The Living SEB Project: A Living Database for Review and Meta-Analysis of Social, Emotional, and Behavioral Skills

Tommaso Feraco and Gerardo Pellegrino

Department of General Psychology, University of Padova

Author Note

Tommaso Feraco https://orcid.org/0000-0002-8920-5330

Gerardo Pellegrino https://orcid.org/0000-0001-7032-9774

The study was preregistered at https://feracotommaso.github.io/living_SEB_review/preregistration/Preregistration_protocol_livingSEB.pdf

Data, code, and materials are available at https://github.com/feracotommaso/living_SEB_review

The authors have no conflict of interest to declare The authors received no funding for this study

Correspondence concerning this article should be addressed to Tommaso Feraco, Department of General Psychology, University of Padova, Via Venezia 8, Padova, Veneto 35129, Italy, Email: tommaso.feraco@unipd.it

Abstract

The social, emotional, and behavioral (SEB) skills framework was recently proposed as an integrative model for soft skills/socio-emotional competencies, clarifying their definition and distinction from personality traits. To support open and cumulative research in this area, we introduce the Living SEB Project, a continuously updated database combining ongoing literature searches, an open repository of coded studies and effect sizes, and an interactive application enabling customizable meta-analyses. At the time of writing, we identified 259 publications, with 28 meeting criteria for the living review and 17 (24 samples) for quantitative synthesis. Two tutorial analyses are used to demonstrate the database's utility: a meta-analysis of SEB–academic achievement links and a meta-analytic structural equation model testing SEB skills' incremental validity beyond personality traits. The Living SEB Project sets out as a transparent, dynamic and openly accessible tool to accelerate and ease cumulative science and synthesis within the SEB skills framework and beyond.

Keywords: meta-analysis; systematic review; living review; socio-emotional skills; open science

The Living SEB Project: A Living Database for Review and Meta-Analysis of Social, Emotional, and Behavioral Skills

Introduction

Social, emotional, and behavioral (SEB) skills–sometimes referred to as "soft skills," "21st-century skills," or "social-emotional skills"–are increasingly recognized as essential for success, well-being, and social functioning (Feraco et al., 2023; Heckman & Kautz, 2012). Only in recent years, however, new frameworks have begun to address the field's long-standing challenges of fragmented conceptualizations and reliance on personality trait measures (Abrahams et al., 2019; Guo et al., 2023; Soto et al., 2022). In particular, Soto and colleagues (2021) proposed the SEB framework and the Behavioral, Emotional, and Social Skills Inventory [BESSI; Soto et al. (2022)], defining and assessing SEB skills as functional capacities, distinct from but complementary to personality traits. This progress has created a novel and timely opportunity to accelerate research on SEB skills starting from a valid, integrative, and common framework.

Nonetheless, psychology, as many other sciences, still faces broad methodological challenges, including the absence of infrastructures that make knowledge cumulative, dynamic and accessible. Indeed, we usually rely on traditional meta-analyses and systematic reviews, which provide rigorous summaries of evidence but are narrow in scope and static by design. Given the accelerating pace of publication, they often become outdated within just a few years (Elliott et al., 2014; Elliott et al., 2017; Sakaluk et al., 2023). As a result, both old and new promising frameworks–such as SEB skills–risk fragmentation or premature stagnation if evidence cannot be continually updated and integrated.

To address this challenge, the concept of *living systematic reviews* has been developed to propose that reviews and meta-analyses are continually updated as new studies are published (Elliott et al., 2017). However, their adoption in psychology has been limited, and no living meta-analysis has yet been devoted to SEB skills. This gap is particularly striking given that SEB skills research is a young and rapidly growing field, precisely where static reviews are not conducted and selective reporting might prove particularly impacting.

The present article introduces the *Living SEB Project*: a living database for review and meta-analysis dedicated to SEB skills. This initiative integrates (a) ongoing systematic literature searches, (b) centralized open databases of coded study information and effect sizes, and (c) a user-friendly web application for customized analyses. Together, these tools provide researchers, reviewers, editors, and practitioners with continually updated, openly accessible evidence on SEB skills

To illustrate the utility of the *Living SEB Project* and its tools, we also present two tutorial analyses of the current database: A multilevel meta-analysis of the associations between SEB domains and academic achievement, and a meta-analytic structural equation model testing incremental validity of SEB skills beyond personality traits. These results should be regarded as illustrative demonstrations of the living framework rather than definitive conclusions, given the small number of studies currently available and the rapidly increasing number of publications on the topic. However, updated versions of the results will be published every time the data are updated, consistent with the living nature of the project.

Our overarching goal is to prevent SEB skills research from repeating the familiar cycle of selective reporting, fragmentation, and stagnation of many different fields in psychology.

Social, Emotional, and Behavioral Skills

The *Living SEB Project* is grounded in the conceptualization of SEB skills proposed by Soto and colleagues (2021; 2022). In this framework, SEB skills are defined as the functional capacities individuals can draw upon to build relationships, pursue goals, think creatively, and regulate their emotions. After reviewing the various theoretical models of skills presented in the literature, Soto and colleagues (2022) identified 32 skills and organized them into five broad domains derived from the Big Five model of personality traits (McCrae & Costa, 1989). Importantly, skills are clearly distinguished from personality traits: whereas traits capture enduring patterns of thoughts, feelings, and behaviors, skills reflect what individuals *can do when required*. For example, a person may typically avoid public speaking (a trait tendency) but still be able to deliver an effective presentation when needed (a skill capacity).

The five SEB skills domains, paralleling the Big Five personality traits, comprise:

- Innovation skills, including the capacities used to process and engage with novel ideas and experiences (linked to the openness personality trait).
- Self-management skills, including the capacities used to manage and complete goal-related tasks (linked to the conscientiousness personality trait).
- Social engagement skills, including the capacities used to actively and efficiently engage and communicate with other people (linked to the extraversion personality trait).
- Cooperation skills, including the capacities used to maintain positive social relationships (linked to the agreeableness personality trait).
- Emotional resilience skills, including the capacities used to regulate emotions and moods (linked to the emotional stability personality trait).

