score of 226 – 275)	"Tasks at this level require the respondent to identify and act on mathematical information and ideas embedded in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors. Tasks tend to require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents, and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables, and graphs." (PIAAC)
Math Level 3 (equivalent to PIAAC score of 276 – 325)	"Tasks at this level require the respondent to understand mathematical information that may be less explicit, embedded in contexts that are not always familiar, and represented in more complex ways. Tasks require several steps and may involve the choice of problem-solving strategies and relevant processes. Tasks tend to require the application of number sense and spatial sense; recognizing and working with mathematical relationships, patterns, and proportions expressed in verbal or numerical form; and interpretation and basic analysis of data and statistics in texts, tables and graphs." (PIAAC)
Math Level 4 (equivalent to PIAAC score of 326 – 375)	"Tasks at this level require the respondent to understand a broad range of mathematical information that may be complex, abstract, or embedded in unfamiliar contexts. These tasks involve undertaking multiple steps and choosing relevant problem-solving strategies and processes. Tasks tend to require analysis and more complex reasoning about quantities and data; statistics and chance; spatial relationships; and change, proportions, and formulas. Tasks at this level may also require understanding arguments or communicating well-reasoned explanations for answers or choices." (PIAAC)
Math Level 5 (equivalent to PIAAC score of 376 - 500)	"Tasks at this level require the respondent to understand complex representations and abstract and formal mathematical and statistical ideas, possibly embedded in complex texts. Respondents may have to integrate multiple types of mathematical information where considerable translation or interpretation is required; draw inferences; develop or work with mathematical arguments or models; and justify, evaluate, and critically reflect upon solutions or choices." (PIAAC)

Assessment Tools

Below are some examples of assessment tools that currently exist for measuring youth math skills, focusing on those with published assessment items or other easy modes of access, and excluding assessments such as the Programme for International Student Assessment (PISA), PIAAC, and the Trends in International Mathematics and Science Study (TIMSS) that allow only periodic controlled

international application of the assessment. This table does not include any assessments that use a rotated test design,[37] but it does include assessments for which there is no published verification of their ability to measure individual-level change. Implementers are encouraged to verify the applicability of the instrument for that purpose. Please see USAID's Best Practices for Measuring and Reporting Youth Skills Indicators for further clarification of these terms.

This is an illustrative list, not a definitive or complete one. Implementers may also create their own assessments, following the guidance provided in USAID's Best Practices for Measuring and Reporting Youth Skills Indicators on ensuring validity, reliability, and context-relevance, as well as ensuring that the assessment is criterion-based (based on skill level standards rather than scoring participants relative to other participants) and is not subject to corruption, cheating, or score inflation.

37 A "rotated test design" or "matrix sampling" subdivides a large set of test items into different versions of the assessment so that each test-taker only responds to a portion of the total list of questions.

TABLE 6. Suggested Math Assessment Tools, in Alphabetical Order

TOOL	CREATOR/ ADMINISTRATOR	RESTRICTED/ FEE CHARGED	ESTABLISHED USE CONTEXTS	MATH LEVEL	VALIDATED FOR YOUTH	VALIDATED[38] FOR TESTING INDIVIDUAL-LEVEL CHANGE	SCALE
Early Grade Mathematics Assessment	RTI	No	Global; used with youth in Liberia	Basic (math beginner to foundations)	Yes	Yes, individual	Own leveling system
LAMP and mini-LAMP Literacy Assessment and Monitoring Program	UNESCO	No: available by writing to UIS	Global (Jordan, Mongolia, Palestine, etc.)	Various	Yes	Unclear	Three-level rubric
People's Action for Learning assessment tools	PAL Network	No: available online	14 countries; some two dozen languages	Low-level math	For children, but also tested for 14-18	Yes, individual	Own leveling system

38 We use "validated" to indicate that a tool has been used in a certain way or has been reported as validated for certain populations or purposes, recognizing that various practitioners and scholars use this term in different ways.

