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The Italian Behavioral, Emotional, and Social Skills Inventory (BESSI-I)

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ABSTRACT

The importance of social, emotional, and behavioral (SEB) skills is recognized worldwide, but their measurement has always been a challenge. The BESSI measures 32 SEB skills, divided into five domains (social engagement, cooperation, self-management, emotional resilience, and innovation), but its validity must be expanded to new languages and contexts. Across two studies (N_1 = 990, N_2= 824) we developed the Italian version of the BESSI, provided further support for its convergent and discriminant validity with the Big Five, and expanded its nomological network to procrastination, self-efficacy, and emotion regulation. The BESSI-I showed excellent internal reliability and satisfactory fit indices at the facet, domain, and overarching framework level. We also confirmed the correlations between the SEB skills and the Big Five personality traits and found meaningful correlations with the selected external outcomes. Overall, we confirm that the BESSI-I is a valid and useful instrument to assess SEB skills for research and clinical purposes.

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Introduction

In recent years, interest has been growing in personal qualities that influence success in life, as expressed by academic or professional achievement (Duckworth & Yeager, 2015; Soto et al., 2021). These qualities have been referred to with different terms, such as "non-cognitive skills", "soft skills", "character strengths" or "21st-century competencies" (Abrahams et al., 2019). Along with different names, several conceptualizations and frameworks have been proposed, each of them comprising different sets of skills (Soto et al., 2021). However, it is possible to find some similarities between different theoretical frameworks. Firstly, social, emotional, and behavioral (SEB) skills are usually described as non-technical competencies associated with one's personality, attitude, and ability to interact effectively with others (Stewart et al., 2016). Secondly, SEB skills are not conceptualized as fixed and unchangeable but can rather be nurtured and developed through daily life experiences (Feraco & Meneghetti, 2022, 2023; Robles, 2012). Finally, they are transferable skills, i.e., they can be learned in a certain context and applied to other different situations (Pellegrino & Hilton, 2012). For example, teamwork competency can be developed during sports activities and it can become useful to the individual at school, university, or their future job.

Alongside the different conceptualizations, terminologies, and definitions of SEB skills, there has been uncertainty about the most reliable and valid ways to assess them (Soto et al., 2021). Abrahams et al. (2019) addressed the complexity of social-emotional skills assessment by identifying the various methodological approaches used in the literature: Questionnaires (e.g., participants have to rate how well the items describe their typical behavior), ambulatory assessment (i.e., individuals report their feelings, thoughts, and behaviors several times a day), situational judgment tests (i.e., participants are provided with a set of hypothetical scenarios and choose among different courses of actions), and performance or behavioral measures (e.g., objective tests which measure specific or multiple skills). A possible balance between these approaches could be offered by skills inventories, i.e., questionnaires in which participants rate their capacities to perform a specific behavior when called upon to do so (Soto et al., 2021).

Starting from these premises, the SEB skills framework and a new measure[1], the BESSI (Behavioral, Emotional, and Social Skills Inventory), have been introduced to develop a robust theoretical framework of SEB skills and an appropriate measure to self-reportedly assess them (Soto et al., 2022a). The BESSI has shown promising psychometric properties both in its original version and in its German-language adaptation and validation (Lechner et al., 2022). The following sections will introduce the SEB skills framework and describe the BESSI.

The SEB skills framework

Soto et al. (2021) define SEB skills as people's capacities to build and maintain social relationships, regulate emotions,

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Supplemental data for this article can be accessed online at https://doi.org/10.1080/00223891.2024.2335912.
[1]We use the term 'measure' to describe the set of items used here. The BESSI does not measure SEB skills in an objective, directly observed way, but instead relies (in this instance) on individuals' self-reports of these abilities.
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and manage goal- and learning-directed behaviors. The authors organized the numerous SEB taxonomies in a more comprehensive framework, starting from the observation that several overlapping skills are common to different frameworks. Furthermore, they noticed that most of these skills could be directly linked to the Big Five personality traits (McCrae & Costa, 1989). However, it should be noted that SEB skills and personality traits are not equivalent. Personality traits can be considered as characteristic patterns of thinking, feeling, and behaving, and they represent what a person generally tends to do, averaged across situations. On the other hand, SEB skills are functional capacities, and they represent what a person is capable of doing when the situation calls for it. SEB skills are a set of tools available to an individual, who can decide whether to use them or not (Soto et al., 2021).

Drawing on the five-dimensional structure of the Big Five framework, the authors proposed a theoretical-based classification of 32 SEB skills belonging to five major domains:

- *Social-engagement skills*: Related to the Big Five domain of extraversion, they represent the capacities used to actively engage with other people.
- *Cooperation skills*: Related to the Big Five domain of agreeableness, they represent the capacities used to maintain positive social relationships.
- *Self-management skills*: Related to the Big Five domain of conscientiousness, they represent the capacities used to achieve goals and complete tasks.
- *Emotional-resilience skills*: Related to the Big Five domain of neuroticism, they represent the capacities used to regulate emotions and moods.
- *Innovation skills*: Related to the Big Five domain of openness, they represent the capacities used to engage with novel ideas and experiences.

Most SEB skills have been assigned only to one of these five domains. Four skills, called "interstitial facets", are shared between two domains, one of which is always self-management. For instance, energy regulation is shared between social engagement and self-management skills. Finally, three more skills, named "compound facets" are moderately related to three or more domains. The complete framework is shown in Figure 1.

The BESSI inventory

Starting from the SEB skills framework, Soto et al. (2022a) developed the BESSI, a skills inventory to assess self-reported SEB skills. The BESSI consists of 192 items in total, six for each of the 32 facets. It is possible to obtain a score for each of the 32 facets, together with a global score for the five domains. The BESSI instructions are simple: Participants should rate how well they can do a certain thing (e.g., "How well can you follow the instructions for an assignment?"). Therefore, the BESSI asks about the perceived capacity to successfully enact a behavior (i.e., SEB skills), and not about typical behaviors (i.e., personality traits). Across five studies and multiple samples, including both adolescents and adults, the BESSI showed unidimensionality of the 32 skills and high to very high internal consistency (alphas always higher than .80 across multiple samples). The BESSI also confirmed the factorial structure for the five broad domains (i.e., social engagement, cooperation, self-management, emotional

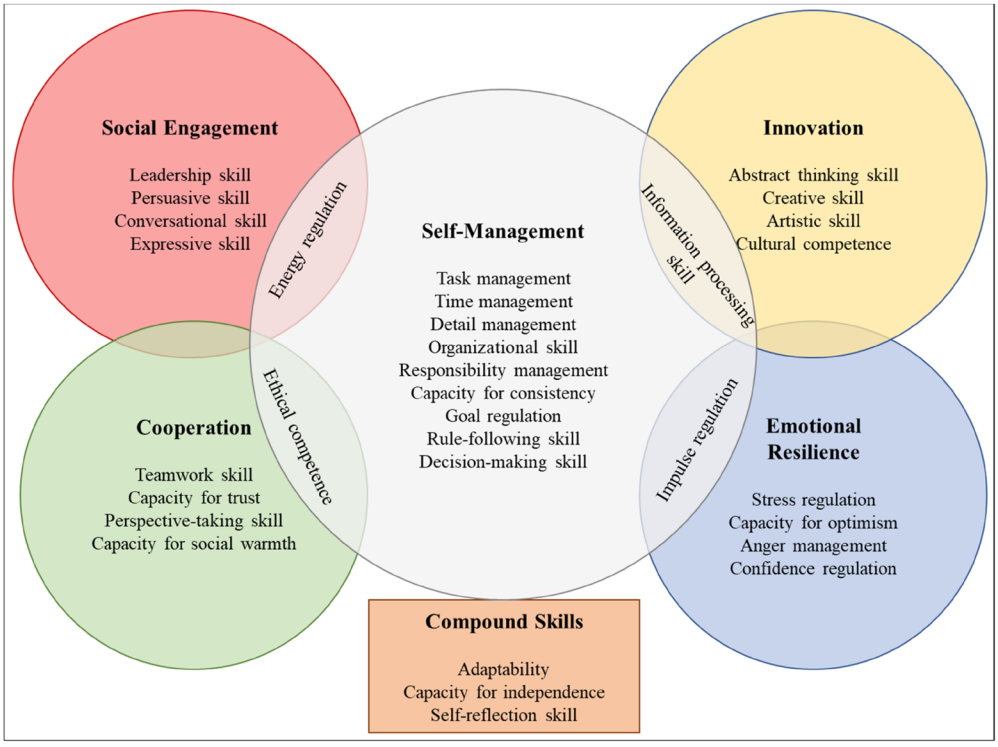

Figure 1. The BESSI framework. *Note.* Image adapted from Soto et al. (2022a).

resilience, and innovation skills) and the general theoretical framework. Many SEB skills facets were associated with a single domain, but the four interstitial facets and three compound facets showed more complex patterns of domain-level associations. Concerning convergent and discriminant validity, BESSI's domains and facets related meaningfully with the hypothesized Big Five personality traits, as well as other constructs including socioemotional competencies, character and developmental strengths. Self-reported SEB skills' relations with high school students' outcomes were also tested (Soto et al., 2022a). BESSI domains and facets showed meaningful associations with academic achievement (i.e., course grades) and engagement, occupational interests, social relationships, and well-being. Moreover, self-reported SEB skills provided incremental validity over the Big Five in predicting these outcomes. Despite the strong convergence between the self-reported SEB skills and the Big Five, the skills still provided unique information beyond the traits, supporting the theoretical distinction between personality and skills.

