Socioemotional Skills in Africa:

Development and Validation of 14 Measures in Sub-Saharan Africa with Implications for Economic Outcomes

Smita Das[1]
Victor L. Marsh[2]
Dawn McDaniel[3]
Tricia Koroknay-Palicz[4]
Clara Delavallade[4]
Léa Rouanet[4]

[1] Innovations for Poverty Action
[2] M.I.T. Sloan School of Management
[3] Mystical Innergies, LLC
[4] The World Bank

RUNNING HEAD: SOCIOEMOTIONAL SKILLS IN AFRICAN CONTEXTS

AUTHOR NOTES
All authors contributed equally to this manuscript; author order is randomized.

Correspondence concerning this manuscript may be directed to Victor L. Marsh, 100 Main Street, E60-300, Cambridge, MA 02142, vicmarsh@mit.edu.

Abstract

Despite increasing policy interest in the role of soft skills in economic outcomes, the field has been hampered by a lack of measurement tools tailored explicitly for sub-Saharan Africa, the focal region for many interventions in socioemotional skill development. To address this limitation, we developed and tested 14 socioemotional skill measures across five Sub-Saharan countries, encompassing four languages (English, French, Hausa, and Swahili), with a total sample size of 10,151 participants, of which 50% were women. The findings showed internal consistency, content convergence to skill definition, and content distinctiveness for the measures. Slight but consistent gender differences emerged in self-reported skill levels within the region. Our concurrent analyses revealed nuanced implications for hypothesized economic effects, with socioemotional skills predicting future employment (but not income levels). These measures hold potential for future research and interventions to enhance economic and social outcomes in the region.

Keywords: noncognitive skills; socioemotional skills; social and emotional learning; Africa; psychological assessment; content validation

Introduction

Socioemotional (SE) skills encompass the ability to manage emotions, foster positive relationships, and make informed decisions (Collaborative for Academic, Social, and Emotional Learning, see Graczyk et al., 2000). Despite an initial focus on adolescent learning, SE skills' economic significance is garnering increasing attention (Deming, 2017). However, a coherent understanding, particularly concerning adults' roles in the economy, remains elusive. This investigation aims to enhance the CASEL framework by concentrating on adults, offering a concise categorization of SE skills, and rigorously evaluating these new measures' reliability and validity in sub-Saharan Africa. While scholars have made strides in adolescent SE categorizations (C.J. Soto et al., 2022a), adult-focused research is sparse. Our framework expands the number of skills from the original CASEL framework from eight to fourteen SE skills (see Appendix A). Yet, drawing upon extensive psychological and neuroscientific literatures on both self-regulation and interpersonal interactions, our new framework groups these 14 skills parsimoniously into four parts, separating how people attend to the self versus others (Johnson et al., 2005; Petersen & Posner, 2012), and skills that are geared towards monitoring/awareness versus acting upon a target (see Table 1; Posner & Rothbart, 2007; Rueda, Rothbart, McCandliss, Saccomanno, & Posner, 2005).

Overview of Studies

Across three studies, we scrutinize the performance of SE skill measures and their relationship with economic outcomes, placing a unique emphasis on the sub-Saharan African context. We seek to answer three research questions: (1) Does the content of survey items converge to sub-Saharan African participants' view of the construct definitions in the literature (Cognitive Interviews and Content Validation studies)?; (2) Do our proposed new, revised,

and/or back-translated scales demonstrate measure reliability and validity?; and (3) Do these revised and reduced survey items have important economic implications, that is, are respondent self-reported answers correlated with labor outcomes?

Table 1.
Typology of 14 Socioemotional Skills, Based on CASEL Framework

***Intra*personal** Awareness and Management of **Oneself**	***Inter*personal** Awareness and Management of **Others**

Awareness Skills (Target: the self)
• **Emotional Self-Awareness**: the ability to identify and evaluate one's emotions, accurately.
• **Self-Awareness:** the ability to identify, interpret, and to evaluate one's strengths and weakness.
	Awareness Skills (Target: others)
	• **Empathy:** understand another's viewpoint or thoughts and have emotional concern for another's situation or experience.
	• **Listening**
	  ○ **(Actively):** the ability to attend to what other people are saying, ask clarifying questions, and show others that you are attending to them.
	  ○ **Listening (Respectfully):** The ability to listen to others in a courteous way, to understand their needs and views, to avoid interruptions if appropriate.

Management Skills (Target: the self) • **Emotional Regulation:** maintaining or changing one's own emotions by controlling one's thoughts and behavioral response. • **Self-Control:** focusing one's attention, staying on task, breaking habits, restraining impulses; self-discipline. • **Personal Initiative:** developing long-term goals, to seek opportunities to improve one's self and to be motivated to put these plans and goals into action. • **Perseverance:** sustaining effort despite setbacks. • **Problem Solving & Decision-Making:** approaching a challenge by gathering information, generating a number of solutions and evaluating the likely consequences of those solutions before acting.	**Management Skills (Target: others)** • **Expressiveness:** explaining ideas in a way that others will understand and openly expressing one's opinion. • **Interpersonal Relatedness:** the ability to build trust and benefit others, initiate and maintaining relationships, and behave respectfully, and show one's caring for others. • **Influence:** the ability to communicate in a manner that changes other's perspectives, to adapt one's behavior in situationally-appropriate ways to sway others. • **Negotiation:** the ability to identify one's own and other's interests during a disagreement and to change one's own behaviors as a strategy for resolving problems and achieving one's goals. • **Collaboration:** the ability to consider different perspectives in groups of two or more people, to identify situations involving group-level decisions, and to coordinate with team members to create shared plans/goals.

We aimed to answer these research questions by developing 14 robust scales derived from an extensive review of adjacent literatures. This initial review encompassed 600 theoretical and empirical papers (the corresponding author will make this 46-page bibliography available upon e-mail request). We then honed the review to 90 empirical and theoretical papers fundamental to our item development process (refer to Appendix A for this list). From the selected literature, we identified 22 scales comprising 545 survey items deemed to be related to socio-emotional skills in some way. The authors then cut out redundant items and items whose content was not conceptually-related to the 14 constructs, resulting in 395 deletions.

In Study 1, *Qualitative Item Reduction*, the authors initiated the participatory phase. Both expert reviews from co-authors and participant insights via cognitive interviewing in Sub-Saharan Africa informed this phase. At this stage, we began with approximately 160 items and rephrased 43 of those items.

Proceeding to Study 2, *Quantitative Scale Development*, we utilized the remaining 159 measures to examine internal reliability (Cronbach's alpha for each scale is reported in Table 2) in exploratory factor analyses (EFAs) in four exploratory samples, following best practice for the use of naïve judges in scale development (Hinkin & Tracey, 1999). This analysis was executed using in-person household surveys in both English and French, resulting in a further refined pool of 102 items. A visual representation of this quantitative phase of the scale development process can be found in Figure 1.

Study 3 was conducted in two phases. Study 3a involved a confirmatory factor analysis using Swahili language household surveys. Subsequently, in Study 3b, we investigated the economic implications of our scales, focusing on income and employment outcomes across five

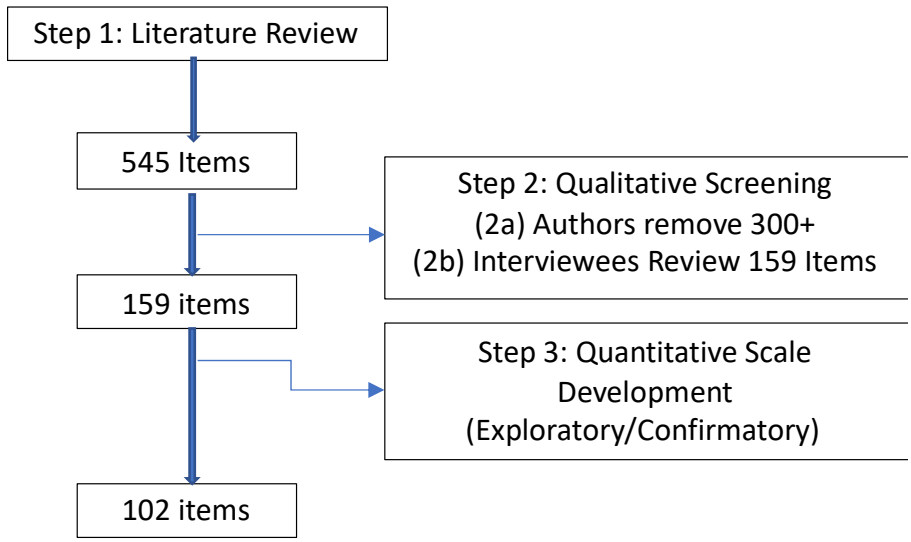
countries: Nigeria, Côte d'Ivoire, The Democratic Republic of Congo (Kinshasa), Rwanda, and Tanzania.