To assess these skills, the Behavioral, Emotional, and Social Skills Inventory (BESSI) was developed utilizing items that are phrased to measure capacities ("How well can you…?") rather than frequencies ("How often do you…?") and effectively distinguishing skills from traits (Soto et al., 2022). Indeed, SEB skills show both overlap with, and incremental validity beyond, personality traits (Chen et al., 2024; Feraco et al., 2024; Lechner et al., 2022; Postigo et al., 2024; Soto et al., 2023; Soto et al., 2024; Yoon et al., 2024). Additionally, skills–traits mismatches (e.g., high extraversion but low social engagement skills) predict unique outcomes for adolescents (Ringwald et al., 2025). For instance, students whose skills exceeded their traits (i.e., individuals who do not typically engage in a behavior but are nonetheless proficient at it) reported better outcomes than those whose traits exceeded their skills (i.e., individuals who often engage in a behavior but are not particularly skilled at it). Evidence also suggests that skills and traits follow similar but distinct developmental trajectories (Feraco & Meneghetti, 2023; Napolitano et al., 2025), and laypeople perceive them as meaningfully different constructs (Feraco, Hudson, et al., 2025).

Despite this progress, studies adopting the SEB skills framework already display considerable heterogeneity, making them difficult to synthesize. For instance, some studies have sought to expand the framework's nomological network by considering all SEB facets and domains (Postigo et al., 2024; Soto et al., 2024), whereas others have focused on specific skill facets (Breil et al., 2022; Collie & Ryan, 2025). In such a rapidly developing area, relying on static reviews or individual literature searches risks selective citation, cherry-picking of results, and conceptual fragmentation. To mitigate these risks, we propose a living and cumulative approach to synthesizing SEB research.

Introducing Living Reviews and Meta-Analyses

Current approaches to theoretical and quantitative synthesis of scientific materials mainly rely on meta-analyses and systematic reviews. However, especially in view of the steeply increasing number of publications, both of them become outdated soon, requiring recurring updates. These are often conducted by different authors and, even if data sharing is becoming common nowadays, building on previous meta-analysis often requires running a new database search or coding additional information leading new authors to run meta-analysis (even on the same effect) from scratch. This results in duplicate screening of materials, loss of resources and time, and potentially increased human error (Bosco et al., 2015; Elliott et al., 2017).

To overcome these issues, living meta-analysis and databases are now appearing in the literature, especially for medical studies, clinical trials, and interventions (Bosco et al., 2015; Cuijpers et al., 2022; Elliott et al., 2014; Howard & Slemp, 2025; Sakaluk et al., 2023; Spadaro et al., 2022). These approaches maintain a continually updated database of eligible studies, alongside transparent procedures for incorporating new evidence. They are particularly beneficial for rapidly evolving fields where timely integration of knowledge is critical, as showed by the many living reviews appeared during COVID-19. Nonetheless, these systems usually rely on users to upload new data or remain limited to very narrow topics or effects. With our proposal, we aim to overcome these limitations by (a) covering an entire research framework, similarly to what Howard and colleagues proposed (2025), and (b) making the database update systematic, thus

following Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines [PRISMA; Moher et al. (2015)] repeatedly across time.

Providing a similar tool would speed up and facilitate researchers' literature search, support a standardized and evidence-based understanding of the literature, and inform future research. Given the recency of the framework, fragmentation risks, and rapid expansion of this new research area, SEB skills represent an ideal case for introducing a living review system.

Rationale, aims, and hypotheses

The *Living SEB Project* is designed to create a sustainable, transparent, and cumulative infrastructure for synthesizing SEB skills research. Its development rests on three core rationales: (i) Preventing fragmentation, (ii) enabling timely integration, (iii), and advancing open science. Indeed, meta-analysis and reviews are rare for new emerging frameworks as, understandably, authors run them when enough publications are available. However, without cumulative tools since its inception, the SEB research risks repeating the cycle seen in other fields where inconsistent findings and selective reporting hinder theoretical progress, until meta-analyses start integrating the literature. Living reviews provide a means to keep pace with ongoing rapid publication process and to ensure that syntheses remain relevant and comprehensive. However, to maximize transparency and accessibility, cumulative evidence must be not only easy to access, but also easily available and usable. Researchers, reviewers, and practitioners need tools that allow them to rapidly interact with data, run analyses, and test claims without advanced technical expertise or tedious processes of data collection. To achieve these goals, we also developed a continuously updated database and the *Living SEB App*, a user-friendly web platform that integrates literature search, data visualization, and statistical analysis. The app embodies the open-science ethos of the project: it ensures that cumulative evidence is accessible to the entire community by lowering technical barriers and providing reproducible outputs.

Accordingly, the *Living SEB Project* has three main aims:

- **Review aim:** To provide a living and organized map of SEB skills literature, freely accessible and filterable by topic, population (e.g., adolescents or adults), or publication

years.

- **Meta-analytic aim:** To offer pre-processed database to continually synthesize associations between SEB skills and all other constructs and variables measured alongside, starting with cross-sectional correlations but expandable to longitudinal and experimental data.

- **Open Science aim:** To provide, together with open materials, the Living SEB App, an open-access, interactive platform that integrates the database and analysis tools, enabling replication, rapid evidence checks, preregistration support, and community contributions.

To demonstrate feasibility of the project and show its potential, we also include a tutorial analysis of the current database. This example tests the associations between SEB domains and academic achievement, which is the variable reported more often in recent SEB skills studies. We use both multilevel meta-analysis of correlations and meta-analytic structural equation modeling (MASEM). These results should be understood as illustrative demonstrations of the *Living SEB Project* infrastructure rather than definitive conclusions.

Methods

Transparency and Openness

All procedures for this project were preregistered and are publicly available on GitHub . The repository (https://github.com/feracotommaso/living_SEB_review) also hosts all materials, data, and R code used in this article. Analyses will strictly follow the preregistration unless otherwise noted. The systematic search and review was conducted according to the PRISMA guidelines (Moher et al., 2015).