Recently, a German-language version of the BESSI has been validated (BESSI-G; Lechner et al., 2022). This showed good psychometric properties (in terms of reliability and factorial validity, with alphas always higher than .87) and its domain structure appeared to be highly similar to the original version. Moreover, to expand the BESSI framework, the authors showed that most self-reported SEB skills were largely independent of both fluid and crystallized intelligence. Finally, temporal stability over 1.5 months and over eight months was acceptable (with a mean of .75 after 1.5 months and of .66 after eight months), considering that SEB skills are expected to be relatively stable over time (Abrahams et al., 2019; Soto et al., 2021), although malleable through life experiences (Napolitano et al., 2021).

Thus far, previous research has provided evidence of the theoretical validity of the SEB skills framework and the psychometric stability of the BESSI. However, more research is needed to assess the cross-cultural validity of the SEB framework, since, until now, it has been tested only in the United States and Germany. Furthermore, more evidence on the nomological network of the SEB skills would inform practitioners and researchers interested in the clinical application of the framework on how to develop trainings and what outcomes are likely to be positively affected by such interventions. The BESSI might also hold value for clinicians who prioritize the cultivation and enhancement of skills and strengths over problem-centered approaches, enabling them to adopt a more proactive and positive framework in their practice. For example, a clinician working with students with specific learning disabilities, might want to intervene on self-management skills to promote positive learning habits. Similarly, practitioners working in university-based counseling services might use emotional resilience skills to help students with emotional difficulties cope with study-related stressors. Beyond the educational context, organizational psychologist may be particularly interested in promoting cooperation and social engagement skills as part of the organizational culture as well as a performance-enhancing tool.

Overview of the present research

The present study aims to expand the nomological network of SEB skills and extend the validity of the SEB framework and its measurement inventory, the BESSI, to a new context and language: Italy and Italian. Extending the validity of the BESSI framework and measurement to different contexts is crucial for the development of research on SEB skills, whose interest is shared across the world (OECD, 2015). To this end we ran a first Study to develop the BESSI-I and test its psychometric properties and factorial validity on a large sample of Italian respondents ($N = 990$, Study 1). Second (Study 2), we tested convergent and discriminant validity between self-reported SEB skills and the Big Five personality traits and expanded the nomological network of SEB skills by studying their association with three motivational, behavioral, and emotional constructs that were never studied before in relation to SEB skills: Procrastination, emotion regulation strategies, and self-efficacy ($N = 850$, Study 2).

Methods and analyses of the two studies were preregistered at https://doi.org/10.17605/OSF.IO/VYZPN after approval of the University Ethics Committee for Research in Psychology. Methods, samples size, analytical plan, data, and code are all available in the preregistration page.

Study 1

Study 1 aimed to contribute to the validation of the BESSI-I at a factorial level. To this end we used a confirmatory approach and multigroup analysis of invariance to provide further evidence for the factorial structure delineated in the original (Soto et al., 2022a) and the German (Lechner et al., 2022) version of the BESSI. The factorial validity of the BESSI-I was assessed at the level of the 32 facets (factorial validity, unidimensionality, and reliability), at the level of the five second-order domains and for the general overarching model.

We expect to find results in line with those obtained for the original BESSI and the BESSI-G in terms of reliability of the scales and factorial validity of the framework. Additionally, we expect to find factorial invariance between the original and the Italian version of the BESSI.

Method

Participants

In line with the predefined sample size (i.e., 1000), a total of 1132 youths ($N = 715$) and adults ($N = 417$) aged 11 to 69 years old participated to the study (females = 722). They were all Italian speakers residing in Italy. Data were screened for careless responding using the R package *careless* (Curran, 2016) and three different criteria were applied: Mean response time for each item, long-string analysis (long sequences of identical responses to the items), and psychometric synonyms (zero or negative correlations between set of items that should be highly correlated [$r > .60$]). A total of 142 participants were excluded following this procedure. The final sample consisted of 990 participants (650 females) with a mean age of 19.25 (SD = 7.96).

For the multigroup analysis of invariance, we used sample D from the original validation study (Soto et al., 2022a). This includes 600 participants (mean age = 26.41; *SD* = 9.10) who filled the 192 items of the original BESSI online.

Procedure

Data for Study 1 were collected between July and December 2022. All the data were collected online using Qualtrics. Data on youths were collected in class with the collaboration of schools and teachers, after formal agreements with the schools. Students were allowed to use their smartphone, tablet, or pc when the school did not provide a computer to all of them. Adult participants were volunteers that were invited to participate through personal contacts and social media. All the participants and the parents filled the consent form and freely agreed to participate in the study.

Materials

The original US version of the BESSI (Soto et al., 2022a) was translated in Italian following the translation guidelines provided by C. J. Soto and colleagues. First of all, two experts independently translated the BESSI from English to Italian. After that, they compared the two translations and discussed with a third expert about the items they disagreed on. A fourth American-Italian person conducted the back-translation from Italian to English. Finally, the entire team discussed the results of the back translation and resolved the few problems encountered in this process. As a last step, the entire translation workbook was shared with C. J. Soto and his research team who read the back-translated items and the notes provided by the authors. This version of the BESSI-I was thus composed by 192 short items grading how much the participants believe they are able to do a series of things on a 5-point Likert scale (1 = Not at all well to 5 = Extremely well). For 10 items that were more difficult to translate we provided an alternative candidate translation at the end of the questionnaire. Participants thus answered to 202 items of which 192 were selected translations and 10 alternative items to be used in case of misfit of the corresponding selected translations.

The final version of the BESSI-I, its shortened versions, and the scoring methods are available on the project page: https://doi.org/10.17605/OSF.IO/VYZPN. More information about the BESSI are available at http://www.sebskills.com/.

Data analysis

To examine the factorial validity of the BESSI-I we followed three main steps representing three different levels of factorial validity:

- *Measurement models of the 32 facets:* First, we conducted 32 separate confirmatory factor analyses (CFAs) to examine the measurement models of each skill, their unidimensionality, and their internal reliability. Descriptive statistics and correlations between all facets were calculated for descriptive purposes.
- *Measurement models of the five domains:* Second, we conducted five separate CFAs to confirm the superordinate domains of the self-reported SEB skills. In this case hierarchical CFAs were fit to the data with items loading on the facets, and facets loading on their corresponding domains. The three compound skills were not included in this analysis because, according to the model, they do not load on any specific domain. Interstitial facets were specified as loading on the other domain (not self-management).
- *Measurement model of the overarching framework:* Finally, an overarching model was fit to the data to examine whether the entire model fitted the data well. In other words, the five hierarchical models were simultaneously fit to the data. The five domains were correlated between each other; the three compound skills were added to the model and loaded on every domain; the four interstitial factors were specified as loading on both self-management skills and their specific domain.

To ensure that the measurement of the BESSI-I facets and domains is in line with the original US version, we also tested measurement invariance of the 32 skills and of the five domains between our sample and Sample D from Soto et al. (2022). Results are reported in Supplementary materials (this analysis was not reported in the preregistration but emerged of interest in the review process).

All the analyses were run using the lavaan (Rosseel, 2012) and semTools (Jorgensen et al., 2022) packages in R (version 4.2.2). Given the nature of Likert scales, we followed suggestions from the literature and always treated items as ordinal variables using diagonally-weighted least squares (DWLS) as estimator instead of maximum likelihood (Brauer et al., 2023; Flora & Curran, 2004; Shi et al., 2020). Indeed, maximum likelihood (ML) estimation assumes that the observed variables are continuously distributed, which is not the case for Likert scales. Although providing approximate results when distributions are not too skewed, using ML with ordinal data can lead to biased estimates of factor loadings and standard errors (Beauducel & Herzberg, 2006; Brauer et al., 2023, 2023), which are key information for assessing validity. On the other side, DWLS estimation has its own limits that should be considered. In particular, based on conventional cutoff values used for model fit, it sometimes underestimates model misfit to the data (Maydeu-Olivares et al., 2018; Shi et al., 2020), although standardized indices of model misfit like the Standardized Root Mean Square Residual (SRMR) are not affected by the estimation method (Shi & Maydeu-Olivares, 2020). For these reasons we still report model fit using the Comparative Fit Index (CFI), the Tucker Lewis index (TLI), and the SRMR, but mainly base our decision on the SRMR (SRMR < .06, "good"; SRMR < .10, "adequate"), while interpreting the other two indices continuously and without predefined cutoffs. Reliability was estimated at the observed and latent levels using Cronbach's alpha and McDonald's omega, respectively.

Results

Measurement models of the 32 facets

The CFAs of the 32 BESSI facets showed almost perfect fit to the data. In particular, the CFIs ranged between .95 and 1.00; the TLI ranged between .95 and 1.00; and the SRMR ranged between .02 and .10. The only exceptions were detail management and time management skills. In these two cases the SRMR values were not acceptable (.12 and .24 respectively) and the TLI values were low (.91 and .92 respectively). The SRMR was also barely acceptable for impulse regulation (.10). In these three cases, we inspected modification indices and we found that items 3 ("Show up for things on time") and 35 ("Get to appointments on time") of the detail management subscale, items 47 ("Pay attention to details") and 79 ("Take care of details") of the time management subscale, and items 126 ("Control my impulses") and 158 ("Stop myself from acting on impulse") of the impulse regulation subscale had correlated residuals. Given the wording of these items, it is plausible that they would show higher similarities compared to the other four items of the corresponding subscales. We consequently fitted the same models but added residual correlations between these items. After this correction, all fit indices were satisfactory (see Table 1). Reliability indices were also satisfactory: Cronbach's alphas ranged between .76 and .94 (Median = .88) and McDonald's omegas ranged between .73 and .93 (Median = .87). Fit and reliability indices for every subscale are reported in Table 1. Factor loadings were generally high (Mean = .75, median = .77) and only three out of 192 items showed loadings lower than .40 (see Figure 2).