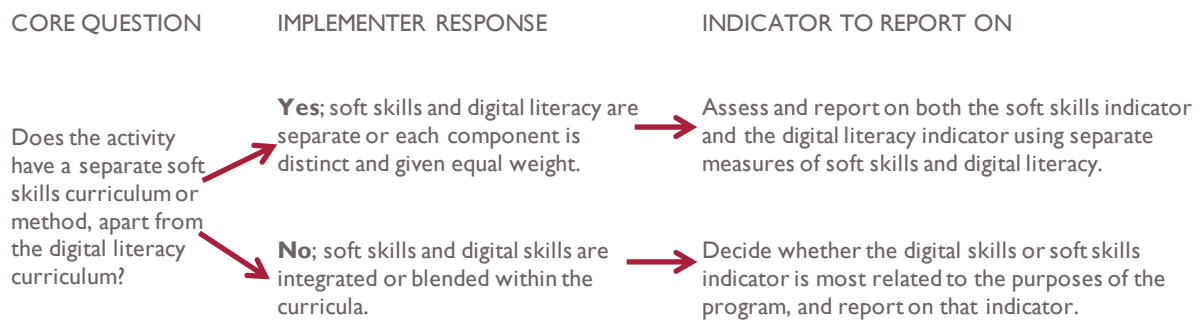
There is also a very wide range of tools that have been developed for measuring math skills in basic education; some of these are free and available online. Many of these tools may be adaptable to the youth age group and to new contexts. However, there is a clear need at this point to identify or develop more assessments using alternative methods that can detect the math abilities of youth in everyday life, even if they have not learned formal written symbols and methods.

Digital Literacy

The digital literacy supplemental indicator measures the "**percent of individuals with improved digital literacy skills following participation in USG-assisted programs**." Digital literacy skills are defined as the skills necessary to "access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic and social life. [They] include competencies that are variously referred to as computer literacy, ICT literacy, information literacy, and media literacy" (see the UNESCO Global Framework[39]). Digital literacy skills may include those related to the use of laptop or desktop computers, the internet, mobile phones, or tablets, and the apps or software on them.

Digital literacy skills include a wide range of subdomains, as illustrated by the breadth of the definition above. They may include hard skills needed to manage a particular device or hardware, operate particular software, or accomplish specific technical computing functions from searching for information to programming new code. They may also include complementary skills, such as digital citizenship and media literacy, that overlap with the soft-skills domain. It should be noted that if implementers are teaching soft skills in a broader manner, or with purposes beyond just digital literacy, they should also be assessing and reporting separately on the standard foreign assistance soft skills indicator, described earlier in this document (see Figure 3).

FIGURE 3. Decision-Making on Whether to Report on the Soft Skills Indicator Separately from Digital Skills



39 UIS. (2018). "A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2." http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf

Assessment Approach

For this indicator, digital literacy skills should be measured using a longitudinal[40] pre/post assessment in which the same individuals are assessed at the beginning and the end of the program. The indicator measures the total number of individuals, extrapolated from the sample to all participants, who demonstrated a meaningful improvement from the pre-test composite score (typically a sum or average of all test items) to the post-test composite score.

In general, USAID recommends that implementers measure digital hard skills using direct measures of knowledge or performance, rather than self-reports such as the Digital Competency Wheel or EuroPass Digital Competence—although such self-assessments may still be useful for determining participant needs during the activity design phase. Options for direct assessment include observation of the skill as it is being performed, completion of an assigned task that requires application of certain digital hard skills, knowledge-based questions, or the collection of background data on user behavior on a particular software or interface. For digital soft skills, direct assessment is also encouraged but may not always be feasible; self-report instruments can be used. Since many implementers may be interested in measuring both digital hard and soft skills, the composite score used for this indicator may be derived from a combination of both types of assessment items.

For this indicator, USAID is not mandating particular digital literacy skills or levels because these should be determined based on activity goals, context and labor market demand, and participant characteristics, existing skills, and needs. The amount of increase between baseline and endline that is "meaningful" will be determined and justified by the implementer, if not already indicated by benchmark levels in the chosen assessment. In most cases, meaningful change should be more significant than just improvement on a single item or a small percentage point increase, as such small changes may fall within measurement error rather than showing a true increase in ability. Implementers may find it useful to consult the domains mapped in UNESCO's draft Digital Literacy Global Framework, which outlines digital skills in seven different domains building upon the five domains of DigComp 2.1, which also includes proficiency levels for each skill domain. However, USAID does not require implementers to use this rubric for mapping skill levels for the purposes of this indicator.

Assessment Tools

Below are some examples of the assessment tools that currently exist for digital skills, focusing on those with published assessment items or other easy modes of access, and excluding assessments such as PIAAC and the International Computer Information Literacy Study (ICILS) that allow only periodic controlled international application of the assessment. This table does not include any assessments that use a rotated test design;[41] however, it does include assessments for which there is no published verification of their ability to measure individual-level change. Implementers are encouraged to verify the applicability of the instrument for that purpose.