Search Strategy

The comprehensive literature search was conducted and will be conducted on two electronic databases: Web of Science (WOS) and Scopus. To balance comprehensiveness with feasibility, we adopted a citation-chaining strategy (Hirt et al., 2023): all papers citing one or more seminal theoretical or measurement works on SEB skills were (and will be) retrieved. This

strategy ensures that all studies using the SEB skills framework or BESSI measures are captured while reducing noise from unrelated keyword-based searches. While efficient, this approach may overlook studies that deviate from standard research guidelines and measure or reference SEB skills without citing either the seminal works or the validation and measurement papers. To mitigate this risk, the database is continuously updated, and authors are encouraged to submit missing studies.

The initial reference papers included in the search string cover theoretical basis (Soto et al., 2021), original measurement papers (Soto et al., 2022), their cultural and language adaptations (Feraco et al., 2024; Lechner et al., 2022; Postigo et al., 2024), and shorter versions of the BESSI (Sewell et al., 2024). For readability, the full search string is available in the preregistration protocol only and will be updated when new measurement or basic theoretical papers are published.

Study Eligibility Criteria

Works were excluded if they cited the reference papers but did not focus on the SEB skills framework and did not use any BESSI measure. For example, articles mentioning the SEB skills framework but assessing skills derived from other frameworks, such as the OECD (OECD, 2021) or CASEL(Payton et al., 2000), were not considered for inclusion. Similarly, studies focusing solely on other constructs were excluded even if they cited the reference papers. However, if a study examined a different construct but also collected ancillary data using the BESSI, it was included in the meta-analysis. Citations are also excluded if they were published as books or in language that were not comprehensible for the authors.

To be included in the quantitative database, studies also had to:

1. Be written in a language comprehensible to the authors (i.e., English, Italian, and Spanish);
2. Include original quantitative data using a validated or translated BESSI-based measure;
3. Report correlations or provide correlations after authors' request;
4. Include original data not already reported in other included studies.

Contrarily, a study is excluded from the quantitative database for meta-analysis if:

1. Data were duplicated across publications;
2. Measures were not validated or outside the SEB skills and BESSI framework;
3. The study did not report correlations at baseline or data could not be reduced to correlations.

Coding Procedures

For each included study, the following information was systematically coded:

- *Bibliographic metadata*: DOI, title, authors, journal, year, and download date.
- *Paper, sample, and matrix IDs*: The unique progressive identifiers of each paper, sample, and correlation matrix.
- *Exclusion reason:* both for the review and the meta-analysis.
- *Review topics*: The main topics covered by the study.
- *Open data*: Whether data were openly available or not and the link to the data.
- *Study design*: Whether the study is cross-sectional, longitudinal, or experimental.
- *Country*: Country of origin of the participants. In case participants from multiple countries were included in the same sample, the sample was coded as “mixed”.
- *Gender*: The percentage of females.
- *Age*: The mean age of the sample.
- *Sample size*: The sample size of each population on which correlations were estimated.
- *Age category:* An additional category was added to distinguish between samples of primary school students, secondary school students, young adults (university students or younger than 30), adults (younger than 55) older adults (55 or older). Adults was used also if the study included participants of all ages or between 19 and 55 years old.

- *Clinical population*: Samples are divided between clinical populations and non-clinical populations. In case a clinical population was included, we specify the diagnosis.
- *SEB measure*: BESSI 192, 96, 45, 20 or other versions.
- *Measure type*: Long (if it measures facets) or short (if it only measures domains).
- *Trait framework*: In case personality traits are measured, whether they are measured with a BF measure or an HEXACO measure.
- *Effect sizes*: The entire Pearson's correlations matrices among all study variables are extracted from the papers as measure of effect size. For papers including repeated measurements on the same sample (e.g., longitudinal studies, intervention studies with pre/post assessment), the correlations matrix is extracted only from the first data collection.
- *Non-SEB indicators*. All measures, outcomes, and correlates are manually classified within the names of the correlation matrix. A codebook with all measures coded is available on the GitHub page of the project allowing categorizations of variables in specific and broader categories.

Updating Procedures

To maintain the "living" nature of the review, the search and coding procedures are repeated on the first working day of each month. New studies are added to the database, and version-controlled monthly snapshots are archived. If no eligible studies were published within a month, data are not updated. When new theoretical or measurement works are published, the seed references for the citation-chaining search are expanded accordingly. Additionally, at each new search, the database search will be limited by adding the day the last search was conducted as a starting search limit.

A continuously updated version of this paper is published online, with results revised each month to reflect the latest data, but without changing the introduction.

To pilot the feasibility of this procedure, we already ran the updated in multiple months with success.

The Living SEB App

In parallel with the database, we developed the *Living SEB App*, a Shiny-based web platform that provides direct access to the database and analytic tools. The app enables users to:

- Search and filter literature by topic, population, or design;
- Run meta-analyses of SEB skills associations with outcomes, using multilevel models;
- Conduct meta-analytic structural equation modeling (MASEM) for incremental validity analyses or for estimating more complex correlation matrices;
- Download datasets and correlation matrices for further analyses;
- Generate reproducible reports to support preregistration, peer review, and editorial decision-making.

The app is hosted openly and mirrored on GitHub to ensure sustainability and version control. While designed to lower barriers for non-technical users, the raw datasets and R code remain freely available for advanced or customized analyses.

The *Living SEB App* link can be found on the GitHub web page of the project as it may change with server updates: https://feracotommaso.github.io/living_SEB_review.

Results

Given the adaptive nature of a the *Living SEB project*, we report temporary results and descriptive statistics of the data available at the time of writing. A continuously updated version of the results is available at: https://feracotommaso.github.io/living_SEB_review/paper/livingSEBpaper.html.

Database Overview

At the time of writing, the systematic search identified 259 publications (Scopus = 136; WOS = 123). After removing duplicates, screening titles and abstracts, and reviewing full texts, 28 studies were retained for the living review and 17 studies met criteria for quantitative synthesis. These include a total of 24 independent samples (see Figure 1), with sample sizes ranging from 137 to 5075 (median = 621). Main characteristics of all studies included in the review are reported in Table 1.