Mean, standard deviation, skewness, and kurtosis of all facets scores are reported in Supplementary materials (Table S1). Mean scores ranged between 2.57 and 3.77, with skewness ranging between −0.42 and .40, and kurtosis ranging between −0.71 and .51. Descriptive statistics and correlations between all items are reported on the OSF project page as an xlsx spreadsheet.

Measurement models of the five domains

The five CFAs for the hierarchical models of the five SEB domains showed acceptable fit indices and reliability coefficients. Indeed, the SRMR values ranged between .06 and

Table 1. Fit indices and reliability coefficients of all the models.

Domain	N par.	χ^2	DF	CFI	TLI	SRMR	α	ω
Self-management								
Goal regulation	30	52.05	9	1.00	0.99	0.03	0.89	0.87
Task management	30	9.95	9	1.00	1.00	0.02	0.88	0.85
Decision making skills	30	11.73	9	1.00	1.00	0.02	0.90	0.88
Detail management	30	506.77	9	0.95	0.91	0.12	0.84	0.85
Capacity for consistency	30	88.00	9	0.99	0.99	0.05	0.85	0.82
Organizational skills	30	34.71	9	1.00	1.00	0.02	0.94	0.93
Time management	30	1568.56	9	0.95	0.92	0.24	0.86	0.91
Responsibility management	30	151.92	9	0.97	0.95	0.07	0.81	0.78
Rule following skills	30	152.95	9	0.99	0.98	0.06	0.86	0.84
Innovation								
Abstract thinking skills	30	97.25	9	0.98	0.97	0.05	0.83	0.81
Creative skills	30	143.66	9	0.99	0.99	0.06	0.88	0.87
Information processing skills *	30	17.36	9	1.00	1.00	0.02	0.87	0.83
Cultural competence	30	56.00	9	1.00	1.00	0.04	0.91	0.89
Artistic skills	30	98.22	9	0.99	0.98	0.06	0.82	0.81
Cooperation								
Perspective taking skills	30	44.79	9	1.00	0.99	0.03	0.89	0.86
Capacity for social warmth	30	44.88	9	0.99	0.99	0.04	0.82	0.79
Teamwork skills	30	22.77	9	1.00	1.00	0.02	0.92	0.89
Ethical competence *	30	80.63	9	0.98	0.97	0.05	0.79	0.77
Capacity for trust	30	52.68	9	0.99	0.98	0.04	0.76	0.73
Social engagement								
Leadership skills	30	29.76	9	1.00	1.00	0.02	0.90	0.88
Expressive skills	30	59.44	9	1.00	1.00	0.03	0.93	0.91
Conversational skills	30	75.09	9	1.00	1.00	0.04	0.92	0.90
Persuasive skills	30	229.04	9	0.98	0.97	0.07	0.87	0.86
Energy regulation *	30	47.55	9	1.00	0.99	0.03	0.86	0.84
Emotional resilience								
Stress regulation	30	24.39	9	1.00	1.00	0.02	0.88	0.87
Capacity for optimism	30	81.99	9	1.00	1.00	0.04	0.91	0.90
Confidence regulation	30	45.20	9	1.00	1.00	0.02	0.94	0.92
Impulse regulation*	30	403.39	9	0.97	0.95	0.10	0.86	0.85
Anger management	30	41.27	9	1.00	1.00	0.02	0.93	0.92
Compound skills								
Self-reflection skills	30	24.39	9	1.00	1.00	0.02	0.88	0.87
Capacity for independence	30	81.99	9	1.00	1.00	0.04	0.91	0.90
Adaptability	30	45.20	9	1.00	1.00	0.02	0.94	0.92
Models with modification indices								
Detail management	31	35.71	8	1.00	0.99	0.03	0.84	0.76
Time management	31	43.87	8	1.00	1.00	0.04	0.86	0.73
Impulse regulation	31	28.38	8	1.00	1.00	0.03	0.86	0.80

Note. N par.: number of parameters; DF: degrees of freedom; CFI: comparative fit index; TLI: Tucker Lewis index; SRMR: standardized root mean square residual; *: interstitial skill.

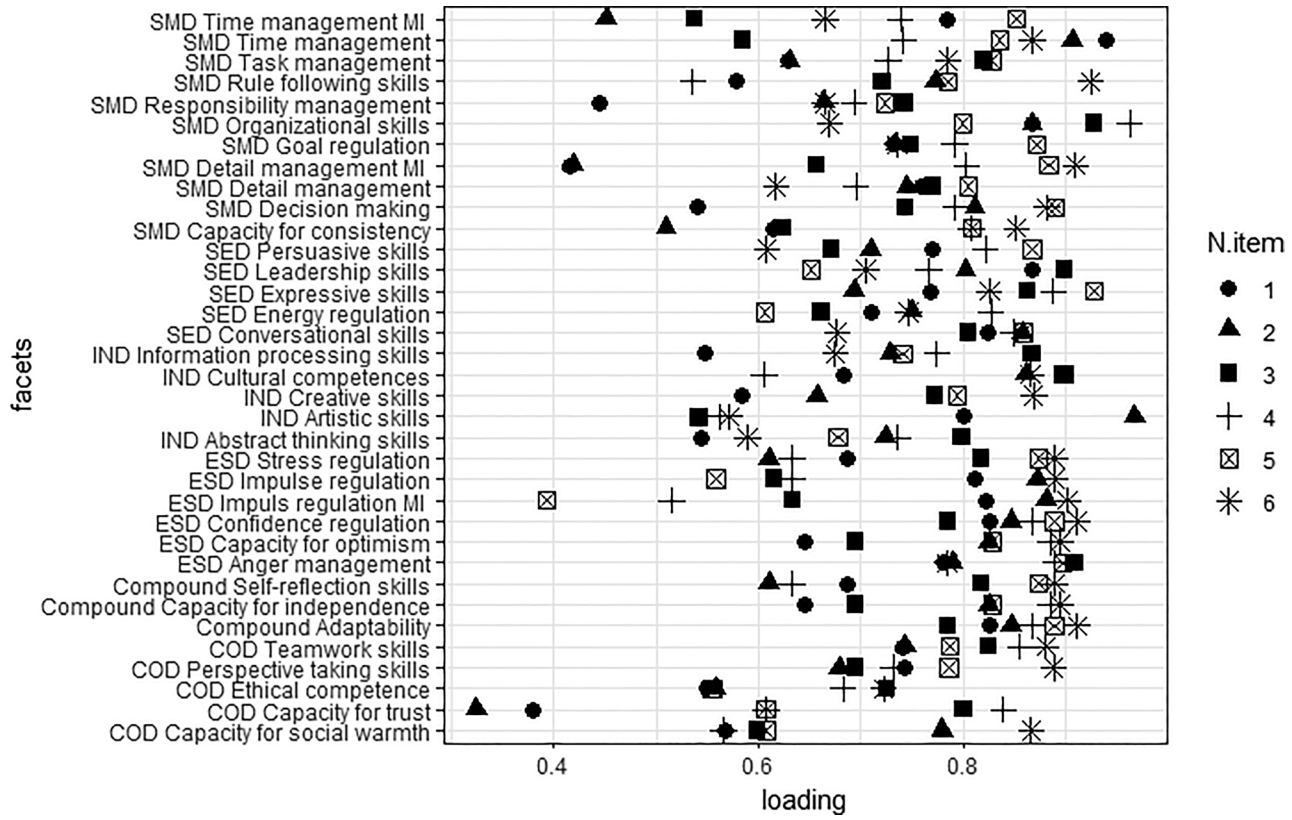

Figure 2. Standardized factor loadings of the 32 facets' items. Factor loadings of the three models adjusted after inspection of the modification indices are followed by "MI". *Note.* SMD: Self-Management Domain; IND: Innovation Domain; COD: Cooperation Domain; SED: Social Engagement Domain; ESD: Emotional Resilience Domain; MI: Modification Indices.

Table 2. Fit indices and McDonald's omega of the five hierarchical domains.

	N par.	χ^2	DF	CFI	TLI	SRMR	ω
Self-management	281.00	8065.53	1366.00	0.98	0.98	0.06	0.89
Innovation	155.00	6574.44	400.00	0.94	0.94	0.10	0.80
Cooperation	155.00	1790.42	400.00	0.98	0.98	0.06	0.78
Social engagement	155.00	3712.63	400.00	0.98	0.97	0.07	0.79
Emotional resilience	156.00	6839.28	399.00	0.97	0.97	0.09	0.82

Note. N par.: number of parameters; DF: degrees of freedom; CFI: comparative fit index; TLI: Tucker Lewis index; SRMR: standardized root mean square residual.

.10. The CFI and TLI values were also generally high, with values ranging between .94 and .98. The innovation domain model showed the worst fit to the data and modification indices indicated that some facets show correlated residuals that are higher than expected. In particular the facets of creative skills and artistic skills showed the highest correlated residuals. Although the fit was not perfect, the SRMR value was acceptable and we did not modify the measurement model further. McDonald's omegas were always higher than .78. Fit and reliability indices for every domain are reported in Table 2. Factor loadings of the facets on the corresponding domains were always higher than .45, and averaged .72 (see Figure 3).