40 Given the nature of USAID's YWFD programming—which takes place in diverse settings and time horizons—and its emphasis on individual employment and earnings outcomes, longitudinal comparison of individuals' skill development over time is strongly encouraged.

41 A "rotated test design" or "matrix sampling" subdivides a large set of test items into different versions of the assessment so that each test-taker only responds to a portion of the total list of questions.

This is an illustrative list, not a definitive or complete one, since this area of instruction and assessment is rapidly evolving. Implementers may also create their own assessments, following the guidance provided in USAID's Best Practices for Measuring and Reporting Youth Skills Indicators on ensuring validity, reliability, and context-relevance.

TABLE 7. Example Digital Literacy Assessment Tools, in Alphabetical Order

TOOL	CREATOR	FEE CHARGED	ESTABLISHED USE CONTEXTS/ LANGUAGES	FOCUS	VALIDATED FOR YOUTH	VALIDATED FOR TESTING INDIVIDUAL- LEVEL CHANGE
DigComp Test	TOSA	No: free online	Available in English, Dutch, and French	Information and data literacy, communication and collaboration, digital content creation, safety, problem solving	Yes	Unclear; in-test computer adapted difficulty; individual score report provided
Get Connected	Cisco Networking Academy	Yes	Offered in nine languages	Windows, internet browsing and searching, social media	Yes	Currently used as a post-test certification only
Information Literacy Assessment & Advocacy Project	ILAAP	No: items are open source	U.S.-based (questions need adaptation)	Information literacy with a research focus	Yes	Unclear - but pre/post individual reports are available
Information Literacy Test	Madison Assessment	Yes	U.S.-based	Information literacy	Yes	Unclear, but individual-level reports are available
International Computer Driving License	ICDL/ECDL	Yes	100 countries	Using hardware and software; also includes information literacy	Yes	Currently used as a post-test certification only
Internet and Computing Core Certification (IC3)	Microsoft	Yes	U.S., Europe, Asia	Computing fundamentals, living online, and key applications	Yes, and has two versions for different ages	Currently used as a post-test certification only

TOOL	CREATOR	FEE CHARGED	ESTABLISHED USE CONTEXTS/ LANGUAGES	FOCUS	VALIDATED FOR YOUTH	VALIDATED FOR TESTING INDIVIDUAL- LEVEL CHANGE
Media Locus of Control	Maksl, A., Ashley, S., & Craft, S.	No	U.S., Ukraine, Jordan	Information literacy	Yes	Publication focuses on group-level changes; IREX has validated for individual-level change in Ukraine and Jordan
Microsoft Digital Literacy	Microsoft	No: Free online	Available in 12 languages	Hardware and software, online lessons, and a 30-item test	Yes	Unclear, but knowledge-based test is available before and after the course
News Media Analysis and News Media Knowledge	IREX	No	U.S., Ukraine, Jordan	Information literacy	Yes	Publication focuses on group-level changes; IREX has validated for individual-level change in Ukraine and Jordan
Northstar Digital Literacy	Minnesota Literacy Council	No: free online (proctored version also available for a fee)	U.S., UK, Australia (English only)	Windows, internet, email, applications, social media	Yes	Unclear
PIX	PIX	No: Free online	French only	Information search, data literacy, documents and programming, security, digital soft skills	Yes	Unclear, but provides detailed individual reports
Standardized Assessment of Information Literacy Skills	Project SAILS	Yes	US-based	Information literacy	Yes	Unclear, but individual-level reports are available

By placing this indicator in the "supplemental" category, USAID is explicitly encouraging further learning and sharing around effective assessment tools for different aspects of digital literacy. For organizations developing their own assessments, several helpful resources are available giving more detailed background.[42] As knowledge and practice in this assessment area evolves, the PIRS and this How-To Note may also be revised.

Technical/Vocational Skills

The technical, vocational, and professional skills supplemental indicator measures the "**percent of individuals who pass a context-relevant assessment in a technical, vocational, or professional skill set following participation in USG-assisted programs.**" "Technical, vocational, or professional skill set" refers to a coherent collection of knowledge and practical skills that are necessary for exercising a trade or occupation. This terminology is intended to be widely inclusive of any occupation-related programming, whether in traditional technical and vocational trades such as plumbing or construction, or more professional training such as in healthcare or computer programming. Technical, vocational, or professional skills may be acquired through a variety of interventions, including non-school-based training programs, work-based learning, internships, formal training in post-secondary settings, etc.