Across these studies, a total of 17122 correlation coefficients were coded, representing 5834 unique pairwise associations. Of these, 14222 correlations (3852 unique associations) involved at least one SEB domain or facet measured with a BESSI instrument. This provides the foundation for both the living database and the illustrative analyses reported below.

A continuously updated summary of descriptive statistics is available online in the living version of this manuscript.

Tutorial Analysis 1: Multilevel Meta-analysis of Correlations

As a demonstration of the project's multilevel meta-analytic pipeline, we tested the associations between the five SEB skill domains and academic achievement. Following preregistered procedures, a three-level random-effects model was used, with effects nested within samples and studies. In line with Borenstein and colleagues (2021), Fisher's z transformations were applied and then back-transformed to Pearson's r for interpretation. The metafor package was used for the meta-analysis (Viechtbauer, 2010).

A total of 45 effect sizes from 8 studies and 9 samples were included. For each SEB domain, the median available sample size was 840 (minimum sample size = 319; maximum sample size = 5075).

The full set of results is available in Table 2 and Figure 2. Of the five meta-analysed correlations with academic achievement, three were larger than 0.10, with significant effects ($p < 0.01$) ranging between 0.11 (i.e., Social engagement) and 0.24 (i.e., Self-management).

The Q test for heterogeneity shows that there is significant heterogeneity across studies,

with the standard deviation of the effects ranging between 0.07 and 0.1.

Though representing the more extensive analysis of the association between SEB domains and academic achievement, these results should be regarded as preliminary and illustrative.

Tutorial Analysis 2: Meta-analytic Structural Equation Modeling

To illustrate the use of meta-analytic structural equation modeling within the *Living SEB Project*, we tested whether SEB skills predict academic achievement beyond their corresponding Big Five traits. Initially, using the first stage of the two-staged structural equation modelling (TSSEM) procedure we estimated a descriptive pooled correlation matrix of the associations between all the Big Five traits and the five SEB domains (Cheung, 2015). Then, using one-stage meta-analytic structural equation modelling (OSMASEM) procedures (Jak & Cheung, 2020), five saturated regression models were estimated, each including one SEB domain and its matched Big Five trait as predictors of academic achievement.

The metaSEM (Cheung, 2024) and lavaan (Rosseel, 2012) R packages were used for these analysis and the open code of the webMASEM app (Jak et al., 2021) was used to guide coding of the *Living SEB App* section for MASEM.

MASEM analyses were based on varying number of effect sizes per pairwise correlation (i.e., different correlation matrices), with the minimum available effects per correlation being 3 and the maximum being 21. As a consequence, also sample sizes and precision differed, with the minimum being 2712 (i.e., correlations between personality traits and academic achievement) and the maximum being 21385 (i.e., correlations between SEB domains). Correlation matrices were taken from 22 samples included in 15 different studies.

Given the low number of studies available for some variables, we set between-study variance to zero and estimated a common effect across studies. This approach avoids attempting to estimate random-effects components that would be unstable or poorly identified in sparse conditions.

Pooled correlations

The pooled correlation matrix is reported in Figure 3. As clear from the diagonal cells

linking each skill to the corresponding trait, their correlation is substantial ($r > 0.62$), with the highest correlation reaching 0.74. For what concerns academic achievement, Self-management (r = 0.24), BF Conscientiousness (r = 0.22) were the only variables among SEB skills and Big Five traits showing a pooled correlation higher than $r > 0.2$ with academic achievement.

Regression models

From Table 3, two of the SEB skills and two of the personality traits showed significant associations ($p < 0.01$) larger than |0.1| with academic achievement beyond the corresponding trait/skill. Specifically, Self-management (b = 0.17; 95% CI [0.14; 0.21]; p < 0.001), Social engagement (b = 0.12; 95% CI [0.07; 0.16]; p < 0.001) and BF Openness (b = 0.17; 95% CI [0.13; 0.2]; p < 0.001), BF Conscientiousness (b = 0.13; 95% CI [0.08; 0.18]; p < 0.001) showed significant and practically meaningful associations with academic achievement, while all other associations were lower than |0.08| and non-significant. It should be noted, however, that to estimate a complete OSMASEM model, a more refined analysis would require enlarging the research to all studies testing the association between the Big Five and academic achievement to produce better estimates of the covariance between the Big Five themselves and academic achievement and possibly obtain more precise estimates and lower convergence issues.

In general, these results should be interpreted as illustrative demonstration of the functionality of a metaSEM pipeline within the *Living SEB project* rather than offering final conclusions about SEB–trait relationships.

Reproducibility via the Living SEB App

Both tutorial analyses can be reproduced in the Meta-analysis and MetaSEM modules of the *Living SEB App*. Users can select specific subsets of studies, download data and R code, and generate updated reports. This ensures that results presented here remain transparent, reproducible, and adaptable as the evidence base grows.

Discussion

In this article, we introduced the *Living SEB Project* and the associated *Living SEB App*, a shiny app for searching and analysing SEB skills data and papers. Two tutorial meta-analyses

were also conducted to exemplify the use that can be done of the data collected in the *Living SEB Project* and the *Living SEB App* and test meta-analytical associations between SEB skills and academic achievement and their incremental validity beyond personality traits. To do this, we employed the two main meta-analysis functions currently available in the *Living SEB App*, namely three-level meta-analysis of correlation coefficients and MASEM. The results of these analyses showed that five skills were significantly associated with academic achievement, with pooled correlations ranging between 0.06 (i.e., Emotional resilience) and 0.24 (i.e., Cooperation). When controlling for personality traits in OSMASEM regression models, two of the SEB skills and two of the personality traits showed significant association with academic achievement larger than |0.1| beyond the corresponding trait/skill. More precise estimates of these associations will be available each month in the living version of this manuscript if new research on the topic is published.

As exemplified in these analyses, the *Living SEB Project* provides the necessary tools and data for responding cross-sectional research questions and synthesizing the available evidence using meta-analysis. However, different uses can be made of this data and of the *Living SEB App*.