Table 2.
Scale Lengths and Reliabilities (Cronbach's α) *for All Samples*

Scale	Nigeria	Côte d'Ivoire (cohort 2)	Congo	Rwanda	Côte d'Ivoire (cohort 3)	Tanzania
1. Emotional Awareness	0.82	0.66	0.81	0.74	0.66	0.70
2. Self-Awareness	0.85	0.73	0.85	0.82	0.74	0.84
3. Emotional Regulation	0.81	0.69	0.89	0.79	0.72	0.77
4. Self-Control	0.82	0.77	0.91	0.82	0.78	0.77
5. Perseverance	0.82	0.72	0.67	0.79	0.71	0.65
6. Personal Initiative	0.88	0.75	0.88	0.81	0.74	0.82
7. PSDM	0.89	0.70	0.92	0.87	0.76	0.86
8. Listening-Resp	0.84	0.72	0.92	0.74	0.70	0.81
9. Empathy	0.88	0.71	0.89	0.76	0.69	0.73
10. Expressiveness	0.85	0.59	0.80	0.80	0.76	0.81
11. Relationality	0.89	0.82	0.91	0.85	0.82	0.85
12. Influence	0.82	0.57	0.76	0.73	0.60	0.77
13. Negotiation	0.83	0.72	0.89	0.73	0.71	0.79
14. Collaboration	0.88	0.81	0.89	0.79	0.82	0.79
15. GSE	0.87	0.65	0.87	0.79	0.65	0.72
16. Listening-Act	0.83	0.69	0.81	0.82	0.70	0.73

NOTE. PSDM = Problem-Solving & Decision-Making. Listening-Resp = Listening Respectfully; Listening-Act = Active Listening. GSE = Generalized Self-efficacy.

Figure 1.
Study 1: Qualitative and Quantitative Item Reductions.



Study 1: Qualitative Identification of Socioemotional Skills

We initiated this research in 2018 by examining theoretical and empirical contributions on socioemotional skills across five domains: (1) child development using the CASEL framework, (2) workforce development, (3) industrial/organizational psychology and management, (4) labor and development economics, and (5) personality psychology. While our initial approach drew from the 5-skill CASEL framework, a comparison with the broader psychology literature revealed disparities in how these skills were treated. These finer conceptual distinctions, displayed visually in Appendix A, led us to dissect the CASEL dimensions and regroup them to align more closely with established literatures on gender differences in

socioemotional skills and the relationship between skills and labor outcomes. As a result, we identified and detailed how each research domain conceptualizes the resultant framework of 14 constructs.

From these diverse literatures, we extracted an initial item pool consisting of 545 items corresponding to the 14 constructs. It is worth noting that most studies within this item pool were based on Western samples. Only a handful addressed non-Western contexts, and these primarily focused on the back-translation and adaptation of individual skill constructs (not whole groupings of them). Recognizing this gap, especially given the unique cultural and linguistic nuances of sub-Saharan African contexts (even *within* national borders), we meticulously *examined each item* – not just whole scales. This approach allowed our enumerators conducting field cognitive interviews to have practical, specific (and very frank) conversations.

Sample: Participants for cognitive interviews were sourced in a collaboration between the World Bank's Gender Innovation Lab and Innovations for Poverty Action. This recruitment took place in the backdrop of a more extensive study centered on a randomized controlled trial evaluating a socioemotional skills training intervention. In Nigeria, Cote d'Ivoire, and Tanzania, 16 or more individuals were selected with a balance of gender and educational backgrounds in each country. Our sample consisted of employees and self-employed adults, all over the age of 18. What we have are the field notes of the team of enumerators who characterized the feedback from participants.

Procedures: Cognitive interviewing, the methodological approach adopted, was originally rooted in criminal investigations—particularly, ensuring accurate retrieval of eyewitness memories. Adapting from the foundational work by Geiselman and colleagues (1985), we tailored the approach to our context. Trained enumerators posed specific self-report

items to participants and then inquired about the participants' interpretations. Participants clarified in their own words, providing insight into their views about the survey items' meaning. This iterative process was bolstered by follow-up probing questions (Schuman, 1966), all aiming to discern participants' perceptions and gauge the (non)equivalence of the items the authors wrote versus the meaning that participants believed.

Findings. Our findings from cognitive interviewing included both suggestions from the participants that we quickly used in the actual questionnaire testing and suggestions that we could not do justice to immediately. In our summary of findings at Table #1, we captured the participant knowledge and what we did with (or have done with) that input after the interview phase completed. Findings included: (1) representative field notes from the interviewers; (2) the research team's interpretation of the potential problem identified in the field note; (3) our decision on whether to address that issue in this particular set of studies; and (4) details concerning our accommodation (or lack thereof) of the interview participants' feedback about the survey items.

Entertaining to Inappropriate Items. Participants expressed enjoyment of some items, finding them humorous. We suspect that these items had unintended connotations with respect to certain works (e.g., use of the word "temptation" with respect to the self-control skill). Acting in the face of conflicting desires is a major feature of the literature on self-control. Therefore, we retained the core idea, eliminated the word "temptation," and wrote additional items related to self-disciplined behavior.

Colloquial Language in Items. Colloquial wording was the most frequent type of participant feedback. For example, when measuring the *influence* skill with some items from a workplace political skills inventory (Ferris et al., 2005) we learned in cognitive interviews that

the item "I *size up situations* before deciding how to present an idea to others" was simply too specific and unfamiliar culturally in francophone, anglophone, and Swahili-speaking Africa. We therefore changed the item, retesting it in follow-up exploratory factor studies, to "I *observe* [rather than "size up"] social situations carefully before deciding to present an idea to others."

Reverse-worded Items. There is a longstanding debate among measurement developers about the utility of reverse-scored items (e.g., measuring self-awareness by stating that "my own behavior puzzles me," etc. See discussions in: Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Schmitt & Stuits, 1985; Schriesheim & Eisenbach, 1995). Despite some discussions of the benefit of those items, participants in context expressed confusion at the wording choices for reverse-scored items. Back-translation of any scale is a methodological challenge – even for within-Africa across-culture studies such as ours – therefore we decided to pretest the items in each country (Klotz, Swider, & Kwon, 2023). In most cases of reverse-scored items, our decision was to eliminate the item; however, a few received high enough similarity of participant reports in cognitive interviews to make it past this stage into the quantitative factor structure, and content analyses for item reduction.

Missing Context for Items. Since the source measures had a variety of instructions to the participants, there were times when context was simply missing (e.g., that the instructions were on a "like me" scale: "choose which of these is the true you: 1 = not at all like me, 7 = very much like me," or instructions could be on a "I frequently do" a behavior scale). Some items during our pretesting appeared to elicit follow-up questions about context. For example, some scales state simple actions (e.g., mention of head-nodding behavior in a scale for active listening, etc). In such cases we added more contextual wording to help improve understanding context often with a preceding clause (e.g., *When I am listening to someone*, I [behavior]…).

Proposals for Items (which we did incorporate). Most participant ideas for wording changes were supported with backtranslation professionals. Psychologists reviewed the translation and backtranslation to suggest changes. In Tanzania, a psychologist fluent in both English and Swahili reviewed such changes.

Proposals for New Items (which we did not incorporate). Finally, there were requests to add more items which we did not feel equipped to do scale development for additional complex constructs such as humor).

Results of the qualitative study is provided in Table 2 (below).

Table 3.
Study 1: Cognitive Interviewing Participant Feedback

Representative Field Note	Potential Problem	Research Team Decision to Address (Level of Resolution)	Changes
1. Items considered entertaining	*1. Inappropriate*	Addressed (Items Revised)	I am good at resisting temptation [eliminated]. People would say that I have very strong self-discipline.
2. Translation seems "off" to participants	*2.1 - Colloquial language*	Addressed (Items Revised)	I actively "attack" problems → I actively "tackle" problems. I reflect on my "performance" after I make mistakes → I analyze my "behavior" after I make mistakes.
	2.2 - Reverse-Keyed Items	Addressed (Items Revised, Items Added)	I refuse things that are bad for me, even if they are fun. [new item] My behavior often puzzles me. → I understand why I act the way I do.
	2.3 – Confusion from Missing Context	Addressed (Items Revised)	Admitting when you are wrong → When I work with others, I admit when I am wrong and apologize for my mistakes. I show others that I am listening by my body language (e.g., head nods) → When I am listening to someone, I show them that I am open to their ideas.

3. Skills participants said not captured that we should have asked them about.	*3. – Potentially missing categories*	3.1 – Addressed (Scales Added, Items Added)	*Missing Idea* *Resolution* Manner of approach. Items: Influence "Packaging" / Publicity Items: Influence
		3.2 – Not Addressed by Researchers in this measurement paper	*Missing Ideas* (did not address, future directions) Humbleness Humor Preparedness, Details, organization, detail-oriented Grooming Truthfulness Obedience / loyalty / submission

Overall, the interviewees in Study 1 described five deficiencies with the initial item pool. This list of "potential problems" became the co-authors' screening criteria in an additional review of all items. The result of applying these as criteria was the elimination of 386 question items. Our findings suggest that at least in these contexts, four of the five drawbacks could be addressed at the item level – adding some new, dropping colloquial old item language. This feedback might not capture every problem with developing new measurement scales. Nonetheless, transparently, there were some issues raised by participants that the research team did not figure out how to accommodate in this set of studies (e.g., inclusion of additional skills that participants believed were important for economic success, such as the measurement of humor, truthfulness, obedience, etc.).