Measurement model of the overarching framework

Finally, we fit an overarching model that included all 32 skill facets loading onto the five superordinate domains, with interstitial and compound facets allowed to load on multiple domains. Fit indices of the final overarching model are in line with those individuated in the US and German samples (Lechner et al., 2022; Soto et al., 2022a): $\chi^2(14{,}801, N = 946) = 110{,}447$, $p = <.001$, CFI = .93, TLI = .93, SRMR = .08, indicating that the model developed by Soto et al. (2022) also fit the data well in an Italian sample. Model fit, however, was not perfect and some misspecification in the model was indeed expected. For this reason, an Exploratory Factor Analysis (EFA) on the 32 BESSI-I facets was conducted (although not preregistered). Oblimin rotation was used; five factors were extracted, in line with the theoretical expectations, and compared, using the Tucker factor congruency coefficient (Tucker's ϕ), to the factor loadings extracted in the validation study by Soto et al. (2022, Table S8). Results are reported in the Supplementary materials (see Table S2) and show that the facets mainly load on their corresponding domains and that the domains' loadings are mainly equivalent between our version and the original one. In fact, excluding the compound skills, only three facets showed loadings lower than .30 on the expected factor, and 25 of the 29 facets showed the greatest loading on the expected factor. Tucker's ϕ also ranged between .86 (social engagement) and .98 (self-management) for pairs of corresponding factors, indicating fair or adequate similarity with the original version (Lorenzo-Seva & ten Berge, 2006).

Based on the largely satisfactory results obtained, we did not substitute any of the original item translations with alternative versions.

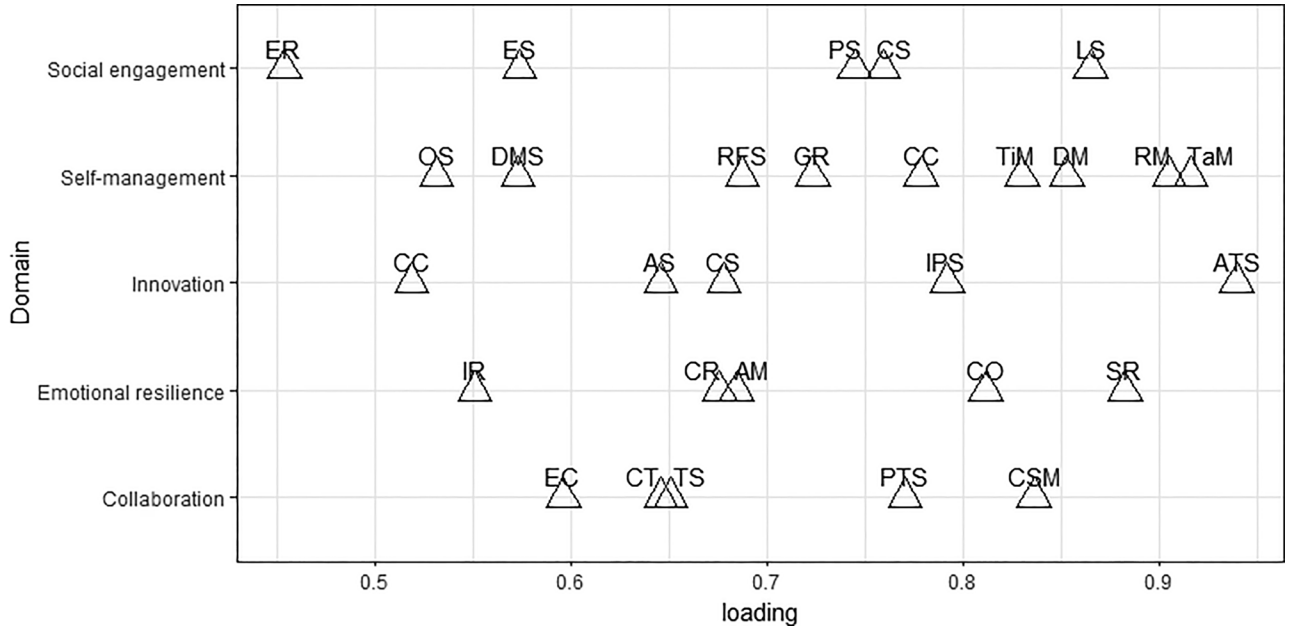

Figure 3. Factor loadings of the facets on their corresponding domains. *Note*. SMD: Self-Management Domain; IND: Innovation Domain; COD: Cooperation Domain; SED: Social Engagement Domain; ESD: Emotional Resilience Domain; GR: Goal Regulation; Tam: Task Management; DMS: Decision Making Skills; DM: Detail Management; CC: Capacity For Consistency; OS: Organizational Skills; Tim: Time Management; RM: Responsibility Management; RFS: Rule Following Skills; ATS: Abstract Thinking Skills; CS: Creative Skills; IPS: Information Processing Skills; CC: Cultural Competence; AS: Artistic Skills; PTS: Perspective Taking Skills; CWS: Capacity For Social Warmth; TS: Teamwork Skills; EC: Ethical Competence; CT: Capacity For Trust; LS: Leadership Skills; ES: Expressive Skills; CS: Conversational Skills; PS: Persuasive Skills; ER: Energy Regulation; SR: Stress Regulation; CO: Capacity For Optimism; CR: Confidence Regulation; IR: Impulse Regulation; AM: Anger Management.

Measurement invariance

Results of the multigroup confirmatory factor analyses show that the measurement models of the 32 skills and five BESSI-I domains are largely invariant from the US counterparts (see Table S3 in Supplementary materials). In fact, configural and strong scalar invariance (fixed intercepts, loadings, and thresholds) were confirmed for 32 of the 37 models; in only five cases did the CFI decrease by more than .01, suggesting partial invariance.

Discussion

Study 1 provides initial evidence about the factorial validity of the BESSI-I. Indeed, the scale showed good psychometric properties in this sample. In particular, the measurement models showed almost perfect fit to the data for 29 out of 32 facets, and all facets showed good to excellent internal reliability as measured by Cronbach's alpha and McDonald's omega. The three possibly problematic scales were those measuring detail management, time management, and impulse regulation, each of which had two items that were more strongly correlated than others. However, such correlations might be easily explained by semantic and grammar similarities and without the need to hypothesize specific theoretical explanations. In fact, the two items of detail management were the only two referring to be on time and the two items of detail management were the only two explicitly talking about details. Interestingly, detail and time management skills showed the same problem in the German version of the BESSI (Lechner et al., 2022). Adding correlated residuals between these few items was enough to obtain an almost perfect fit to the data. Factor loadings of all the scales were also generally higher than .50, with only three items showing a loading lower than .40. The measurement model of the second-order domains also showed a good fit to the data and acceptable reliability, as measured by McDonald's omega. Finally, the overarching model showed an acceptable fit to the data even when all five skill domains were modeled simultaneously. Overall, these results indicate that the theoretical framework proposed by Soto et al. (2021, 2022a) holds statistically across different samples, languages, and contexts. This is further confirmed by the results of the multigroup analyses of invariance and the exploratory factor analysis. Indeed, most scales resulted invariant between the Italian and the original version, and most scales loaded the most on the expected factor in the exploratory factor analysis, even if some cross-loadings emerged. This, however, is in line with the original validation study.

Study 2

After confirming the psychometric properties of the BESSI in an Italian sample, Study 2 specifically aimed to a) test the convergent and discriminant validity between the BESSI-I and the Big Five; and b) expand the nomological network of SEB skills by studying their associations with three criterions: General self-efficacy, procrastination, and emotion regulation strategies. These constructs were selected because they span across motivational (self-efficacy), behavioral (procrastination), and emotional (emotion regulation) aspects that might be differently related to SEB skills depending on their domain and whose importance has been consistently

demonstrated in previous research, both at the theoretical and applied levels (Feraco, Sella, et al., 2023; Hwang et al., 2016). Importantly, these constructs were never analyzed before in association with SEB skills although they are theoretically associated with specific SEB skills at different degrees. General self-efficacy represents the belief in one's overall competence to perform across a variety of different situations (Judge et al., 1998). It captures differences among individuals in their tendency to view themselves as capable of meeting task demands (Chen et al., 2001). The BESSI-I examines how individuals assess their capability to engage in specific behaviors; therefore, the perception of oneself as proficient in various domains should correlate positively with overall self-efficacy. Convergence between all SEB skills domains and general self-efficacy can therefore be expected. Additionally, studying the relationship between SEB skills and general self-efficacy could also ensure that SEB skills are not a mere reflection of one's own general self-efficacy.

General procrastination represents the behavioral tendency to postpone the actions necessary to achieve goals across situations (Mariani, 2009). Previous research has highlighted a strong negative correlation between procrastination and conscientiousness (Lee et al., 2006), thus a similar relation can be expected with the self-management skills domain. Therefore, we chose to include procrastination as it should provide information on the convergent validity with self-management domain, and divergent validity with the others (small or negligible correlations were expected).

Finally, emotion regulation includes various strategies used to modify the trajectory of emotions (Gross, 2015). In the present research, we focused on two main emotion regulation strategies: cognitive reappraisal and expressive suppression (Balzarotti et al., 2010; Ioannidis & Siegling, 2015). These strategies partly overlap with the emotional resilience skills domain, which includes anger management and stress regulation, so we anticipated this domain to be the most strongly related with emotion regulation strategies. Since emotion regulation strategies have shown consistent associations with personality traits (in particular, neuroticism and agreeableness, Balzarotti et al., 2010), they should also be associated with other SEB skills (but less), such as social engagement and cooperation skills.

Taken together, general self-efficacy, general procrastination, and emotion regulation strategies can be useful measures to assess convergent and divergent validity of BESSI-I domains and facets. Moreover, these constructs have not been studied in relation to SEB skills before, thus their inclusion will also expand the SEB skills nomological framework further (Lechner et al., 2022; Soto et al., 2022a).

Again, a large sample of adolescents and adults was collected to pursue these aims.