Use and Utility the Open Data and the *Living SEB App*

First of all, the *Living SEB Project* materials and the app can be used to synthesize the literature based on the SEB skills framework using meta-analytic procedures and speeding up literature search with useful tools to find all the SEB skills papers covering a specific topic or using/measuring a specific variable. However, considering the limitations detailed below, the results and the reports that can be obtained using the *Living SEB App* should not be considered as publication-ready meta-analysis, which would require additional steps and integration (e.g., risk of bias analysis, tests for publication bias, moderator analysis, different modelling approaches). For this reason, we suggest using the *Living SEB App* and the open data available for rapid synthesis only or to inform hypotheses and Bayesian priors for future studies (e.g., the meta-analytical estimates and confidence intervals obtained might be directly used as quantitative priors). Additionally, the reports downloaded from the app (or the data downloaded together with users' R code) could be directly used to support preregistrations and, for instance, uploaded on the

Open Science Framework (OSF) or other preferred platforms as evidence for the justification of the effect sizes used in power analyses. On the other side, reviewers and editors may benefit from this project for their work. Indeed, they can rapidly check whether authors' assertions correspond to up-to-date evidence within the SEB framework, whether the necessary literature has been cited or whether the theoretical introduction and hypotheses are based on the full breadth of evidence or on selected papers. Reports and results obtained from the app could thus be used by reviewers and editors to support their suggestions, without conducting long literature reviews.

Beyond its practical utility, the *Living SEB Project* has broader implications for the theoretical development of SEB skills research and psychology more generally. By maintaining a continuously updated, transparent synthesis of findings, the project helps guard against selective citations, cherry-picking, and conceptual fragmentation that have historically slowed theoretical progress in emerging areas. For SEB research specifically, where competing frameworks and rapid publication rates can easily obscure cumulative patterns, a living evidence base ensures that theories can be tested against the full breadth of available data rather than isolated studies. More broadly, the *Living SEB Project* illustrates how infrastructures of cumulative evidence can shift psychology toward a more dynamic and self-correcting science. Instead of relying on static reviews that quickly become outdated, researchers can build and refine theoretical models with a continually refreshed evidence base. In this sense, the project does not simply provide a database or app but models a new standard for how psychological theory and evidence can co-evolve.

Limitations

When designing the *Living SEB Project* and app, we aimed at finding a good balance between providing enough functionality for the users, while keeping the systematic review process feasible and the application user friendly and intuitive to use. As a consequence, there are many situations in which using the *Living SEB App* only is not the appropriate choice, but more refined analyses should be conducted locally by the researcher. In particular, only cross-sectional data are available. To analyse experimental and longitudinal data, the necessary data must be manually coded (but all the papers needed should already be included in our database). Additionally, the

specific measures used are not coded in the data and different measures are automatically meta-analysed as indicators of a specific outcome or construct. For instance, school engagement could be measured with different questionnaires. Authors interested in moderator analyses should code those specific information. Similarly, study topics are manually and qualitatively defined by the authors and may not correspond to everybody's opinion. We also acknowledge that our reliance on citation-chaining of seminal SEB works may result in missed eligible publications, particularly those that employ BESSI measures without directly citing the validation articles. While this approach ensures feasibility and reduces noise, it might eventually compromise full systematic comprehensiveness. In the long term, we plan to supplement this strategy with periodic keyword-based searches and, where possible, semi-automated text-mining or machine-learning methods to identify overlooked studies. Meanwhile, we actively encourage researchers to notify us of missing contributions so that the database can remain as inclusive as possible. To date, we are not aware of any published studies within the SEB framework that are excluded.

Future Perspectives

Given the current limitations, we suggest a use of the *Living SEB Project* and app that respect the boundaries of the functionality offered. However, future updates of the project may enlarge the aims of the project and its uses. In particular, with increasing number of longitudinal and experimental publications within the SEB framework, the meta-analysis options of the app could be extended to incorporate both possibilities. We also plan to include options for the analysis of moderators and for publication bias. Depending on future funding and resources, it could be possible to automatize the database search and coding procedures through the use of ad-hoc algorithms and artificial intelligence. Finally, users may be provided with the possibility to upload additional data in the main database for personal use or openly for the community.

Conclusions

To conclude, the current paper provides an initial description of the *Living SEB Project* and we hope that researchers, reviewers, editors, and laypeople will use and appreciate the potentialities offered and that our work may facilitate theirs. We also hope that other colleagues

will follow our example and build additional platforms covering their specific field of research.

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*, 460–473. https://doi.org/10.1037/pas0000591

Beatty, J. F., Hill, P. L., & Spengler, M. (2025). Sense of purpose and social-emotional-behavioral skills during university. *Personality and Individual Differences*, *233*, 112870. https://doi.org/10.1016/j.paid.2024.112870

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2021). *Introduction to Meta-Analysis*. John Wiley & Sons.

Bosco, F., Steel, P., Oswald, F., Uggerslev, K., & Field, J. (2015). Cloud-based meta-analysis to bridge science and practice: Welcome to metaBUS. *Personnel Assessment and Decisions*, *1*(1). https://doi.org/https://doi.org/10.25035/pad.2015.002

Breil, S. M., Mielke, I., Ahrens, H., Geldmacher, T., Sensmeier, J., Marschall, B., & Back, M. D. (2022). Predicting Actual Social Skill Expression from Personality and Skill Self-Concepts. *Journal of Intelligence*, *10*(3), 48. https://doi.org/10.3390/jintelligence10030048

Chen, L., Zhang, B., & Li, J. (2024). Social, emotional, and behavioral (SEB) skills in the workplace. *Collabra: Psychology*, *10*(1), 120531. https://doi.org/10.1525/collabra.120531

Cheung, M. W.-L. (2015). *Meta-Analysis: A Structural Equation Modeling Approach*. John Wiley & Sons.