Table 5.

Means, Standard Deviations, and Correlations (All Studies)

Scale	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Emotional Awareness																		
2. Self-Awareness			.60															
3. Emotional Regulation			.62	.65														
4. Self-Control			-.03	.07	.05													
5. Perseverance			.47	.61	.52	.11												
6. Personal Initiative			.51	.66	.58	.11	.68											
7. PSDM			.49	.60	.55	.09	.58	.70										
8. Listening-Resp			.06	.13	.13	.39	.13	.17	.14									
9. Empathy			.59	.62	.65	.1	.52	.60	.55	.17								
10. Expressiveness			.56	.56	.55	.02	.47	.53	.51	.07	.58							
11. Relationality			.56	.61	.61	.08	.55	.61	.55	.15	.71	.64						
12. Influence			.51	.53	.53	.03	.47	.51	.50	.08	.58	.68	.65					
13. Negotiation			.52	.53	.56	.08	.45	.51	.49	.12	.61	.59	.62	.58				
14. Collaboration			.52	.58	.59	.10	.51	.57	.51	.17	.63	.60	.66	.59	.67			
15. GSE			.52	.62	.58	.06	.64	.69	.88	.12	.56	.53	.57	.51	.49	.52		
16. Listening-Act			.44	.47	.48	.06	.39	.45	.44	.09	.53	.52	.53	.50	.56	.56	.44	

NOTE.
All correlations above 0.03 are significant at the $p < .001$ level.
PSDM = Problem-Solving & Decision-Making. Listening-Resp = Listening Respectfully; Listening-Act = Active Listening. GSE = Generalized Self-efficacy.

Study 2: Scale Development

Prior scale development for these skills used internet; K-12, and college campus samples; a wide range of measurement anchors (e.g., instructions to rate which is "most like me" differed from instructions to simply rate one's agreement with a statement). By contrast we collected data in-person during household surveys in low-literacy populations, in large samples, with people providing their responses on tablets using a single set of pictorial Likert-type response scales for all measure (see **Figure 1**). In all samples, participants were approximately gender balanced (50% women). As found in prior research and as theoretically predicted at the time the framework of 14 skills was developed, the various skills were intercorrelated, as described in Table 5. Only scales with reversed items (self-control and the respectful listening component of listening) demonstrated low correlations.

In Study 2, the authors used the five problems that Study 1 participants identified as criteria to reduce the number of items. After taking into account the feedback from study participants, the authors further refined the list of items to eliminate content that was redundant with other scales or a mismatch to the specific construct despite original developers' intent; as well as statements unrelated to abilities or behavioral capacities (e.g., one item stated: "I am lazy"). The number was thereby reduced to 159 questionnaire items for quantitative pilot testing.

Quantitative Item Retention Criteria

Throughout Study 2, we used the following criteria for item retention. First, given the limited range of the 5-anchor scale, we utilized polychoric correlations tables to gauge the relations between the fourteen SE skills, using the *polycorr* package in STATA (version 15). Second, to reduce the risk of multicollinearity concerns, we dropped items whose correlations

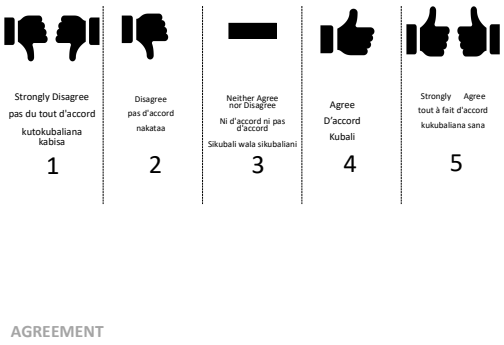
were consistently above .80 within scales. Third, to reduce the risk of reductions in convergent validity, we also removed items whose correlations within-scale were consistently below .30.

A total of 58 items were excluded in this process.

EFA-1 (Nigeria, English) Sample and Method

Based on the findings of Study 1, we tested the 159 remaining items (available from the corresponding author) that capture the 14 socioemotional skills constructs, which we had derived by elaborating the CASEL framework with the theoretical literature. The World Bank contracted household surveyors carrying tablets for the household-level survey. Each surveyor's tablet had touch screen capability. For our survey, the screens displayed pictorial representations of a 5-anchor Likert-type response scale, which ranged form 1 = *strongly disagree* to 5 = *strongly agree* (See Figure 2).

Figure 2.
Pictorial 1-5 Likert-type Agreement Scale from Household Surveys



Sample #1. We recruited 196 participants in Nigeria Pilot (December 2019) in two regions Ibadan (north) and Bauchi (south) to account for between-culture variation. In Ibadan, participants used both English and Yoruba versions of the instrument, and in Bauchi, participants

primarily used the Hausa version of the instrument. Participant age ranged from 18 to 70 years, with 50 percent of the sample aged 18-29 and the other half aged 30-70 years. We recruited half of the sample among people with less than a secondary-level education, and the remaining 50 percent had secondary or higher education. Ninety-one percent of respondents were earning an income in some way.

EFA-1 (Pilot) Findings

To examine the items, we used an EFA with maximum-likelihood estimation and an oblique (Oblimin) rotation, once for interpersonal and second for intrapersonal skills. We generally removed or revised items that had a cross-loading of over .35 and items below a minimum of 0.40 on the intended SE skill construct. As expected, the 14 SE skills related positively to one another (See online supplement). At the pilot stage, we required additional items across many of the SE skills constructs.

EFA-2 (Nigeria, English) Sample and Method

Following construct validation guidelines (Hinkin & Tracey, 1999) in our next study sample and survey we included a reduced number of 134 self-report items. Household surveyors used pictorial representations of Likert-type response items, which ranged from 1 = *strongly disagree* to 5 = strongly agree.

Sample #2. We recruited 497 participants in Nigeria (April, 2020) for a household survey in two regions (Ibadan and Bauchi). The survey in Ibadan was primarily conducted in Yoruba or English, and the survey in Bauchi was primarily conducted in Hausa. Participant age ranged from 18 to 70 years old, with half the sample aged 18-24 and the other half aged 25-70 years.

Again, half the sample had less than a secondary-level education, while the other participants had at least a secondary education. Ninety-two percent of respondents were employed.

EFA-2 Findings

We reanalyzed the revised 134-item survey with two EFAs using maximum-likelihood estimation and an oblique (Oblimin) rotation (separately for inter- versus intrapersonal skills). We again eliminated or revised items with cross-loadings above .35 and retained only items with factor loadings of at least .40 on the intended measure. Specifically for listening skills, we learned in this sample that listening skills items loaded on two different facets of listening – one capturing active listening behaviors (e.g., paraphrasing others, body language cues to your attention, etc.), and the other capturing respectfulness (e.g., not interrupting inappropriately, etc.), the latter of which included only reverse-framed items. We reanalyzed the items assuming 15 (rather than the initial 14) total facets. A great number of items in this round did not meet our retention criteria. We therefore generated anew or re-worded additional items in order to better capture the intended constructs, especially interpersonal management items.

EFA-3 (Côte d'Ivoire, French) Sample and Method

Following construct validation guidelines (Hinkin & Tracey, 1999) we surveyed an increased number of 179 self-report items. Survey takers used the same tablet instruments and door-to-door methodology as in Nigeria. Participants answered all items in a pictorial Likert-type response which ranged from 1 = *pas du tout d'accord* to 5 = *tout à fait d'accord.*

Sample #3. We recruited 1,125 participants for a French-language household survey in Côte D'Ivoire (June, 2020). Participant ages ranged from 15 to 24 years. The sample was

approximately 50-50 in terms of secondary education attainment. Approximately 50 percent of the participants were employed.

EFA-3 Findings

We reanalyzed the revised, larger, 179-item survey with an EFA using two maximum-likelihood estimations and an oblique (Oblimin) rotation (separately for inter- versus intrapersonal skills). We again eliminated items with high cross-loadings (above .35) and low intended-construct loadings (below .40). In this exploration, the measure for interpersonal "relatedness" emerged with two distinct facets. One relatedness subgroup reflected interpersonal networking skills (e.g., "I am good at building relationships with people I don't know," etc.). A second group of items appeared to relate to maintaining relationships (e.g., "When others are sad, I try to comfort them," etc.). We re-worded the *interpersonal relatedness* items to make this distinction more distinct than originally planned, and with that distinction were able to begin item reduction in a subsequent sample within country.