Hypotheses

- *Correlations with the Big Five*. In line with the SEB theoretical framework (Soto et al., 2021) and the results of Soto et al. (2022a), we expected the five skill domains and their constituent facets to be highly and positively associated with their corresponding personality traits. Lower or negligible associations with the other four personality traits were expected.
- *Correlations with general self-efficacy*. All self-reported SEB skills facets were expected to be positively related with general self-efficacy with medium effect sizes. Indeed, possessing specific skills might influence individuals' beliefs (and actual capacity) about their ability to face other and more general situations.
- *Correlations with procrastination*. Self-management skill facets and the self-management domain in general were expected to be negatively associated with procrastination. This was expected because the ability to organize time, tasks, or goals should help individuals organize their tasks when necessary and avoid procrastination. Other skills should be not related or only slightly related with procrastination.
- *Correlations with emotion regulation strategies*. Emotional resilience skills should be positively associated with better emotion regulation strategies, as expressed by lower suppression and higher reappraisal strategies. Indeed, people that are better able to regulate their anger, anxiety, and mood should also be able to select and use functional emotion regulation strategies to achieve these aims. Social engagement and cooperation skills could be related with emotion regulation strategies, but less than emotional resilience skills, because, albeit interpersonal relationships require personal and others' emotion regulation abilities, social engagement and cooperation skills are not as focused as emotional resilience skills on the affective and emotional components. Innovation skills and self-management skills were not expected to correlate with emotion regulation strategies. These hypotheses were not preregistered and should therefore be considered exploratory.

Method

Participants

In line with the predefined sample size for Study 2 (i.e., 1000), a total of 953 youths ($N = 706$) and adults ($N = 247$) aged 14 to 59 years old (females = 484) were involved in Study 2. They were all Italian speakers residing in Italy.

Data were screened for careless responding using the *careless* package (Curran, 2016) and two different criteria: Long-string analysis, and psychometric synonyms. A total of 103 participants were excluded following this procedure. Other 26 were excluded for not completing the BESSI-I. The final sample consisted of 824 participants (446 females) with a mean age of 19.06 (SD = 5.88). Not all participants completed every measure and the sample size used for the correlation analysis varied between 788 for procrastination to 791 for emotion regulation strategies. All the data were collected online using Qualtrics. All the participants, or their parents (for minor participants), completed the consent form and freely agreed to participate in the study.

Procedure

Study 2 was conducted between January 2023 and the end of May 2023. Youths' data were collected in class (secondary schools) in Qualtrics with the collaboration of schools and teachers, that were involved after formal agreements with the schools. After the school agreed to participate, students were allowed to use their smartphone, tablet, or pc when the school did not provide a computer to all of them. Among the 247 adults, 83 participants completed the BESSI-I for Study 1 and were contacted again to complete the remaining questionnaires; the other 167 adult participants were undergraduates who agreed to participate in the study as part of their course activities. All the data were collected online using Qualtrics. Participants responded to the BESSI-I, then completed the Big Five Inventory and, in a randomized order, the New General Self-Efficacy Scale, the General Procrastination Scale, and the Emotion Regulation Questionnaire.

Materials

The Italian Behavioral, Emotional, and Social Skills Inventory (BESSI-I). The 192 items of the BESSI-I selected in Study 1 were used to measure social, emotional, and behavioral skills.

The Big Five Inventory (John et al., 1991; Italian version by Ubbiali et al., 2013) measures the Big Five factors of personality (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness). It includes 44 items (eight to ten items for each scale) rated on a 5-point Likert scale (e.g., "I see myself as someone who remains calm in tense situations"). Internal consistencies (Cronbach's alphas) ranged from .69 (agreeableness) to. 83 (conscientiousness) in the original version (Ubbiali et al., 2013). Different scores were calculated for each scale by reversing negative items and averaging item scores.

The New General Self-Efficacy Scale (Chen et al., 2001) measures the beliefs in one's capabilities to mobilize the motivation, cognitive resources and courses of action needed to meet given situational demands. It includes eight items on a 5-point Likert scale (e.g., "I will be able to achieve most of the goals that I have set for myself"). Cronbach's alpha coefficients was of .86 in the original version (Chen et al., 2001). The total score was calculated by averaging item scores.

The General Procrastination Scale (Lay, 1986; Italian version by Mariani, 2009) measures the tendency to postpone the actions necessary to achieve pre-established goals in various situations. It includes 20 items on a 5-point Likert scale (e.g., "I often find myself performing tasks that I had intended to do days before"). Internal consistencies (Cronbach's alphas) ranged from .81 to .83 in the original version (Mariani, 2009). The total score was calculated after reversing negative items and averaging item scores.

The Emotion Regulation Questionnaire (Gross & John, 2003; Italian version by Balzarotti et al., 2010) measures emotion regulation strategies. It includes 10 items measuring two different emotion regulation strategies: Cognitive reappraisal, which involves changing the way one sees a certain emotion-eliciting situation (6 items, e.g., "When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about") and expressive suppression, which means hiding, inhibiting, or reducing the expression of an emotion (4 items, e.g., "I keep my emotions to myself"). The items are rated on a 7-point Likert scale. Cronbach's alpha coefficients were .84 for the Reappraisal scale and .72 for the Suppression scale in the original version (Balzarotti et al., 2010). The total score for each subscale was calculated by averaging item scores.

Data analysis

In line with the original and German validation studies of the BESSI (Lechner et al., 2022; Soto et al., 2022a), we calculated the bivariate correlations of the 32 skills and the five domains of the BESSI-I with the Big Five personality traits. Then, we also calculated the bivariate correlations of the 32 skills and the five domains of the BESSI-I with general self-efficacy, procrastination, and emotion regulation strategies.

Results

Correlations with the Big Five

Correlations between the 32 skill facets and the Big five personality traits are reported in Table 3. The results showed that self-reported skills from each domain generally correlated the most with their corresponding personality trait. This was always true except for the interstitial skills which alternatively showed their highest correlations with self-management skills or with the second corresponding domain. Importantly, correlations were rarely higher than .70, showing discriminant validity between specific skills and traits. Self-management skills' correlations with conscientiousness ranged between .37 and .75; innovation skills' correlations with openness ranged between .39 and .71; cooperation skills' correlations with agreeableness ranged between .36 and .65; social engagement skills' correlations with extraversion ranged between .33 and 71; and emotional resilience skills' correlations with neuroticism ranged between −.74 and −.30. Compound skills only showed small-to-medium correlations with personality traits. Among these, adaptability showed the highest one (r=.43 with extraversion).

As for the five superordinate domains of SEB skills, results (see Table 3) confirmed that each domain is mostly correlated with its corresponding personality trait, with correlations ranging from .64 (cooperation with agreeableness) to .79 (innovation with openness). This is closely in line with the original validation study (Soto et al., 2022a, p. 207) where correlations between domains and corresponding traits ranged between .67 and .79. Additionally, correlations with the other personality traits were much lower and ranged between .05 and .35 in absolute terms.

When correcting for attenuation due to unreliability, skill-trait correlations became stronger and, in some cases, close to unity. Specifically, correlations between corresponding skill and trait domains ranged between .84 and .96, meaning that after accounting for measurement

Table 3. Correlations of the five domains and the 32 skills with the Big five personality traits.

	C	O	A	E	N	C	O	A	E	N
Self-management	**.76**	.17	.26	.08	−0.12	**.87**	.20	.32	.09	−0.14
Goal regulation	**.60**	.17	.11	.25	−0.14	**.69**	.20	.14	.29	−0.17
Task management	**.75**	.12	.19	.13	−0.14	**.87**	.14	.24	.15	−0.17
Decision making skills	**.37**	.27	.20	−0.05	.00	**.42**	.31	.25	−0.06	.00
Detail management	**.60**	.28	.17	.04	.04	**.71**	.33	.22	.05	.05
Capacity for consistency	**.57**	−0.01	.20	−0.00	−0.08	**.67**	−0.01	.26	−0.00	−0.10
Organizational skills	**.56**	.01	.14	−0.00	−0.08	**.63**	.01	.17	−0.00	−0.09
Time management	**.65**	−0.02	.11	.02	−0.11	**.76**	−0.02	.14	.02	−0.13
Responsibility management	**.60**	.16	.26	.08	−0.01	**.72**	.19	.34	.10	−0.01
Rule following skills	**.39**	.02	.28	−0.11	.05	**.46**	.02	.36	−0.13	.06
Innovation	.20	**.79**	.17	.18	.05	.24	**.96**	.22	.22	.06
Abstract thinking skills	.23	**.59**	.09	.14	.10	.27	**.71**	.12	.17	.12
Creative skills	.13	**.70**	.14	.23	−0.06	.15	**.81**	.18	.27	−0.07
Cultural competence	.08	**.44**	.20	.08	.10	.09	**.50**	.25	.09	.12
Artistic skills	.07	**.71**	.12	.09	.08	.08	**.86**	.16	.11	.10
Information processing skills *	.32	**.39**	.04	.15	−0.12	.37	**.46**	.05	.17	−0.14
Cooperation	.25	.35	**.64**	.33	−0.05	.31	.43	**.85**	.41	−0.06
Perspective taking skills	.20	.32	**.48**	.09	.18	.23	.37	**.60**	.10	.21
Capacity for social warmth	.21	.27	**.46**	**.46**	−0.10	.25	.33	**.60**	.55	−0.12
Teamwork skills	.26	.24	**.36**	.30	−0.09	.29	.27	**.44**	.34	−0.11
Capacity for trust	.01	.18	**.65**	.23	−0.17	.01	.23	**.88**	.29	−0.22
Ethical competence *	.35	.33	**.36**	.15	−0.03	.43	.41	**.48**	.18	−0.04
Social engagement	.30	.28	.08	**.69**	−0.27	.37	.34	.11	**.84**	−0.34
Leadership skills	.28	.22	−0.05	**.55**	−0.24	.32	.25	−0.06	**.63**	−0.28
Expressive skills	.24	.26	.23	**.43**	−0.17	.27	.29	.28	**.48**	−0.20
Conversational skills	.12	.22	.13	**.71**	−0.21	.14	.25	.16	**.80**	−0.25
Persuasive skills	.13	.20	−0.18	**.47**	−0.15	.15	.23	−0.23	**.55**	−0.18
Energy regulation *	**.60**	.07	.17	.33	−0.34	**.70**	.08	.22	.39	−0.41
Emotional resilience	.24	.11	.29	.33	**−0.71**	.29	.13	.38	.40	**−0.88**
Stress regulation	.16	.04	.10	.24	**−0.74**	.18	.05	.13	.28	**−0.89**
Capacity for optimism	.15	.10	.28	.41	**−0.62**	.17	.11	.35	.47	**−0.73**
Confidence regulation	.26	.12	.15	.43	**−0.53**	.29	.14	.18	.48	**−0.62**
Anger management	.09	.11	.36	.04	**−0.44**	.10	.12	.44	.04	**−0.51**
Impulse regulation*	**.39**	.04	.24	.02	−0.30	**.46**	.05	.30	.02	−0.36
Compound skills										
Self-reflection skills	.21	**.32**	.21	.16	−0.11	.24	**.37**	.26	.18	−0.13
Capacity for independence	**.39**	.24	−0.02	.12	−0.15	**.44**	.27	−0.02	.14	−0.18
Adaptability	.18	.26	.12	**.43**	−0.31	.20	.29	.15	**.48**	−0.36