Cheung, M. W.-L. (2024). *metaSEM: Meta-analysis using structural equation modeling*. https://cran.r-project.org/web/packages/metaSEM/index.html

Collie, R. J., & Ryan, R. M. (2025). Autonomy support and students' perceived social-emotional competence: predicting parent-reported social-emotional skills. *Social Psychology of Education*, *28*(1), 116. https://doi.org/10.1007/s11218-025-10079-9

Cuijpers, P., Miguel, C., Papola, D., Harrer, M., & Karyotaki, E. (2022). From living systematic reviews to meta-analytical research domains. *Evidence Based Mental Health*, *25*(4).

https://doi.org/10.1136/ebmental-2022-300509

De Fruyt, F., & Scheirlinckx, J. (2025). Challenges and Opportunities for the Assessment of Social-Emotional Skills. *ECNU Review of Education*, 20965311251319355. https://doi.org/10.1177/20965311251319355

Elliott, J. H., Synnot, A., Turner, T., Simmonds, M., Akl, E. A., McDonald, S., Salanti, G., Meerpohl, J., MacLehose, H., Hilton, J., Tovey, D., Shemilt, I., Thomas, J., Agoritsas, T., Hilton, J., Perron, C., Akl, E., Hodder, R., Pestridge, C., … Pearson, L. (2017). Living systematic review: 1. Introduction—the why, what, when, and how. *Journal of Clinical Epidemiology*, *91*, 23–30. https://doi.org/10.1016/j.jclinepi.2017.08.010

Elliott, J. H., Turner, T., Clavisi, O., Thomas, J., Higgins, J. P. T., Mavergames, C., & Gruen, R. L. (2014). Living Systematic Reviews: An Emerging Opportunity to Narrow the Evidence-Practice Gap. *PLOS Medicine*, *11*(2), e1001603. https://doi.org/10.1371/journal.pmed.1001603

Feraco, T., Bonelli, R., Da Re, L., & Meneghetti, C. (2025). Soft skills in high schools: integrating self-regulated learning and social, emotional, and behavioral skills frameworks. *Social Psychology of Education*, *28*(1), 134. https://doi.org/10.1007/s11218-025-10095-9

Feraco, T., Carbone, E., Cramarossa, G., & Meneghetti, C. (2025). The role of social, emotional, and behavioral skills for nature connectedness, action competence, and proenvironmental behaviors in adolescence. *Environmental Education Research*, 1–16. https://doi.org/10.1080/13504622.2025.2459323

Feraco, T., Casali, N., Pellegrino, G., Soto, C. J., Napolitano, C. M., Carretti, B., & Meneghetti, C. (2024). The italian behavioral, emotional, and social skills inventory (BESSI-i). *Journal of Personality Assessment*, *106*(6), 750–764. https://doi.org/10.1080/00223891.2024.2335912

Feraco, T., Hudson, N. W., & Soto, C. J. (2025). Differences in change goals between personality traits and social, emotional, and behavioral skills. *Personality and Individual Differences*, *241*, 113200. https://doi.org/10.1016/j.paid.2025.113200

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., Pellegrino, G., Casali, N., Carretti, B., & Meneghetti, C. (2025). Social, emotional, and behavioral skills in students with or without specific learning disabilities. *Learning and Individual Differences*, *117*, 102581. https://doi.org/10.1016/j.lindif.2024.102581

Feraco, T., Resnati, D., Fregonese, D., Spoto, A., & Meneghetti, C. (2023). An integrated model of school students' academic achievement and life satisfaction. Linking soft skills, extracurricular activities, self-regulated learning, motivation, and emotions. *European Journal of Psychology of Education*, *38*, 109–130. https://doi.org/10.1007/s10212-022-00601-4

Guo, J., Tang, X., Marsh, H. W., Parker, P., Basarkod, G., Sahdra, B., Ranta, M., & Salmela-Aro, K. (2023). The roles of social–emotional skills in students' academic and life success: A multi-informant and multicohort perspective. *Journal of Personality and Social Psychology*, *124*(5), 1079–1110. https://doi.org/10.1037/pspp0000426

Heckman, J. J., & Kautz, T. (2012). Hard evidence on soft skills. *Labour Economics*, *19*(4), 451–464. https://doi.org/10.1016/j.labeco.2012.05.014

Hirt, J., Nordhausen, T., Appenzeller-Herzog, C., & Ewald, H. (2023). Citation tracking for systematic literature searching: A scoping review. *Research Synthesis Methods*, *14*(3), 563–579. https://doi.org/10.1002/jrsm.1635

Howard, J. L., & Slemp, G. R. (2025). Why we need a living meta-analysis of self-determination theory: an illustration examining temporal changes in need supportive education. *Motivation and Emotion*. https://doi.org/10.1007/s11031-025-10132-2

Ichsan, M. H. H., Sik-Lanyi, C., & Guzsvinecz, T. (2025). Virtual reality in skill development through user experience and technology advancements. *Discover Computing*, *28*(1), 171. https://doi.org/10.1007/s10791-025-09703-1

Jak, S., & Cheung, M. W.-L. (2020). Meta-analytic structural equation modeling with moderating effects on SEM parameters. *Psychological Methods*, *25*(4), 430–455. https://doi.org/10.1037/met0000245

Jak, S., Li, H., Kolbe, L., Jonge, H. de, & Cheung, M. W.-L. (2021). Meta-analytic structural equation modeling made easy: A tutorial and web application for one-stage MASEM. *Research Synthesis Methods*, *12*(5), 590–606. https://doi.org/10.1002/jrsm.1498

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

Lechner, C. M., & Urban, J. (2025). Inequalities in adolescents' social, emotional, and behavioral skills: Differences across social categories and their intersections. *Learning and Individual Differences*, *118*, 102605. https://doi.org/10.1016/j.lindif.2024.102605

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

Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., & PRISMA-P Group. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, *4*(1), 1. https://doi.org/10.1186/2046-4053-4-1

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*. https://doi.org/10.3389/feduc.2021.679561

Napolitano, C. M., Soto, C. J., Sewell, M. N., Yoon, H. J., & Roberts, B. W. (2025). Changes in social, emotional, and behavioral skills are associated with changes in secondary school students' important outcomes. *European Journal of Personality*, 08902070251328046. https://doi.org/10.1177/08902070251328046

OECD. (2021). *Beyond Academic Learning: First Results from the Survey of Social and*