EFA-4 (Côte d'Ivoire, French) Sample and Method

Following construct validation guidelines (Hinkin & Tracey, 1999) we surveyed a reduced number of 168 self-report items). Unlike in the first cohort in Côte d'Ivoire, the second participant group was recruited by phone rather than in-person via household enumerators. Participants still rated each item using verbal responses to a Likert-type scale ranging from 1 = *pas du tout d'accord* to 5 = *tout à fait d'accord.* This sample did not have access to the pictorial version on a tablet, as in prior household surveys.

Sample #4. We recruited a second cohort of 2,688 respondents from two cities in Côte d'Ivoire (April, 2021). As with the first cohort, about 50 percent had attained a secondary education or more schooling, while 50 percent had schooling below the secondary level. This cohort was 50 percent employed and 50 percent unemployed – our first major test among unemployed research participants. Participant age ranged from 15 to 24 years.

EFA-4 Findings

In this exploration, four hypothesized constructs were reflected in only two explored factors. Among intrapersonal skills, emotional awareness and emotional regulation loaded similarly. This might reflect a long-running debate in the emotions literature about whether emotional regulation is separable from the process of *generating* any emotion (Gross & Feldman Barrett, 2011; Yih, Uusberg, Taxer, & Gross, 2019). In a set of content validity procedures recommended by Colquitt et al. (2019), we learned from online samples that while the factor structure remained stubbornly united for these skills, online survey participants nonetheless could distinguish them when prompted to rate the definitional correspondence for each item. Second, two intrapersonal skills – *perseverance* and taking *personal initiative* have substantial overlap in meaning. This reflected one theoretical finding in our earlier literature analysis – the personal initiative skill construct appeared to be similar to perseverance, except for the concept of time. Whereas personal initiative is about "getting up" or starting up, perseverance is the same idea over long duration – about "staying fired up," for example. Yet, despite these justifiable distinctions, we recommend scholars specify a good theoretical reason related to time, to test either perseverance, or personal initiative, or other or both.

Table 9.
Study 2: Rotated Factors and Loadings of Retained Items from EFA-5 (Tanzania)

		Intrapersonal (Self) Constructs								
		Awareness						**Management**		
#	Item Text	Emo-Aware & Emo-Reg		Self-Aware		PSDM		P-Init & Persev		S-Cntrl
01	EmoAware62: I know why my feelings change from one moment to another.	**0.60**								
02	EmoAware63: I recognize what I am feeling.	**0.43**		0.23						
03	EmoAware64: I can usually describe what I am feeling at the moment in great detail.	**0.50**								
04	EmoAware65: I try to notice my thoughts without judging them.	**0.57**								
05	EmoAware66: I am able to accept the thoughts and feelings I have.	**0.61**								
06	SelfA32: I understand my own behaviors.			**0.65**						
07	SelfA33: I am aware of my thoughts.			**0.69**				0.24		
08	SelfA34: I monitor my thinking to ensure it is accurate.			**0.59**						
09	SelfA36: I know the skills I have that other people do not have.			**0.52**						
10	SelfA37: I assess my strengths and weaknesses in new situations.	0.18		**0.51**						
11	SelfA38: I examine my own abilities to better understand myself.	0.16		**0.53**						
12	SelfA39: I review how I am thinking when I make a mistake	**0.33**		**0.40**						
13	SelfA40: I have a clear sense of who I am.	0.21		**0.40**				0.21		
14	EmoReg52: When I feel nervous, I know what to do to feel more relaxed.	**0.54**								
15	EmoReg53a: When I feel sad, I know how to take my mind off my problems.	**0.67**								
16	EmoReg54: I control my temper when people are angry with me.	**0.65**								

17	EmoReg55: When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.	**0.75**								
18	EmoReg56: I control my emotions by changing the way I think about my situation.	**0.66**								
19	EmoReg58: When I want to feel better, I do something I enjoy.	**0.58**						0.22		
20	EmoReg59a: When I want to feel hopeful, I change my thinking so I am more positive.	**0.62**								
21	S-Cntrl44_r: Pleasure and fun sometimes keep me from getting work done.									**0.56**
22	S-Cntrl45_r: I do things that feel good in the moment, but I will regret later on.									**0.76**
23	S-Cntrl46_r: Sometimes I can't stop myself from doing something, even if I know it is wrong.									**0.81**
24	S-Cntrl47_r: I often act without thinking through all the alternatives.									**0.75**
25	S-Cntrl49_r: I am easily distracted.									**0.61**
26	Persev25: I finish whatever I begin.							0.25		
27	Perserv26: Setbacks don't discourage me.							0.28		
28	Perserv27: I am diligent.			0.16				**0.73**		
29	Perserv27a: When work is difficult, I keep up my effort.							**0.65**		
30	Perserv28: If someone is against me, I keep working to fix the problem until I get what I want.							**0.38**		
31	Perserv30: I am confident that I could deal appropriately with unexpected events.							-0.09		
32	P-Init13: I actively tackle problems.							**0.37**		
33	P-Init14: Whenever something goes wrong, I search for a solution immediately.							**0.32**		
34	P-Init15: Whenever there is a chance to get actively involved, I take it.					0.21		**0.45**		
35	P-Init16: I take action immediately even when others don't.							0.13		
36	P-Init17: I am quick to take advantage of opportunities to reach my goals.							**0.75**		
37	P-Init19: I am particularly good at making my ideas a reality.							**0.46**		
38	P-Init21: I seek opportunities to learn more.							**0.83**		

39	P-Init24: I look for opportunities to improve myself personally and professionally.							**0.64**		
40	P-Init24a: If I get feedback on ways I can improve, I immediately try to do better.							**0.52**		
41	PSDM01: When I have a problem, I can find several ways to solve it.					**0.66**				
42	PSDM02: If I am in trouble, I can usually think of a solution.					**0.69**				
43	PSDM03: I solve most problems if I put in the necessary effort.					**0.66**		0.16		
44	PSDM04: I can find creative solutions to unplanned problems.					**0.45**				
45	PSDM05: I can always solve difficult problems if I try hard enough.					**0.53**		0.15		
46	PSDM06: When making a decision, I analyze my options and their consequences before I act.					**0.61**				
47	PSDM07: When making a decision, I look for as much information as I can before I decide what to do.					**0.53**				
48	PSDM08: I compare all my options before making a decision.					**0.53**				
49	PSDM10a: If my first solution does not work, I can come up with another way to solve my problem.					0.29				
50	PSDM11: I come up with solutions that are unique.					0.21				
51	PSDM12: I develop new solutions to problems that surprise other people.					0.16				
52	PSDM12a: I plan tasks carefully.					0.22		0.52		

NOTE. *N* = ###

Only factor loadings > 0.15 are displayed.

Emo-A = Emotional Awareness; Self-A = Self Awareness; E-Reg = Emotion Regulation; S-Cntrl = Self-Control; P-Init = Personal Initiative; Persev = Perseverance; PSDM = Problem-Solving & Decision-Making.

Table 10.
Study 2: Rotated Factors and Loadings of Retained Items from EFA-5 (Tanzania)

		Interpersonal (Other) Constructs								
		Awareness				**Management**				
#	Item	List-R	List-A	Empa		Expr	Rel_Ma	Rel-Net	Negot & Collabo	
01	Listening121r: When I am listening to someone, I wait to talk until the other person finishes talking.	**0.83**								
02	Listening122r: When I am listening to someone, I will not interrupt the other person even if I have something important to say.	**0.86**								
03	Listening123r: Even when I want to share my opinion, I can listen to others' opinions first.	**0.73**								
04	Listening126: I ask questions to understand the other person's position on an issue.		**0.49**						0.17	
05	Listening126a: When I am listening to someone, I make sure they know I am interested in what they are saying.		**0.67**							
06	Listening126b: When I am listening to someone, I show them that I am open to their ideas.		**0.67**							
07	Listening126c: When I am listening to someone, I ask questions that show my understanding of what they are saying.		**0.59**						0.21	
08	Empa67: I try to understand the perspective of others before making a decision that affects them.			**0.37**						
09	Empa69: When I'm upset at someone, I usually try to imagine myself in their situation to better understand them.			**0.61**						
10	Empa70: Before judging somebody, I try to imagine how I would feel if I were in their place.			**0.55**			0.19			
11	Empa71: I ask questions to understand the other person's position on a given issue.			**0.53**			0.24			
12	Empa72: I always try to understand the feelings of people I trust.			**0.47**			0.22			
13	Empa73: If I see someone is hurt, I feel upset			0.31			0.31			
14	Empa75: I feel good when I help someone in need.			0.21			**0.71**			
15	Expr96: I share my opinion with others without hesitation					0.27	0.19	0.23		