Correlations between raw scores are reported on the left. Correlations calculated after correcting for attenuation are reported on the right. Bold values indicate the highest correlation of each skill or domain. Asterisks indicate interstitial skills.

Note. *: interstitial skill; C: Conscientiousness; O: Openness; A: Agreeableness; E: Extraversion; N: Neuroticism.

unreliability SEB skills and traits each retain approximately 10% to 30% unique variance. The substantial associations between skills and traits likely reflect meaningful relations (e.g., someone who tends to enact a particular behavior will likely become skilled at doing so), as well as shared method variance (since both skills and traits were self-reported).

Correlations with motivational, behavioral, and emotional criterions

All the correlations are presented in Table 4 and descriptively summarized below with a focus on the strongest associations between self-reported skills and the four external indicators.

- *Self-efficacy.* All the skill facets positively correlated with participants' self-efficacy, with correlations ranging between .15 and .45. At the domain level, all five skill domains correlated moderately with self-efficacy, with correlations ranging from r = .34 for innovation skills to r = .48 for self-management skills.
- *Procrastination.* All skill facets and domains correlated with procrastination in the expected, negative, direction, with the lone exception of cultural competence (innovation domain, r = .01). Importantly, self-management and its corresponding skills showed the strongest correlations ($-.69 < r < -.28$) with procrastination, while most other skills and domains showed small or negligible correlations with it.
- *Suppression strategies.* Surprisingly, the use of suppression strategies for emotion regulation was generally not correlated with self-reported SEB skills. The only noticeable exception was the expressive skill facet (from the social engagement domain), which was negatively associated with the use of suppression strategies (r = −.43). This leads the social engagement domain to be the one with the strongest association with suppression strategies (r = −.27), even though all of the other social engagement skill facets have negligible associations with suppression strategies.
- *Reappraisal.* As expected, reappraisal strategies showed the highest correlation with the domain of

Table 4. Correlations of the five domains and the 32 skills with general self-efficacy, procrastination, and emotion regulation strategies.

	Self-efficacy	Procrastination	Suppression	Reappraisal
Self-management	**.48**	**−0.60**	−0.01	.25
Goal regulation	**.43**	**−0.43**	−0.03	.24
Task management	**.45**	**−0.60**	−0.01	.20
Decision making skills	**.29**	−0.23	.04	.25
Detail management	**.43**	**−0.39**	−0.02	.20
Capacity for consistency	**.36**	**−0.47**	.00	.15
Organizational skills	**.26**	**−0.47**	.00	.11
Time management	**.29**	**−0.69**	.01	.09
Responsibility management	**.39**	**−0.46**	−0.04	.17
Rule following skills	.18	**−0.28**	−0.01	.09
Innovation	**.34**	−0.05	−0.01	**.28**
Abstract thinking skills	**.41**	−0.07	−0.06	.24
Creative skills	**.26**	−0.05	−0.01	**.27**
Cultural competence	.15	.01	.03	.17
Artistic skills	.15	−0.01	−0.03	.16
Information processing skills*	**.39**	−0.16	.07	.23
Cooperation	**.36**	−0.16	−0.15	**.38**
Perspective taking skills	**.27**	−0.08	−0.11	**.26**
Capacity for social warmth	**.32**	−0.14	−0.14	**.31**
Teamwork skills	**.27**	−0.20	−0.09	.23
Capacity for trust	.17	−0.03	−0.11	**.35**
Ethical competence *	**.37**	−0.23	−0.11	.22
Social engagement	**.40**	−0.21	**−0.27**	.25
Leadership skills	**.28**	−0.20	−0.11	.16
Expressive skills	**.42**	−0.16	**−0.43**	.22
Conversational skills	**.26**	−0.08	−0.21	.21
Persuasive skills	.20	−0.06	−0.09	.14
Energy regulation *	**.38**	**−0.46**	−0.07	.25
Emotional resilience	**.39**	−0.21	−0.01	**.48**
Stress regulation	**.31**	−0.15	.04	**.34**
Capacity for optimism	**.33**	−0.15	−0.05	**.51**
Confidence regulation	**.43**	−0.22	−0.14	**.41**
Anger management	.18	−0.07	.10	**.32**
Impulse regulation*	.21	**−0.32**	.07	.21
Compound skills				
Self-reflection skills	**.40**	−0.10	−0.17	**.30**
Capacity for independence	**.38**	**−0.27**	.04	.18
Adaptability	**.33**	−0.08	−0.06	**.27**

Correlations higher than |.25| are considered meaningful and reported in bold.
Note. *: interstitial skill; All correlations with $r > .11$ are significant with $p < .001$.

emotional resilience (r = .48). Its corresponding skill facets also showed positive associations with this strategy, ranging between .32 and .51 with the exception of the interstitial skill of impulse regulation (r = .21). Cooperation skills were also generally, but less strongly, associated with reappraisal strategies, with correlations ranging between .23 and .35 (domain correlation = .38). The remaining correlations between the other skills and reappraisal strategies were positive, but smaller and mostly negligible ($.09 < r < .27$). Self-reflection skills and adaptability also showed positive but small correlations with reappraisal strategies.

Discussion

Study 2 provided evidence about convergent, discriminant, and criterion validity of self-reported SEB skills—as measured by the new BESSI-I—and the Big Five personality traits. It also expanded the nomological network of SEB skills by testing their associations with self-efficacy, procrastination, and the use of functional (reappraisal) and dysfunctional (suppression) emotion regulation strategies. This evidence supports the notion that the BESSI-I serves as a reliable and valid inventory for assessing self-reported SEB skills among Italian respondents. These findings also hold rich practical implications, as discussed below in more detail.

General discussion

Social, emotional, and behavioral skills are of great interest nowadays, but a clear and comprehensive psychological framework able to define and measure them has been missing until recent years (Abrahams et al., 2019; Soto et al., 2021). In response to this need, the BESSI was developed as a broad and inclusive assessment of self-reported SEB skills, organized into five major domains (Soto et al., 2022a). However, it is crucial to ensure that the instrument's validity extends across various samples, languages, and contexts. An initial successful attempt was conducted in Germany, where the BESSI demonstrated psychometric properties that closely mirrored the original version. In our preregistered study, employing a confirmatory approach, we aimed to expand upon these findings by introducing an Italian version of the questionnaire: the BESSI-I.

The findings from Study 1 confirmed that the psychometric properties of the original measure are maintained in the Italian translation. Specifically, all the measurement models for the 32 skills demonstrated excellent fit indices, high reliability coefficients, and satisfactory factor loadings,

although three pairs of items showed correlated residuals (see Table 1 and Figure 2). Importantly, the measurement model was expanded to accommodate the hierarchical structure of the questionnaire and model the dependencies between skills of the same domains. The five CFAs in which each domain influences the latent scores of the corresponding skills showed satisfactory fit indices, good reliability coefficients, and high factor loadings (see Table 2 and Figure 3). Finally, the overarching model including all five domains, their corresponding skill facets, interstitial loadings, and compound skills also showed acceptable fit indices. Fit indices of the overarching model were in line with those found in other versions of the instrument (Lechner et al., 2022; Soto et al., 2022a). Measurement invariance of facets and domain models between the Italian and the original scale (Soto et al., 2022a) also show that the various scales similarly map the latent construct in the two languages and contexts, thus providing initial evidence of invariance of SEB skills across countries. Alternative methods such as exploratory structural equation models or network analysis can provide valuable insights to further explore the limitations of the current SEB model and enhance our understanding of the specific relationships between skills. For instance, freeing correlated residuals could potentially improve the precision of the model and fit indices. However, it is important to note that larger datasets are necessary to accurately estimate all resulting parameters. By employing these alternative methods, researchers can gain a more nuanced understanding of the interplay between different skills and potentially uncover additional patterns or associations that may not be currently captured. This would contribute to advancing our knowledge of social, emotional, and behavioral skills and inform future revisions or refinements of the SEB framework. On this line, we added an exploratory factor analysis (available in the Supplementary material). This shows that most facets follow the theoretical structure of SEB skills. Nonetheless, some facets load or cross-load on unexpected factors, especially for what concerns cooperation and social-engagement skills. In the German and US validation studies, however, similar unexpected cross-loadings emerged. For this reason, no further modifications were applied to our model.