The technical, vocational, or professional skill set intended by this indicator refers primarily to occupation-specific functional or hard skills. It is understood that quality technical, vocational, and professional training may also include soft skills. Where soft skills development is an important activity goal, a separate activity-wide soft skills assessment should be applied and used to report on the soft skills indicator regardless of how the soft skills training is offered (ie. integrated into technical, vocational, or professional training, or as a separate curriculum).

Assessment Approach

A context-relevant assessment is one that is useful to an individual beyond the context of the activity because it: 1) is offered by or affiliated with the host country government, an industry authority, or a relevant credentialing institution; or 2) reflects specific knowledge and skills demanded by employers in that context and for that labor market. This criteria applies both to formal employment contexts and to self-employment or freelancing, in which the "employer" is a customer who seeks to judge the knowledge and skill level of the provider. A context-relevant assessment may or may not lead to formal certification.

Where such assessments do not exist, implementers may develop them, following the guidance provided later in this document on ensuring validity, reliability, and context relevance. However, these tools should only be developed when they are part of the activity design and as part of a demand-driven training. When relevant, such assessments should be developed, whenever possible, with a local credentialing institution, should involve close partnerships with industry to ensure alignment with industry standards, and should be specific to the technical, vocational, or professional skill sets of

42 UIS. (2019). "Recommendations on Assessment Tools for Monitoring Digital Literacy within UNESCO's Digital Literacy Global Framework." http://uis.unesco.org/sites/default/files/documents/ip56-recommendations-assessment-tools-digital-literacy-2019-en.pdf

interest. If offering the assessment through a local assessment or credentialing institution is not feasible, then implementers may administer and grade the assessment themselves.

If not already determined by an existing assessment, the passing score to be used for reporting on this indicator should be determined in the same manner as described above: whenever possible, with a local credentialing institution, through close partnerships with industry to ensure alignment with industry standards, and in a manner that is specific to the technical, vocational, or professional skill sets of interest. The intent is for employers or customers to be confident that a person who has passed the assessment is able to work on the range of required tasks, at the required skill level, with only reasonable levels of additional workplace-specific guidance or support.

Assessment Tools

A wide range of existing assessments test foundational knowledge and routine expertise in different technical, vocational, and professional skill sets, and many countries have well-established qualifications frameworks for priority trades and occupations. Where these exist—whether nationally or internationally—implementers are encouraged to adopt them for assessment, to maximize the relevance and market value of their training for beneficiaries. The UNESCO-UNEVOC database provides a good source of information on national technical and vocational certification systems.[43] Further, some internationally relevant assessment and certifications-administering bodies include City and Guilds, McGraw Hill, Pearson Vue, the Industry Qualifications Group, and specific industry and trade bodies, among others. Activities are not required to use these sources of assessments, but should rather prioritize the "context-relevant" criteria described previously.

5. MEASUREMENT, CALCULATION, AND REPORTING REQUIREMENTS

A number of measurement, calculation, and reporting requirements are held in common across these skills indicators. This section of the How-To Note highlights key measurement, sampling, and reporting requirements for youth skills indicators. A more in-depth look into measurement and reporting can be found in USAID's Best Practices for Measuring and Reporting Youth Skills Indicators.

Preparing and Implementing Assessments

1. Assessments should be validated in the **cultural context** before use, with careful attention paid to how some issues—such as gender, reading level, and cognitive load coupled with poverty levels—can significantly alter the reliability and validity of an assessment.
2. Implementers should guard assessments closely and train data collectors well to ensure that assessments remain **secure and fair** and assessment results unbiased.
3. Implementers should consider the **optimal timing** for implementing assessments. For skills such as soft skills and digital literacy, implementing a baseline before participants understand those skill domains or too far into programming might inflate baseline scores.

43 See the UNEVOC TVET systems database:

4. If a selected assessment has not been validated to measure **individual-level change**, implementers should ensure that they plan for the appropriate testing of the assessment to validate the tool.

Selecting Participants and Sampling

1. Implementers should report on all individuals who **participated** in programming, not just those who completed programming. This allows USAID to understand the true effects and costs of an intervention were it to be brought to scale.
    a. Implementers should define an enrollment period before which any drop-outs are not included in the list of participants.
    b. Implementers should trace all participants for endline assessments, as feasible and reasonable.
2. When a sample is used, implementers should weight the data as appropriate to ensure it is representative of the activity population.