16	Expr98: I ask for what I need when I need it.			0.17		**0.57**				
17	Expr99: I think it's good to ask for what I want					**0.56**				
18	Expr100: Others understand my thoughts when I express them					0.29		0.21	0.24	
19	Expr100a: I find it easy to explain my perspective to others					**0.41**		0.27	0.17	
20	Expr100b: I share my thoughts even if others do not agree with them.					0.24		0.19	0.20	
22	Expr100d: I directly communicate what I need from others.					**0.52**			0.17	
23	Expr100g: I communicate in a way that others will understand.					0.23			0.46	
24	RelaMaintain78: When others are sad, I try to comfort them.						**0.77**			
25	RelaMaintain79: I listen patiently when people tell me their problems.						**0.77**	0.15		
26	RelaMaintain80: When I see that someone is going through a difficult time, I help out the best I can.						**0.56**			
27	RelaMaintain81: I give my friends and family encouragement when they need it.						**0.76**			
28	RelaNetwork83: I am good at building relationships with people I don't know.							**0.71**		
29	RelaNetwork84: I find it easy to get people to trust me.						0.16	**0.65**		
30	RelaNetwork85: I am able to introduce myself to people I don't know well (e.g., strangers, new or unfamiliar people).							**0.75**		
31	RelaNetwork86: I am good at getting to know people.							**0.62**		
32	RelaMaintain87: I stay connected with people who are important to me.						**0.49**			
33	RelaMaintain88: I am able to forgive my friends and family if they do something that frustrates me.						**0.47**	0.24		
34	Influ89a: I can communicate my ideas in a way that convinces people to agree with me.					0.19		0.30		
35	Influ91n: When someone disagrees with me, I know how to adjust my argument to change their opinion.			0.17		0.15		0.25	0.18	
36	Influ92: I am good at getting people to help me when I need it.					0.19		0.32		
37	Influ93: I evaluate social situations to decide the best way to act.			0.25		0.16		0.19	0.21	

38	Influ95: I am able to adjust my behavior to make a good impression.					0.20		0.18		
39	Negot111: When I disagree with someone, I try to manage my anger so I do not make the situation worse.								**0.56**	
40	Negot114: When I disagree with someone, I am able to give up some things I want to solve our disagreement.			0.18					**0.54**	
41	Negot115: Even when I disagree with someone, I still listen to them share their thoughts and views.								**0.53**	
42	Negot116: When I disagree with someone, I think about the long-term consequence of my actions on the relationship before I do anything.			0.17					**0.58**	
43	Negot117: When I disagree with someone, I can come up with as many possible solutions to solve our problems.					-0.17			**0.75**	
44	Negot119: When I disagree with someone, I can find solutions to the problem that help both me and the other person.								**0.58**	
45	Collabo103: When I work with others, I admit when I am wrong and apologize for my mistakes.			-0.17		0.20	0.41		**0.35**	
46	Collabo104: When I work with others, I tell others my ideas and ask for theirs in return.			-0.14		0.36	0.15		**0.48**	
47	Collabo107: When I don't know a solution to a problem, I can brainstorm with a group of people to get better ideas.			-0.19		0.26	0.33	-0.20	**0.58**	
48	Collabo109: When my team is having difficulty making a decision, I know what to do to help the team work together more effectively.								**0.61**	
49	Collabo110: When I work with others, I clarify the problem we are trying to solve.								**0.72**	
50	Collabo110a: When I work with others, I summarize the information the group has agreed upon.								**0.62**	

NOTE. *N* = ###
Only factor loadings > 0.15 are displayed.

List-R = Listening Respectfully; List-A = Active Listening; Empa = Empathy; Expr = Expressiveness; Rela = Relatedness; Influ = Influence; Nego = Negotiation; and Collab = Collaboration.

Study 3a: Scale Confirmation

CFA: (Tanzania, Swahili) Sample and Method

Sample #6: To obtain further evidence of validity of the new measure, we collected new data in an additional in-person household survey in a new population: Tanzania (May, 2021). We recruited 4,750 individuals who were participants in a larger household survey. Fifty percent of respondents were women. The employment status was lower than in prior samples, with 40 percent employed part-time, no workers employed full-time. We recruited participants from three distinct regions of Tanzania: Dar es Salaam region, the Dodoma region, and Iringa region in line with the target sample for the associated randomized control trial.

Procedure: Before administering our reduced survey with 118 items (58 intrapersonal, 60 interpersonal skills), we began with a backtranslation procedure (Brislin, 1970). This entailed recruitment of a trained interpreter translating *forward* from English into Swahili, matched with a trained interpreter taking those initial translations as inputs and reinterpreting them *backward* into English. The interpreters on the forward and backward side were both aware that our purpose was to eventually find equivalent measures. Disagreements in meaning were few. Results were reviewed by a trained psychologist versed in both English and Swahili. Survey takers used the same tablet instruments and door-to-door methodology as in EFA-1. Participants answered all items in a Likert-type response which ranged from 1 = *kutokubaliana kabisa* to 5 = *kukubaliana sana.*

This sample represents a strict test for our measurement development for two reasons. First, the sample was different in employment status than previous samples (in our prior samples the super-majority of study participants were involved in income generating activities). Second,

the sample required an early effort back-translation which continued the pruning of colloquialisms from the text of questionnaires.

Table 11. Goodness of Fit Statistics, All Studies, Confirmatory Factor Analysis

	Nigeria Pilot 2				Cote d'Ivoire Cohort 2				Congo Follow-up			
	CFI	TLI	RMSEA	SRMR	CFI	TLI	RMSEA	SRMR	CFI	TLI	RMSEA	SRMR
Emotional Awareness	0.999	0.999	0.040	0.022	0.989	0.981	0.065	0.043	0.993	0.988	0.090	0.038
Self Awareness	0.997	0.996	0.060	0.037	0.982	0.975	0.085	0.056	0.996	0.995	0.074	0.033
Emotional Regulation	0.996	0.993	0.088	0.040	0.968	0.953	0.123	0.071	0.999	0.999	0.046	0.021
Self Control	0.998	0.996	0.045	0.032	0.990	0.983	0.072	0.042	0.999	0.998	0.069	0.025
Perseverance	0.998	0.996	0.058	0.033	0.988	0.982	0.073	0.049	0.998	0.994	0.054	0.020
Personal Initiative	0.995	0.992	0.087	0.046	0.988	0.983	0.081	0.053	0.996	0.995	0.069	0.037
Prob. Solv. & Dec. Mak.	0.990	0.988	0.103	0.058	0.977	0.971	0.067	0.061	0.996	0.995	0.082	0.039
Listening, Respectful	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000
Listening, Active	0.997	0.992	0.100	0.031	0.995	0.989	0.079	0.039	1.000	1.000	0.000	0.000
Empathy	0.994	0.990	0.102	0.045	0.988	0.982	0.088	0.056	0.994	0.992	0.088	0.041
Expressiveness	0.985	0.974	0.182	0.074	0.987	0.973	0.080	0.046	0.998	0.994	0.085	0.022
Relatedness	0.995	0.993	0.078	0.047	0.990	0.986	0.082	0.055	0.997	0.996	0.061	0.034
Influence	0.981	0.968	0.176	0.076	0.995	0.990	0.059	0.038	0.983	0.967	0.148	0.063
Negotiation	0.996	0.995	0.061	0.040	0.992	0.989	0.063	0.043	0.999	0.999	0.040	0.021
Collaboration	0.994	0.987	0.146	0.048	0.995	0.993	0.065	0.041	0.999	0.999	0.044	0.020
Generalized Self Efficacy	0.987	0.982	0.122	0.068	0.943	0.924	0.110	0.085	0.980	0.974	0.155	0.080
	Rwanda				**Cote d'Ivoire Cohort 3**				**Tanzania Baseline**			
	CFI	TLI	RMSEA	SRMR	CFI	TLI	RMSEA	SRMR	CFI	TLI	RMSEA	SRMR
Emotional Awareness	0.999	0.997	0.048	0.019	0.992	0.987	0.052	0.036	0.998	0.997	0.034	0.019
Self Awareness	0.996	0.995	0.049	0.037	0.991	0.987	0.064	0.046	0.994	0.992	0.064	0.037
Emotional Regulation	0.985	0.978	0.105	0.058	0.981	0.974	0.091	0.054	0.997	0.995	0.042	0.025
Self Control	0.995	0.992	0.060	0.041	0.990	0.983	0.075	0.040	0.994	0.987	0.085	0.034
Perseverance	0.995	0.993	0.045	0.042	0.993	0.990	0.055	0.036	0.992	0.987	0.054	0.034
Personal Initiative	0.994	0.991	0.046	0.045	0.995	0.993	0.045	0.038	0.992	0.989	0.063	0.042
Prob. Solv. & Dec. Mak.	0.995	0.993	0.044	0.044	0.992	0.990	0.045	0.044	0.983	0.979	0.067	0.050
Listening, Respectful	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000
Listening, Active	0.998	0.997	0.053	0.030	0.999	0.998	0.043	0.016	0.980	0.973	0.062	0.048
Empathy	0.995	0.992	0.049	0.046	0.991	0.986	0.066	0.043	0.999	0.996	0.051	0.017
Expressiveness	0.995	0.992	0.065	0.038	0.993	0.990	0.046	0.039	0.995	0.992	0.048	0.030
Relatedness	0.995	0.993	0.051	0.035	0.995	0.993	0.056	0.040	0.987	0.983	0.064	0.042
Influence	0.999	0.998	0.038	0.021	0.993	0.987	0.053	0.033	0.995	0.993	0.051	0.035
Negotiation	0.997	0.994	0.060	0.032	0.993	0.990	0.055	0.037	0.999	0.998	0.024	0.015
Collaboration	0.998	0.997	0.029	0.033	0.993	0.990	0.085	0.047	0.998	0.997	0.039	0.022
Generalized Self Efficacy	0.974	0.965	0.088	0.074	0.972	0.964	0.069	0.061	0.993	0.989	0.078	0.040