Emotional Skills 2019. OECD. https://doi.org/10.1787/92a11084-en

Payton, J. W., Wardlaw, D. M., Graczyk, P. A., Bloodworth, M. R., Tompsett, C. J., & Weissberg, R. P. (2000). Social and emotional learning: A framework for promoting mental health and reducing risk behavior in children and youth. *Journal of School Health*, *70*(5), 179–185. https://doi.org/10.1111/j.1746-1561.2000.tb06468.x

Pellegrino, G., Feraco, T., Meneghetti, C., & Carretti, B. (2025). Ready for What's Next? The Associations Between Social, Emotional, and Behavioral Skills and Career Adaptability in High School Students. *Journal of Adolescence*, 1–11. https://doi.org/10.1002/jad.12486

Postigo, Á., González-Nuevo, C., García-Fernández, J., García-Cueto, E., Soto, C. J., Napolitano, C. M., Roberts, B. W., & Cuesta, M. (2024). The Behavioral, Emotional, and Social Skills Inventory: A Spanish Adaptation and Further Validation in Adult Population. *Assessment*, 10731911231225197. https://doi.org/10.1177/10731911231225197

Ringwald, W. R., Napolitano, C. M., Sewell, M. N., Soto, C. J., Yoon, H. J., & Wright, A. G. C. (2025). More skill than trait, or more trait than skill? Relations of (mis)matches between personality traits and social, emotional, and behavioral skills with adolescent outcomes. *European Journal of Personality*. https://doi.org/10.1177/08902070241309960

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

Sakaluk, J. K., De Santis, C., Kilshaw, R., Pittelkow, M.-M., Brandes, C. M., Boness, C. L., Botanov, Y., Williams, A. J., Wendt, D. C., Lorenzo-Luaces, L., Schleider, J., & Ravenzwaaij, D. van. (2023). Reconsidering what makes syntheses of psychological intervention studies useful. *Nature Reviews Psychology*, *2*(9), 569–583. https://doi.org/10.1038/s44159-023-00213-9

Sewell, M. N., Napolitano, C. M., Roberts, B. W., Soto, C. J., & Yoon, H. J. (2023). The social, emotional, and behavioral skill antecedents to college students' volunteering during the COVID-19 pandemic. *Journal of Research on Adolescence*, *33*(2), 618–631. https://doi.org/10.1111/jora.12830

Sewell, M. N., Yoon, H. J., Lechner, C. M., Napolitano, C. M., Rammstedt, B., Roberts, B. W., & Soto, C. J. (2024). Assessing social, emotional, and behavioral skills in just a few minutes: 96-, 45-, and 20-item short forms of the BESSI. *Assessment*. https://doi.org/10.1177/10731911241256434

Sharabi, A., Carretti, B., Cueli, M., Rodríguez, C., & Pellegrino, G. (2025). Undergraduates' achievement and satisfaction: The role of study-related factors and soft skills. *Frontiers in Psychology*, *16*. https://doi.org/10.3389/fpsyg.2025.1653072

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., Murano, D., Casillas, A., & Roberts, B. W. (2023). What i do and what i can do: Testing the convergence and incremental validity of social, emotional, and behavioral skills vs. Traits for predicting academic success. *Journal of Research in Personality*, *104*, 104382. https://doi.org/10.1016/j.jrp.2023.104382

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

Soto, C. J., Napolitano, C., Sewell, M. N., Yoon, H. J. R., & Roberts, B. (2024). Going beyond traits: Social, emotional, and behavioral skills matter for adolescents' success. *Social Psychological and Personality Sciencce*, *15*(1), 33–45. https://doi.org/10.1177/19485506221127483

Spadaro, G., Tiddi, I., Columbus, S., Jin, S., Teije, A. ten, & Balliet, D. (2022). The Cooperation Databank: Machine-Readable Science Accelerates Research Synthesis. *Perspectives on Psychological Science*, *17*(5), 1472–1489. https://doi.org/10.1177/17456916211053319

Vega-Dienstmaier, J. M., Caballero-Peralta, J., Ascate-K'ana, M., & Tavera-Palomino, M. (2024). Validation of the self-applicable version of the resilience subscale of the BESSI-45 inventory

in peruvian adolescents aged 12 to 17 years; [validación de la versión autoaplicable de la subescala de resiliencia del inventario BESSI-45 en adolescentes peruanos de 12 a 17 años de edad]. *Revista de Neuro-Psiquiatria*. https://doi.org/10.20453/rnp.v87i1.5046

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, *36*(3), 1–48. https://doi.org/10.18637/jss.v036.i03

Walton, K. E., Murano, D., & Burrus, J. (2024). Considerations when determining similarity between traits and skills: Raters and item types. *JOURNAL OF PERSONALITY ASSESSMENT*. https://doi.org/10.1080/00223891.2024.2444447

Yoon, H. J., Roberts, B. W., Sewell, M. N., Napolitano, C. M., Soto, C. J., Murano, D., & Casillas, A. (2024). Examining SEB skills' incremental validity over personality traits in predicting academic achievement. *PLOS ONE*, *19*(1). https://doi.org/10.1371/journal.pone.0296484

Table 1

Studies included in the review

Authors	Year	Study design	Country	n	Group	Main focus
Beatty et al.	(2025)	Cross-sectional	United States	412	Young adults	Associations between sense of purpose and SEB skills in university students
Breil et al.	(2022)	Cross-sectional	Germany	137	Young adults	Associations between self- and observer-reports for three social skills
Chen et al.	(2024)	Cross-sectional	China	2,992	Adults	SEB skills and their incremental validity for job outcomes beyond personality traits
Collie & Ryan	(2025)	Cross-sectional	Australia	373	Secondary school	Parent-rated SEB

Table 2

Meta-analytical associations between SEB skills and academic achievement

Skill	N (k)	r	CI	PI	se	q	tau2
Cooperation	11920 (9)	0.10*	0.02; 0.17	-0.12; 0.31	0.03	48 (8)*	0.01
Emotional resilience	11920 (9)	0.06*	0.00; 0.12	-0.10; 0.22	0.03	23 (8)*	0.00
Innovation	11920 (9)	0.12*	0.04; 0.20	-0.13; 0.36	0.04	73 (8)*	0.01
Self-management	11920 (9)	0.24***	0.17; 0.32	0.03; 0.44	0.03	57 (8)*	0.01
Social engagement	11920 (9)	0.11**	0.03; 0.18	-0.11; 0.31	0.03	38 (8)*	0.01