In general, our results confirm the validity of the theoretical framework proposed by Soto et al. (2021), which postulates the existence of five distinct sets of skills. Their framework conceptually distinguishes these skills from personality traits, while also drawing direct connections between the five domains and specific personality traits. To ensure that this assumption holds, however, it was necessary to take a further step and test the convergent, discriminant, and criterion validity of the BESSI-I with the Big Five personality traits and its associations with motivational, behavioral, and emotional outcomes. This was done in Study 2.

The findings from Study 2 revealed that self-reported SEB skills and domains exhibited positive correlations with their corresponding personality traits but not with other traits, highlighting the fact that, although they converge substantially with conscientiousness, agreeableness, openness, neuroticism, and extraversion, they also capture unique information; that is, skills are functional capacities that are linked but separated from people's tendencies to think, feel, and behave in certain ways (Soto et al., 2021). It should be noted, however, that, when we corrected for attenuation, correlations between skills and traits raised. This might pose challenges to the validity of the measure and its ability to distinguish skills and traits in some cases. However, SEB skills predict many academic and nonacademic outcomes over and beyond personality traits (Soto et al., 2022a, 2022b).

In our study, self-reported SEB skills also showed expected correlations with motivational, emotional, and behavioral outcomes. Self-management skills strongly correlated with procrastination, suggesting that participants who are better able at organizing their time, tasks, and spaces also tend to procrastinate less (Watson, 2001).

We also found a consistent correlation between emotional resilience skills and the use of functional strategies for emotion regulation. Similar, but smaller associations, were also evident for cooperation skills, which also encompass one's ability to take different perspectives, express emotion to others, and care about them. These skills probably require the capacity to regulate and select specific emotion regulation strategies to effectively interact with others. Similarly, the two compound skills of self-reflection and adaptability might be crucial to think and understand the strategies that better work for oneself and to adapt such strategies to new and uncertain situations (Feraco, Casali, Ganzit, et al., 2023; Haga et al., 2009). Surprisingly, almost no correlations between self-reported SEB skills and suppression strategies emerged. This might be due to conceptual differences between the two constructs, meaning that emotional suppression strategies are generally unrelated, or not instrumental, to the development of these skills. Alternatively, it could be that individuals with both higher and lower levels of SEB skills may employ suppression strategies, but for different reasons or outcomes. For instance, individuals with lower cooperation skills may inhibit their emotional expression to avoid appearing vulnerable to others. On the other hand, individuals with higher cooperation skills may suppress their emotions to prevent imposing their feelings on others. Consequently, such variations in the use of suppression strategies may diminish the strength of the correlation between SEB skills and suppression, making it less informative. Indeed, meta-analytical results (Barańczuk, 2019) suggest that of the Big Five traits only extraversion has a moderate correlation with suppression ($r = -0.37$), while the correlations between the remaining Big Five and suppression are generally small, ranging from −0.15 for agreeableness to .04 for neuroticism. Accordingly, only the expressive skill facet (from the social engagement domain) showed a medium negative association with suppression strategies ($r = -0.43$). This highlights the uniqueness of this skill, which aptly captures one's ability to express and communicate thoughts and feelings.

Finally, all self-reported SEB skills and domains showed positive, medium-sized correlations with general self-efficacy. This is important for two reasons: First, it shows that, despite participants reporting how well they think they can handle different things, this is not equivalent to a general

sense of self-efficacy. Indeed, self-reported SEB skills and general self-efficacy are only moderately related. On the other side, we can speculate on such positive correlations and conclude that skills might represent the building blocks of a more general sense of self-efficacy which is crucial for many reasons, from health-related intentions and behaviors to academic and job performance (Hwang et al., 2016; Judge & Bono, 2001). In other words, positive correlations might suggest that general self-efficacy emerges from specific skills and abilities. However, the association is probably bidirectional, with a general sense of self-efficacy that influences and is influenced by specific skills, as for other constructs, like academic performance (Hwang et al., 2016).

In general, these results highlight the specific role that different skills might play in the general population, differentiating between domains and between specific skills, but also showing the similarities underlying their conceptualization. In essence, the BESSI assesses individuals' capacities, rather than their tendencies, to develop and sustain social relationships, regulate emotions, and manage goal- and learning-oriented behaviors.

Importantly, these behaviors, feelings, and thoughts are enacted through specific skills rather than being attributed to generalized self-efficacy or other domain-general constructs. This underscores the specificity and granularity of the BESSI in capturing the multifaceted nature of social, emotional, and behavioral skills, providing a more nuanced understanding of individuals' capabilities in these domains. The precise measurement of self-reported SEB skills, based on a robust theoretical foundation, also holds significant importance for researchers and clinicians alike. It enables researchers to rigorously compare clinical populations with typical populations, facilitating the identification of potential deficits or strengths in patients. By leveraging this information, clinicians can then focus on enhancing positive and functional skills that have the potential to greatly impact patients' lives across various situations, ultimately improving patients' wellbeing and facilitate their flourishing. Furthermore, having a reliable measure of self-reported SEB skills allows for better measurement of interventions effectiveness, and for more comparable results across settings and target populations.

Strengths, limitations, and future directions

The present study demonstrates several notable strengths. These strengths include the reliance on a solid theoretical framework, the use of a confirmatory approach, a rigorous and robust methodology, including preregistration of the methods, and the cross-cultural implications for both research and clinical purposes. Nevertheless, it is important for future research to address certain limitations that were not fully tackled in this paper nor in previous studies on SEB skills.

Firstly, many participants perceived the BESSI-I inventory as lengthy. This perception could potentially impact the reliability of their responses and their motivation to complete all 192 items. This issue is clearly visible when we consider the number of careless responses (more than 10%). While this is an inherent characteristic of an instrument designed to measure over 30 facets, the availability of shorter versions could be valuable for those interested in assessing self-reported SEB skills at the domain level only or in clinical settings, where time is usually extremely limited. Furthermore, future studies should explore the reliability of individual scales or custom subsets of subscales that may be particularly relevant for specific hypotheses or for clinicians aiming to focus on specific skills or domains. This approach could be crucial in streamlining and expediting the assessment of skills that are low or at risk in populations with specific needs, such as students with specific learning disabilities, who may need to work especially on emotional resilience skills or capitalize on their higher innovation skills (Casali et al., 2024).

Additionally, as emphasized by Soto et al. (2022a), the BESSI framework is not meant to be exhaustive, and there may be a need to measure more than 32 skills or even entirely different skills. One of the strengths of this framework, apart from its psychometric properties, is its alignment with the Big Five framework. The Big Five framework aims to provide a comprehensive description of people's behaviors, feelings, and thoughts and the BESSI framework directly identifies and connects skills to these aspects. However, alternative starting models could also be considered. For instance, the HEXACO model of personality traits emphasizes the significance of the Honesty-Humility trait (Ashton & Lee, 2001), which could be translated into a set of moral skills from a skill-oriented perspective (such as moral courage, fairness, or integrity). In future studies, it might be worthwhile to develop a new set of skills that incorporates this trait, which might resemble the general factor of good character (Feraco, Casali, Meneghetti, et al., 2023).

Furthermore, we cannot completely rule out the possibility of socially desirable responding, as we did not specifically measure it in our study. Nevertheless, the use of statistical procedures to detect careless respondents and the fact that the skewness of the SEB scores was limited may suggest that social desirability was not predominant in the data analyzed. Future studies could also be interested in expanding our initial test of invariance between the Italian and US version by running specific studies with larger samples across multiple languages and cultural contexts. This will be needed to ensure comparability and replicability of the findings and further strengthen the instrument validity that should be extended to other countries and languages. In addition, for the validity of the measure, it will be crucial to include informant ratings and test their association with respondents' ability self-concepts.

Finally, correlations between skills and traits were also substantial in some cases and, after correcting for attenuation, close to 1 for innovation skills and openness to experience. Future studies should face this challenge and try to better separate, if possible, the two constructs.

Conclusions

A scientifically accurate and reliable tool for assessing SEB skills across the lifespan is fundamental to inform policymakers,

educators, and psychologists on the effect and malleability of these key skills. Moreover, an internationally valid measurement is crucial for researchers across the world who must ensure comparability of results across different contexts. The BESSI-I demonstrates excellent psychometric properties, supporting the validity and reliability of the original BESSI on multiple levels: Scales' reliability, unidimensionality, and the factorial structure of the framework were confirmed, with first evidence of measurement invariance with the original version; convergent and discriminant validity with the Big Five personality traits was also confirmed; and self-reported SEB skills showed specific and expected correlations with behavioral, motivational and emotional variables, thereby expanding their nomological network. The BESSI-I can therefore serve as a useful tool for Italian and international researchers to further advance understanding of SEB skills and their role across the lifespan, as well as for future clinical and non-clinical interventions where the development of SEB skills will be tested.