Table 12. Regressing Employment [Yes=1] on Socioemotional Skills

	Nigeria Pilot 2			Cote d'Ivoire			Congo Follow-up			Rwanda			Tanzania			Tanzania Follow-up		
	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F
Emotional Awaren	0.015	0.018	0.033**	0.002	0.005	0.007	0.012	-0.044***	-0.032**	0.025	-0.019	0.006	-0.013	0.021	0.008	-0.019**	0.01	-0.01
Self Awareness	0.008	0.048*	0.056***	-0.011	0.016	0.005	0.013	-0.033*	-0.019	0.017	-0.02	-0.002	-0.006	0.013	0.008	-0.007	-0.011	-0.017*
Emotional Regulati	0.027	0.042*	0.069***	-0.011	0.032**	0.021*	0.011	-0.037**	-0.025*	0.012	-0.025	-0.013	-0.02**	0.007	-0.013	-0.002	-0.005	-0.008
Self Control	0.006	0.026	0.032*	0.008	-0.004	0.004	-0.005	-0.007	-0.012	-0.031	0.036	0.005	0.023**	-0.032**	-0.009	0	-0.004	-0.004
Perseverance	0.026	0.015	0.041**	-0.006	0.008	0.002	0.011	-0.025	-0.014	0.018	-0.011	0.007	-0.014	0.021	0.007	0.007	-0.005	0.002
Personal Initiative	0.025	0.02	0.045***	0.005	0.001	0.006	0.014	-0.03*	-0.016	0.02	-0.01	0.01	-0.016	0.02	0.005	0.007	-0.008	0
Prob. Solv. & Dec. I	0.041**	0.029	0.07***	0.001	0.018	0.019*	0.009	-0.028*	-0.019	0.037	-0.048	-0.011	-0.007	0.019	0.011	0.002	-0.001	0.002
Listening, Respectf	0.018	0.017	0.035**	0.022*	-0.022	0	0.017*	-0.017	0	-0.023	0.01	-0.013	0.014	-0.019	-0.006	0.011	-0.018	-0.008
Listening, Active	0.019	0.035	0.054***	-0.025**	0.043***	0.019	0.013	-0.028*	-0.014	0.009	-0.026	-0.017	-0.017*	0.007	-0.011	0.009	-0.028**	-0.019*
Empathy	0.025	0.028	0.053***	-0.014	0.027*	0.014	0.019*	-0.049***	-0.03**	0.01	-0.01	0	-0.012	0.018	0.006	-0.001	-0.021	-0.022**
Expressiveness	0.031*	0.024	0.055***	-0.031***	0.056***	0.025**	0.028***	-0.053***	-0.025*	0.006	-0.037	-0.031	-0.015	0.006	-0.008	0.008	-0.013	-0.005
Relatedness	0.021	0.026	0.046***	-0.012	0.036**	0.024**	0.014	-0.041**	-0.027**	0.025	-0.022	0.003	-0.013	0.012	-0.001	0.005	-0.019	-0.014
Influence	0.018	0.033	0.051***	-0.017	0.047***	0.03***	0.021**	-0.044***	-0.023*	0.025	-0.025	0.001	-0.016*	0.023*	0.007	0	-0.007	-0.007
Negotiation	0.02	0.032	0.052***	0.001	0.005	0.006	0.022**	-0.046***	-0.024*	0.023	-0.031	-0.008	-0.015	0.019	0.003	0.007	-0.026*	-0.019*
Collaboration	0.022	0.01	0.032*	-0.004	0.033**	0.029**	0.019*	-0.055***	-0.035***	0.028	-0.017	0.011	-0.017*	0.015	-0.002	-0.003	-0.02	-0.024**
Generalized Self Ef	0.031	0.027	0.058***	-0.008	0.02	0.012	0.011	-0.033**	-0.022*	0.041*	-0.024	0.017	0.004	0.02	0.024**	0.01	-0.011	-0.002
Aggregates																		
Intra	0.026	0.037	0.063***	-0.002	0.018	0.015	0.011	-0.039**	-0.028**	0.019	-0.018	0	-0.01	0.013	0.003	-0.006	0.003	-0.003
Inter	0.03	0.029	0.059***	-0.012	0.037**	0.025**	0.026**	-0.057***	-0.031**	0.019	-0.027	-0.007	-0.016*	0.015	-0.001	0.005	-0.023	-0.017*
Awareness	0.024	0.036	0.06***	-0.01	0.022	0.013	0.019*	-0.046***	-0.027**	0.014	-0.018	-0.004	-0.011	0.014	0.003	-0.004	-0.016	-0.02*
Management	0.032*	0.031	0.063***	-0.007	0.031*	0.024**	0.018*	-0.048***	-0.03**	0.022	-0.025	-0.004	-0.015	0.015	0	0.002	-0.007	-0.004
All	0.031*	0.033	0.064***	-0.011	0.033**	0.022*	0.019*	-0.05***	-0.031**	0.02	-0.024	-0.004	-0.014	0.015	0.001	0	-0.008	-0.008

Note: OLS regression with controls for age, education, and marital status. SE denotes socioemotional skill. F denotes a binary variable equal to 1 if an individual is female. ***,**, and * indicate p-values less than .01, .05, .10 respectively.

Table 13. Regressing Monthly Income (Inverse Hyperbolic Sine) on Socioemotional Skills

	Nigeria Pilot 2			Cote d'Ivoire			Congo Follow-up			Rwanda			Tanzania			Tanzania Follow-up		
	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F	Coef: SE	Coef: SE*F	Coef: SE+SE*F
Emotional Awaren	0.106	0.028	0.134	0.014	0.162**	0.176***	0.055	-0.203***	-0.148**	0.153	-0.128	0.025	-0.048	0.094	0.046	-0.015	0.05	0.035
Self Awareness	0.115	0.162	0.277***	-0.053	0.167**	0.114**	0.064	-0.172**	-0.108*	0.125	-0.137	-0.012	-0.023	0.053	0.03	0.039	-0.077	-0.039
Emotional Regulati	0.126	0.154	0.28***	-0.046	0.191**	0.145**	0.065	-0.171**	-0.106*	0.044	-0.156	-0.112	-0.089**	0.065	-0.024	0.065	-0.041	0.024
Self Control	0.124	0.097	0.221**	0.052	-0.02	0.032	-0.053	-0.067	-0.12*	-0.18	0.329**	0.148	0.083**	-0.135**	-0.052	0.009	-0.101	-0.092*
Perseverance	0.133	0.044	0.177**	-0.057	0.118	0.061	0.096**	-0.133*	-0.037	0.087	-0.023	0.065	-0.061	0.071	0.01	0.111**	-0.022	0.088*
Personal Initiative	0.104	0.116	0.22**	-0.04	0.133	0.092	0.079*	-0.159**	-0.08	0.161	-0.055	0.106	-0.095**	0.112*	0.017	0.126***	-0.054	0.072
Prob. Solv. & Dec. I	0.204**	0.108	0.312***	-0.093	0.218***	0.125**	0.044	-0.151**	-0.107*	0.204*	-0.199	0.005	-0.043	0.089	0.046	0.091**	0	0.09*
Listening, Respectf	0.098	0.023	0.121	0.05	0.074	0.124**	0.033	-0.066	-0.033	-0.181	0.143	-0.037	0.027	-0.06	-0.033	0.084*	-0.081	0.003
Listening, Active	0.011	0.144	0.155*	-0.062	0.193**	0.131**	0.061	-0.141*	-0.08	0.084	-0.111	-0.028	-0.065	0.033	-0.032	0.108**	-0.156**	-0.048
Empathy	0.076	0.208	0.285***	-0.042	0.087	0.045	0.091*	-0.239***	-0.148**	0.095	-0.029	0.065	-0.057	0.091	0.035	0.075	-0.109	-0.034
Expressiveness	0.114	0.135	0.249***	0.001	0.142*	0.142**	0.129***	-0.215***	-0.086	0.081	-0.223	-0.142	-0.058	0.03	-0.028	0.112**	-0.042	0.07
Relatedness	0.027	0.192	0.219**	-0.004	0.095	0.091	0.086*	-0.215***	-0.129**	0.175	-0.089	0.086	-0.054	0.054	-0.001	0.095**	-0.099	-0.004
Influence	0.077	0.153	0.229***	-0.046	0.154*	0.108*	0.135***	-0.186**	-0.051	0.168	-0.157	0.012	-0.065	0.084	0.018	0.07	-0.025	0.045
Negotiation	0.007	0.203	0.21**	0.002	0.101	0.103*	0.133***	-0.257***	-0.123**	0.127	-0.16	-0.033	-0.071*	0.066	-0.005	0.103**	-0.129*	-0.026
Collaboration	0.08	0.033	0.113	-0.012	0.133	0.121**	0.093**	-0.264***	-0.17***	0.165	-0.113	0.052	-0.091**	0.061	-0.03	0.051	-0.09	-0.04
Generalized Self Ef	0.149	0.08	0.229***	-0.071	0.185**	0.114**	0.045	-0.153**	-0.108*	0.213*	-0.11	0.102	0.015	0.086	0.101**	0.132***	-0.062	0.071
Aggregates																		
Intra	0.19**	0.133	0.324***	-0.048	0.206**	0.158***	0.059	-0.202***	-0.143**	0.113	-0.069	0.044	-0.053	0.069	0.015	0.069	-0.01	0.059
Inter	0.09	0.16	0.25***	-0.028	0.157*	0.129**	0.129***	-0.269***	-0.139**	0.133	-0.13	0.002	-0.075*	0.064	-0.011	0.108**	-0.108	0
Awareness	0.119	0.14	0.259***	-0.042	0.205**	0.163***	0.08*	-0.222***	-0.142**	0.098	-0.084	0.014	-0.05	0.071	0.021	0.067	-0.087	-0.02
Management	0.162*	0.142	0.304***	-0.034	0.156*	0.122**	0.098**	-0.238***	-0.14**	0.136	-0.109	0.028	-0.074*	0.067	-0.007	0.109**	-0.046	0.063
All	0.157*	0.145	0.302***	-0.039	0.172**	0.134**	0.096**	-0.245***	-0.149**	0.129	-0.105	0.024	-0.068*	0.07	0.002	0.096**	-0.046	0.05