Analyzing Data and Reporting

1. When an indicator reports on individual improvement, implementers should define what "improvement" looks like before collecting endline data by taking into consideration context, activity characteristics, the tool, and even baseline data.
2. Implementers should report on all required **disaggregates**, as indicated in the PIRS.
3. When a sample is used, implementers should **extrapolate** sample numbers onto the activity population numbers.

6. CONCLUSION: USING DATA AND LEARNING

This How-To Note has elucidated the research and thought behind five new indicators and their PIRS—two of them standard indicators requiring reporting from all relevant activities, and three of them supplemental indicators of particular interest for generating additional learning and advancements in measurement methodology in the coming years. USAID encourages Missions and implementing partners to communicate issues they encounter with reporting on any of these indicators—standard or supplemental—and to be expansive in their descriptions of strategies, tools, and indicators that work well for their activities. USAID will seek to encourage dialogue about these indicators and how they may be adjusted or improved going forward to better serve activities. As USAID launches the use of these new standard and supplemental indicators, we welcome feedback and suggestions shared through the Positive Youth Development Learning Network hosted by Youth Power 2: Learning and Evaluation.

Activities, implementing organizations, missions, and USAID's Office of Education can all contribute to learning around some key questions that inevitably arise as we begin putting into place the new standard and supplemental skills indicators introduced in this How-To Note. The below questions include topics already outlined in the USAID Youth Workforce Development Learning Agenda, as well as some additional questions raised in relation to these indicators specifically.

Learning Questions

Learning questions applicable to all skills areas:

- How can we make progress toward determining whether participants need to meet a certain benchmark or skill level in order to be employable in that context? What factors affect this benchmark or skill level? Which of the following methods, or others, is most effective, and what lessons or processes could be employed across contexts?
  - Measuring the skill levels of youth who already meet the project's definition of positive outcomes—such as youth who already hold stable employment, or youth who have successfully started and grown their businesses;
  - Employer interviews using rubric descriptions to help employers describe in more specific terms the skill level they consider the minimum acceptable; or
  - When data is available, through known associations between skills assessment scores and employment outcomes.
- How does the intensity and length of an intervention, or "dosage," as well as its design, affect skills development as recorded through these indicators? How does this vary by type of participant?

Learning questions for soft skills assessment:

- What are the most effective ways to measure soft skills outcomes, including self-report assessments, use of observations, or other items such as situational judgment or anchoring vignettes?
- What instruments are most effective for working with adolescents of different ages?
- Are written retrospective post-tests a more or less reliable alternative to written pre-tests and post-tests, with respect to the soft skills domain? What are the trade-offs of this approach?
- What magnitude of change in soft skills development should be considered "meaningful" or "significant," according to different assessment tools, for different skills, and in different contexts, and can any general lessons be drawn across these particular instances?

Learning question for reading assessment:

- What are effective, appropriate instruments for measuring reading outcomes among older, out-of-school youth?

Learning question for math assessment:

- What are effective assessment methods for detecting the math abilities of youth in everyday life, even if they have not learned formal written symbols and methods?

Learning question for digital literacy:

- To what extent is it possible to establish a rubric that defines levels of digital literacy skills acquisition, as has been done for reading and math? Could the Europass Digital Competence framework, which outlines digital skills in five different domains—information processing, content creation, communication, problem solving, and safety—and describes three skill levels—basic, independent, and proficient—be used for this purpose?

Learning question for technical, vocational, and professional skill set assessment:

- What are effective and efficient approaches to developing demand-driven technical, vocational, and professional assessments that are context-relevant and carry value beyond simply counting activity achievements?

All stakeholders reporting on these indicators and making use of the resulting data are invited to contribute to advancing discussion on these learning questions as part of relevant gatherings and working groups. Stakeholders are encouraged to join relevant sub-groups on the Positive Youth Development Learning Network hosted by YouthPower 2: Learning and Evaluation.

APPENDICES

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Additional Resources

- USAID 2018 Education Policy
- Social and Emotional Learning and Soft Skills USAID Education Policy Brief
- USAID ADS 201: Program Cycle Operational Policy (including Monitoring Evaluation, and Learning)
- USAID Learning Lab Monitoring Toolkit
- Education Links Youth Workforce Development resources
- USAID Office of Education Standard Foreign Assistance and Supplemental Indicator Guidance and PIRS