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Data availability statement

Data, code, and materials are available on OSF at https://doi.org/10.17605/OSF.IO/VYZPN

References

Abrahams, L., Pancorbo, G., Primi, R., Santos, D., Kyllonen, P., John, O. P., & De Fruyt, F. (2019). Social-emotional skill assessment in children and adolescents: Advances and challenges in personality, clinical, and educational contexts. *Psychological Assessment*, *31*(4), 460–473. https://doi.org/10.1037/pas0000591

Ashton, M. C., & Lee, K. (2001). A theoretical basis for the major dimensions of personality. *European Journal of Personality*, *15*(5), 327–353. https://doi.org/10.1002/per.417

Balzarotti, S., John, O. P., & Gross, J. J. (2010). An Italian adaptation of the emotion regulation questionnaire. *European Journal of Psychological Assessment*, *26*(1), 61–67. https://doi.org/10.1027/1015-5759/a000009

Barańczuk, U. (2019). The five factor model of personality and emotion regulation: A meta-analysis. *Personality and Individual Differences*, *139*, 217–227. https://doi.org/10.1016/j.paid.2018.11.025

Beauducel, A., & Herzberg, P. Y. (2006). On the performance of maximum likelihood versus means and variance adjusted weighted least squares estimation in CFA. *Structural Equation Modeling: A Multidisciplinary Journal*, *13*(2), 186–203. https://doi.org/10.1207/s15328007sem1302_2

Brauer, K., Ranger, J., & Ziegler, M. (2023). Confirmatory factor analyses in psychological test adaptation and development. *Psychological Test Adaptation and Development*, *4*(1), 4–12. https://doi.org/10.1027/2698-1866/a000034

Casali, N., Meneghetti, C., Tinti, C., Re, A. M., Sini, B., Passolunghi, M. C., Valenti, A., Montesano, L., Pellegrino, G., & Carretti, B. (2024). Academic achievement and satisfaction among university students with specific learning disabilities: The roles of soft skills and study-related factors. *Journal of Learning Disabilities*, *57*(1), 16–29. https://doi.org/10.1177/00222194221150786

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, *4*(1), 62–83. https://doi.org/10.1177/109442810141004

Curran, P. G. (2016). Methods for the detection of carelessly invalid responses in survey data. *Journal of Experimental Social Psychology*, *66*, 4–19. https://doi.org/10.1016/j.jesp.2015.07.006

Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher (Washington, D.C.: 1972)*, *44*(4), 237–251. https://doi.org/10.3102/0013189X15584327

Feraco, T., Casali, N., Ganzit, E., & Meneghetti, C. (2023). Adaptability and emotional, behavioural and cognitive aspects of self-regulated learning: Direct and indirect relations with academic achievement and life satisfaction. *The British Journal of Educational Psychology*, *93*(1), 353–367. https://doi.org/10.1111/bjep.12560

Feraco, T., Casali, N., Meneghetti, C., Greiff, S., & Cona, G. (2023). Is good character all that counts? a comparison between the predictive role of specific strengths and a general factor of "good character" using a bifactor model. *Journal of Happiness Studies*, *24*(7), 2353–2376. https://doi.org/10.1007/s10902-023-00686-8

Feraco, T., & Meneghetti, C. (2022). Sport practice, fluid reasoning, and soft skills in 10- to 18-year-olds. *Frontiers in Human Neuroscience*, *16*, 857412. https://doi.org/10.3389/fnhum.2022.857412

Feraco, T., & Meneghetti, C. (2023). Social, emotional, and behavioral skills: age and gender differences at 12 to 19 years old. *Journal of Intelligence*, *11*(6), 118. https://doi.org/10.3390/jintelligence11060118

Feraco, T., Sella, E., Meneghetti, C., & Cona, G. (2023). Adapt, explore, or keep going? the role of adaptability, curiosity, and perseverance in a network of study-related factors and scholastic success. *Journal of Intelligence*, *11*(2), 34. https://doi.org/10.3390/jintelligence11020034

Flora, D. B., & Curran, P. J. (2004). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods*, *9*(4), 466–491. https://doi.org/10.1037/1082-989X.9.4.466

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, *26*(1), 1–26. https://doi.org/10.1080/1047840X.2014.940781

Gross, J. J., & John, O. P. (2003). *Emotion Regulation Questionnaire*. APA PsycTests. https://doi.org/10.1037/t06463-000

Haga, S. M., Kraft, P., & Corby, E.-K. (2009). Emotion regulation: Antecedents and well-being outcomes of cognitive reappraisal and expressive suppression in cross-cultural samples. *Journal of Happiness Studies*, *10*(3), 271–291. https://doi.org/10.1007/s10902-007-9080-3

Hwang, M. H., Choi, H. C., Lee, A., Culver, J. D., & Hutchison, B. (2016). The relationship between self-efficacy and academic achievement: A 5-year panel analysis. *The Asia-Pacific Education Researcher*, *25*(1), 89–98. https://doi.org/10.1007/s40299-015-0236-3

Ioannidis, C. A., & Siegling, A. B. (2015). Criterion and incremental validity of the emotion regulation questionnaire. *Frontiers in Psychology*, *6*, 247. https://doi.org/10.3389/fpsyg.2015.00247

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *Big Five Inventory*. APA PsycTests. https://doi.org/10.1037/t07550-000

Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., Rosseel, Y. (2022). *semTools: Useful tools for structural equation modeling*. https://CRAN.R-project.org/package=semTools

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *The Journal of Applied Psychology*, *86*(1), 80–92. https://doi.org/10.1037/0021-9010.86.1.80

Judge, T., Erez, A., & Bono, J. (1998). The power of being positive: The relation between positive self-concept and job performance. *Human Performance*, *11*(2), 167–187. https://doi.org/10.1207/s15327043hup1102&3_4

Lay, C. H. (1986). At last, my research article on procrastination. *Journal of Research in Personality*, *20*(4), 474–495. https://doi.org/10.1016/0092-6566(86)90127-3

Lechner, C. M., Knopf, T., Napolitano, C. M., Rammstedt, B., Roberts, B. W., Soto, C. J., & Spengler, M. (2022). The Behavioral, Emotional, and Social Skills Inventory (BESSI): Psychometric properties of a german-language adaptation, temporal stabilities of the skills, and associations with personality and intelligence. *Journal of Intelligence*, *10*(3), 63. https://doi.org/10.3390/jintelligence10030063

Lee, D., Kelly, K. R., & Edwards, J. K. (2006). A closer look at the relationships among trait procrastination, neuroticism, and conscientiousness. *Personality and Individual Differences*, *40*(1), 27–37. https://doi.org/10.1016/j.paid.2005.05.010

Lorenzo-Seva, U., & ten Berge, J. M. F. (2006). Tucker's congruence coefficient as a meaningful index of factor similarity. *Methodology*, *2*(2), 57–64. https://doi.org/10.1027/1614-2241.2.2.57

Mariani, M. G. (2009). Contribution to the Italian adaptation of the General Procrastination Scale. *Giunti Organizzazioni Speciali*, *257*, 23–29.

Maydeu-Olivares, A., Shi, D., & Rosseel, Y. (2018). Assessing fit in structural equation models: a monte-carlo evaluation of RMSEA versus SRMR confidence intervals and tests of close fit. *Structural Equation Modeling: A Multidisciplinary Journal*, *25*(3), 389–402. https://doi.org/10.1080/10705511.2017.1389611

McCrae, R. R., & Costa, P. T. (1989). The structure of interpersonal traits: Wiggins's circumplex and the five-factor model. *Journal of Personality and Social Psychology*, *56*(4), 586–595. https://doi.org/10.1037/0022-3514.56.4.586

Napolitano, C. M., Sewell, M. N., Yoon, H. J., Soto, C. J., & Roberts, B. W. (2021). Social, emotional, and behavioral skills: An integrative model of the skills associated with success during adolescence and across the life span. *Frontiers in Education*, *6*, 1–10. https://doi.org/10.3389/feduc.2021.679561

OECD (2015). *Skills for Social Progress: The Power of Social and Emotional Skills*. https://www.oecd.org/education/skills-for-social-progress-9789264226159-en.htm

Pellegrino, J. W., & Hilton, M. L. (2012). *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century*. National Academies Press.

Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly*, *75*(4), 453–465. https://doi.org/10.1177/1080569912460400

Rosseel, Y. (2012). *lavaan: An R package for structural equation modeling and more Version 0.5-12 (BETA)*. 37.

Shi, D., & Maydeu-Olivares, A. (2020). The effect of estimation methods on SEM fit indices. *Educational and Psychological Measurement*, *80*(3), 421–445. https://doi.org/10.1177/0013164419885164

Shi, D., Maydeu-Olivares, A., & Rosseel, Y. (2020). Assessing fit in ordinal factor analysis models: SRMR vs. RMSEA. *Structural Equation Modeling: A Multidisciplinary Journal*, *27*(1), 1–15. https://doi.org/10.1080/10705511.2019.1611434

Soto, C. J., Napolitano, C. M., & Roberts, B. W. (2021). Taking skills seriously: Toward an integrative model and agenda for social, emotional, and behavioral skills. *Current Directions in Psychological Science*, *30*(1), 26–33. https://doi.org/10.1177/0963721420978613

Soto, C. J., Napolitano, C. M., Sewell, M. N., Yoon, H. J., & Roberts, B. W. (2022a). An integrative framework for conceptualizing and assessing social, emotional, and behavioral skills: The BESSI. *Journal of Personality and Social Psychology*, *123*(1), 192–222. https://doi.org/10.1037/pspp0000401

Soto, C. J., Napolitano, C. M., Sewell, M. N., Yoon, H. J., & Roberts, B. W. (2022b). Going beyond traits: social, emotional, and behavioral skills matter for adolescents' success. *Social Psychological and Personality Science*, *15*(1), 33–45. https://doi.org/10.1177/19485506221127483

Stewart, C., Wall, A., & Marciniec, S. (2016). Mixed signals: Do college graduates have the soft skills that employers want? - proquest. *Competition Forum*, *14*(2), 276–281.

Ubbiali, A., Chiorri, C., Hampton, P., & Donati, D. (2013). Italian Big Five Inventory. Psychometric properties of the Italian adaptation of the Big Five Inventory (BFI). *Applied Psychology Bulletin*, *266*(59), 37–48.

Watson, D. C. (2001). Procrastination and the five-factor model: A facet level analysis. *Personality and Individual Differences*, *30*(1), 149–158. https://doi.org/10.1016/S0191-8869(00)00019-2