Note: OLS regression with controls for age, education, and marital status. SE denotes socioemotional skill. F denotes a binary variable equal to 1 if an individual is female. ***,**, and * indicate p-values less than .01, .05, .10 respectively.

Study 3b: Socioemotional Skills and Economic Outcomes

Sample and procedure.

We conducted a final study that allowed us to investigate the concurrent relationship between socioemotional skills and economic outcomes, specifically employment and income, and how that differs with gender. Prior literature has made some predictions in this regard (see online supplement). All socioemotional skill scores were standardized by subtracting the mean and dividing by the standard deviation for each country, such that regression results would be comparable. Here we focus on two outcome variables: a binary variable capturing whether an individual is employed, and the inverse hyperbolic sine of the monthly income. We utilized the follow regression specification, where Y denotes the outcome variable, S denotes the socioemotional skill, F denotes a binary variable indicating if the individual is female, X denotes the set of control variables which includes age, educational attainment, and a binary variable for marital status.

$$\boldsymbol{Y_i = \alpha + \beta_1 SE_i + \beta_2 F_i + \beta_3 SE_i F_i + \beta_4 X_i + \varepsilon}$$

This regression was run separately for each of the five samples and each of the 14 socioemotional skills, and allows for an analysis of the gender-disaggregated results. It is important to note that the sample from the pilot in Nigeria was more general, in that two low-income and two middle-income neighborhoods were selected in each city, and within these neighborhoods every other household was interviewed. However, the remaining samples were from targeted randomized control trials which only included eligible beneficiaries.

Results

We find a large variation in results for both employment and income.

Employment

In the Nigeria pilot, one standard deviation of skill levels is correlated with a 3 to 7 higher percentage point likelihood of employment for women. Similar relationships are only found for a few skills for men. Correlations between employment and several interpersonal skills are significantly higher for women than men in the Cote d'Ivoire sample, but higher for men relative for women in the Congo sample. Relationships are close to zero for both men and women for the studies in Rwanda and Tanzania.

Income

For women in Nigeria and Cote D'Ivoire, income is strongly correlated with both intrapersonal and interpersonal skills. However, in Congo, socioemotional skills are negatively correlated with women's income, and positively correlatedwith men;s income, especially interpersonal skills. While no significant relationship is observed in the Rwandan sample, analyzing the last version of the instrument in Tanzania finds positive correlations between skills and income for men, not women. This indicates the importance of further research into which socioemotional skills matter most for labor outcomes, and disaggregating this analysis by gender, employment sectors, and aspirations.

Conclusion and Future Directions

Socioemotional skills have recently attracted attention from policymakers and researchers for their potential to improve individuals' abilities to live a productive life. The World Bank, as well as other donors and governments, are investing in workforce development programs that help build these skills in youth and adults. To inform these investments, there is a demand for evidence on which socioemotional skills matter most, for whom they matter, and the extent to

which training programs are effective at impacting economic outcomes through these skills. Our studies were designed to help begin this ambitious research agenda with a set of measures – validated in three languages and across multiple countries in sub-Saharan Africa – that others can also use to help build the knowledge base about these skills, workers, and how these skills may interact with individuals' economic outcomes.

In sum, our triad of studies offers significant contributions to the fields of socioemotional skills, work psychology, and development economics. Our primary contribution lies in developing and validating a set of measures that is suitable for use in Sub-Saharan Africa, one that can be used by researchers to deepen understanding of how these skills manifest and matter for economic outcomes within this region and beyond the Western high-income country contexts. This geographical focus is further accentuated by our provision of measures designed specifically for adult participants of diverse employment statuses, addressing a gap in current literature that often repurposes adolescent measures in adult contexts. Through rigorous scale development studies spanning four Sub-Saharan countries and three languages (English, French, and Swahili), we amassed data from 10,151 participants. This dataset allowed us to establish internal reliabilities of our measures, supported by both Cronbach's alpha and omega measure (refer to Table 2; Cortina et al., 2020).

Furthermore, our findings reveal nuanced relationships among socioemotional skills as they pertain to economic outcomes. Specifically, our research differentiates how these skills relate to distinct economic results such as income (inconsistently) and employment (positively and consistently. This precision enriches the understanding of the roles these skills play in shaping the economic aspirations of employees and entrepreneurs. It also provides intriguing directions for future policy-relevant research. For example, could increases in socioemotional

skill levels lead workers to pursue more risky self-employment options – a hypothesis that might explain why skills are less predictive of income than (self-) employment? Whatever the outcome of future research, the nuance here provides at least a starting point.

References

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology, 1*(3), 185-216.

Colquitt, J. A., Sabey, T. B., Rodell, J. B., & Hill, E. T. (2019). Content validation guidelines: Evaluation criteria for definitional correspondence and definitional distinctiveness. *Journal of Applied Psychology, 104*(10), 1243.

Deming, D. J. (2017). The growing importance of social skills in the labor market. *The Quarterly Journal of Economics, 132*(4), 1593-1640.

Ferris, G. R., Treadway, D. C., Kolodinsky, R. W., Hochwarter, W. A., Kacmar, C. J., Douglas, C., & Frink, D. D. (2005). Development and validation of the political skill inventory. *Journal of Management, 31*(1), 126-152.

Geiselman, R. E., Fisher, R. P., MacKinnon, D. P., & Holland, H. L. (1985). Eyewitness memory enhancement in the police interview: cognitive retrieval mnemonics versus hypnosis. *Journal of Applied Psychology, 70*(2), 401.

Graczyk, P., Matjasko, J., Weissberg, R., Greenberg, M., Elias, M., & Zins, J. (2000). The role of the Collaborative to Advance Social and Emotional Learning (CASEL) in supporting the implementation of quality school-based prevention programs. *Journal of Educational and Psychological Consultation, 11*(1), 3-6.

Gross, J. J., & Feldman Barrett, L. (2011). Emotion generation and emotion regulation: One or two depends on your point of view. *Emotion Review, 3*(1), 8-16.

Hinkin, T. R., & Tracey, J. B. (1999). An analysis of variance approach to content validation. *Organizational Research Methods, 2*(2), 175-186.

Johnson, S. C., Schmitz, T. W., Kawahara-Baccus, T. N., Rowley, H. A., Alexander, A. L., Lee, J., & Davidson, R. J. (2005). The cerebral response during subjective choice with and without self-reference. *Journal of Cognitive Neuroscience, 17*(12), 1897-1906.

Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: a concise measure of the dark triad. *Psychological Assessment, 22*(2), 420.

Klotz, A. C., Swider, B. W., & Kwon, S. H. (2023). Back-translation practices in organizational research: Avoiding loss in translation. *Journal of Applied Psychology, 108*(5), 699.

Petersen, S. E., & Posner, M. I. (2012). The attention system of the human brain: 20 years after. *Annual review of neuroscience, 35*, 73-89.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879.

Posner, M. I., & Rothbart, M. K. (2007). Research on attention networks as a model for the integration of psychological science. *Annu. Rev. Psychol., 58*, 1-23.

Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy. Measures package, 61*(52), 18.

Rueda, M. R., Rothbart, M. K., McCandliss, B. D., Saccomanno, L., & Posner, M. I. (2005). Training, maturation, and genetic influences on the development of executive attention. *Proceedings of the National Academy of Sciences, 102*(41), 14931-14936.

Schmitt, N., & Stuits, D. M. (1985). Factors defined by negatively keyed items: The result of careless respondents? *Applied Psychological Measurement, 9*(4), 367-373.

Schriesheim, C. A., & Eisenbach, R. J. (1995). An exploratory and confirmatory factor-analytic investigation of item wording effects on the obtained factor structures of survey questionnaire measures. *Journal of Management, 21*(6), 1177-1193.

Schuman, H. (1966). The random probe: A technique for evaluating the validity of closed questions. *American Sociological Review*, 218-222.

Soto, C. J., Napolitano, C. M., Sewell, M. N., Yoon, H. J., & Roberts, B. W. (2022a). Going beyond traits: Social, emotional, and behavioral skills matter for adolescents' success. *Social Psychological and Personality Science*, 19485506221127483.

Yih, J., Uusberg, A., Taxer, J. L., & Gross, J. J. (2019). Better together: a unified perspective on appraisal and emotion regulation. *Cognition and Emotion, 33*(1), 41-47.

Appendix A

Appendix A.
Labels for Socioemotional Skills in Five Research Literatures.

Skill	Child Development and Learning (CASEL)	Workforce Development	Psychology (IO / Work / Management)	Economics	Psychology (Personality)
1. EMOTIONAL AWARENESS	*Self-awareness:* Identifying emotions	Managing emotions*; Positive self-concept*	Appraisal of emotions; Emotional (self) awareness; Emotional intelligence (Gignac et al., 2005a; Salovey & Mayer, 1990; Schutte et al., 1998)	Self-control	
2. SELF- AWARENESS	*Self-awareness:* Accurate self-perception; Recognizing strengths		Insight; Metacognition; (Objective) Self-awareness; (Private) Self-consciousness; Self-monitoring; Self-other agreement; Self-reflection (Ashley & Reiter-Palmon, 2012; Grant, 2001; Grant et al., 2002; Murphy & Alexander, 2000; Schraw & Dennison, 1994; Silvia & Duval, 2001; Snyder, 1974)	Self-efficacy; Self-esteem	
3. EMOTIONAL REGULATION	*Self-management:* Regulating one's emotions, thoughts, and behaviors	Managing emotions*; Self-control*	Emotional intelligence; Emotional regulation; Self-regulation (Gignac et al., 2005b; J. Gross, 2015; J. J. Gross & John, 2003; Matsumoto et al., 2008; Niven et al., 2011; Schutte et al., 1998)	Self-control	Big 5: Emotional stability; Neuroticism SAPI: Emotional Balance
4. SELF-CONTROL	*Self-management:* Impulse control; Self-discipline; Self-motivation	Achieving goals*; Self-control*	Anger management; Attention; Effortful control; Executive function; Impulse control; Inhibitory control; Mindfulness; Self-control**;** Self-regulation (Baumeister et al., 1994; A. Duckworth & Gross, 2014; A. L. Duckworth & Kern, 2011; Feldman et al., 2007; Maloney et al., 2012; Tangney et al., 2004)	Ability to delay gratification; Patience; Present bias; Self-control; Time-inconsistent preferences (DellaVigna, 2009; Frederick et al., 2002; Gul & Pesendorfer, 2001)	Big 5: Conscientiousness

Skill	Child Development and Learning (CASEL)	Workforce Development	Psychology (IO / Work / Management)	Economics	Psychology (Personality)
5. PERSONAL INITIATIVE	*Self-management:* Goal setting	Achieving goals*; Self-direction; Self-motivation; Self-starting	Action orientation; Assertiveness; Goal orientation; Growth mindset; (Career/ Personal Growth) Initiative; Intentional behavior; Proactive (orientation/personality) (Bateman & Crant, 1993; Mensmann & Frese, 2019; Parker et al., 2010; Robitschek et al., 2012)	Growth Mindset; Personal initiative (Campos et al., 2017; Mensmann & Frese, 2019)	Big 5: Conscientiousness; Openness SAPI: Achievement orientation
6. PERSEVERANCE	*Self-management:* Self-motivation		Frustration tolerance; Goal orientation; Grit; Initiative; Need for achievement; Persistence; Perseverance; Resilience; Self-control; Self-management (Datu et al., 2016; Diaz et al., 2013; Disabato et al., 2019; A. Duckworth & Gross, 2014; A. L. Duckworth & Kern, 2011; A. L. Duckworth & Quinn, 2009; Frese et al., 1997; Kashdan, 2018; Muenks et al., 2017; Peterson & Seligman, 2004; Robertson-Kraft & Duckworth, 2014; Robitschek et al., 2012; Salisu et al., 2020; Whiteside & Lynam, 2001)	Perseverance; Persistence; Self-control	Big 5: Grit Conscientiousness
7. PROBLEM-SOLVING	*Responsible decision-making:* Analyzing situations; Evaluating; Reflecting	Problem solving/ Critical thinking*; Higher-order thinking*	Creativity; (Fluid) Intelligence; (Rational/Creative) problem-solving; Working memory (Borghans et al., 2008; D'Zurilla et al., 2004; Lai, 2011; Lewis & Smith, 1993; Sorsdahl et al., 2017)	Cognitive skills; Higher-order thinking (Borghans et al., 2008)	Big 5 and SAPI: Openness
8. EMPATHY	*Social awareness:* Perspective-taking; Empathy	Communication*	Cognitive empathy; Emotional attention; Perspective-taking; Recognizing emotions (Caruso & Mayer, 1998a; Davis, A, 1980; Kret & Gelder, 2012; Longmire & Harrison, 2018)	Social skills	Big 5: Agreeableness SAPI: Empathy; Social intelligence

9. LISTENING	*Relationship skills:* The ability to listen well	Communication*	Attention; Active Listening; Respectful communication (Bodie, 2011; Brink & Costigan, 2015; Drollinger et al., 2006; Kourmousi et al., 2017)		Big 5: Agreeableness SAPI: Warm-heartedness
10. EXPRESSIVENESS	*Relationship skills:* The ability to communicate clearly		(Assertive/Effective) communication; (Oral) Expression (Arrindell & van der Ende, 1985; Fleishman, 1984; Mitamura, 2018)		Big 5: Extraversion
11. INTERPERSONAL RELATEDNESS	*Relationship skills:* Social engagement; Relationship building; Teamwork		Affective empathy; Caring; Compassion; Emotional attention; Empathetic concern; Empathy; Kindness; Prosocial behavior; Social intelligence (Baumsteiger & Siegel, 2019; Boyatzis et al., 1999; Caruso & Mayer, 1998b; Drollinger et al., 2006; Forret & Dougherty, 2004; Gilbert et al., 2019; Pommier, 2010; Strauss et al., 2016)	Building social networks; Social skills; Social support	Big 5: Agreeableness; Extraversion SAPI: Integrity, Interpersonal relatedness, Warm-heartedness
12. INTERPERSONAL INFLUENCE	*Relationship skills:* Communication; Conflict resolution; Social engagement; Relationship-building; Teamwork	Social skills*: Working with others*; Teamwork	Adaptability; Influence; Interpersonal effectiveness; Leadership; Networking ability; Persuasive (communication); Political (savvy/skill); Self-monitoring; Social (astuteness/ effectiveness (Arrindell & van der Ende, 1985; Doyle, 2020; Fenstermaker, 2012; Ferris et al., 2005; Kilmann & Thomas, 1977; Kipnis & Schmidt, 1980; Lippman et al., 2015; Pulakos et al., 2002; Snyder, 1974; Thomas & Kilmann, n.d.)	Negotiation; Persuasion; Persuasiveness; Social skills (Ashraf et al., 2020)	Big 5: Extraversion
13. NEGOTIATION **14. COLLABORATION**			Interpersonal negotiation; Perspective-taking; (Social) Problem-solving (Arrindell & van der Ende, 1985; Doyle, 2020; D'Zurilla & Goldfried, 1971; Elfenbein et al., 2008; Fenstermaker, 2012; Gaumer Erickson & Noonan, 2018; Kilmann & Thomas, 1977; Richard, 2001; Selman et al., 1986; Selman & Demorest, 1984; Sharma et al., 2013; Stevens & Campion, 1999; Sullivan et al., 2006; Yeates et al., 1991)	Cooperation	Big 5: Agreeableness