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; CI = Confidence intervals; PI = Prediction intervals; se = Standard error

Table 3

OSMASEM regression and correlation coefficients for the five models

Outcome		Predictor	Estimate	se	CI	z
Academic achievement	~	BF Openness	0.167***	0.02	[0.13; 0.2]	8.76
Academic achievement	~	Innovation	-0.064*	0.02	[-0.11; -0.01]	-2.53
Innovation	~~	BF Openness	0.673***	0.01	[0.66; 0.69]	109.84
Academic achievement	~	BF Conscientiousness	0.127***	0.03	[0.08; 0.18]	4.92
Academic achievement	~	Self-management	0.174***	0.02	[0.14; 0.21]	8.77
Self-management	~~	BF Conscientiousness	0.693***	0.01	[0.68; 0.7]	118.26
Academic achievement	~	BF Extraversion	-0.02	0.03	[-0.07; 0.03]	-0.72
Academic achievement	~	Social engagement	0.116***	0.02	[0.07; 0.16]	5.36
Social engagement	~~	BF Extraversion	0.719***	0.00	[0.71; 0.73]	133.70
Academic achievement	~	BF Agreeableness	0.067**	0.02	[0.02; 0.11]	2.83
Academic achievement	~	Cooperation	0.049**	0.02	[0.02; 0.08]	2.93
Cooperation	~~	BF Agreeableness	0.594***	0.01	[0.58; 0.61]	82.27
Academic achievement	~	BF Neuroticism	0.081***	0.02	[0.04; 0.12]	4.03
Academic achievement	~	Emotional resilience	0.055*	0.03	[0; 0.11]	2.10
Emotional resilience	~~	BF Neuroticism	-0.684***	0.01	[-0.7; -0.67]	-115.35

Note. ~ = regression path; ~~ correlation; * $p < .05$; ** $p < .01$; *** $p < .001$; CI = Confidence intervals; se = Standard error

Figure 1

PRISMA flow chart

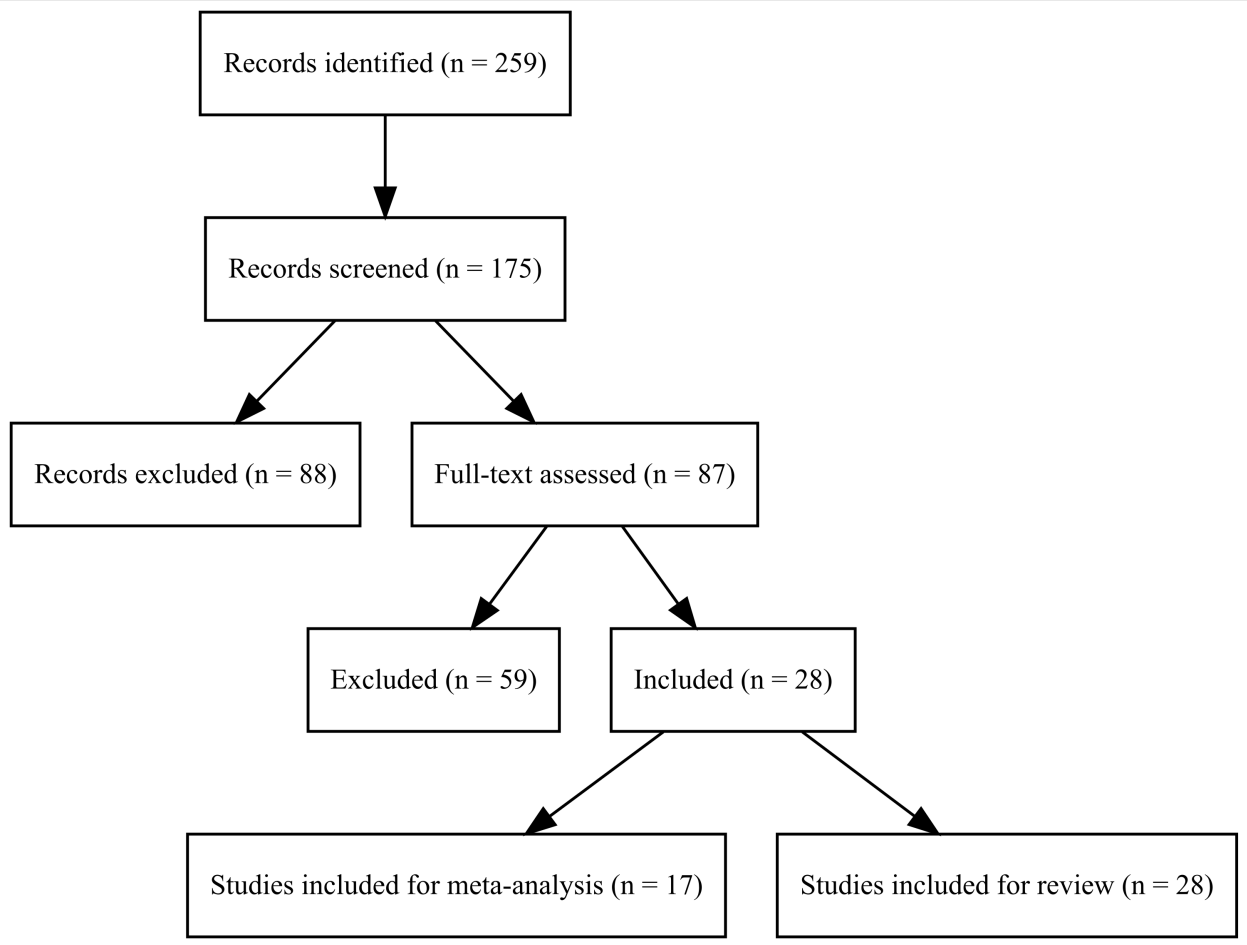

Figure 2

Meta-analytical associations between the five SEB domains and academic achievement.

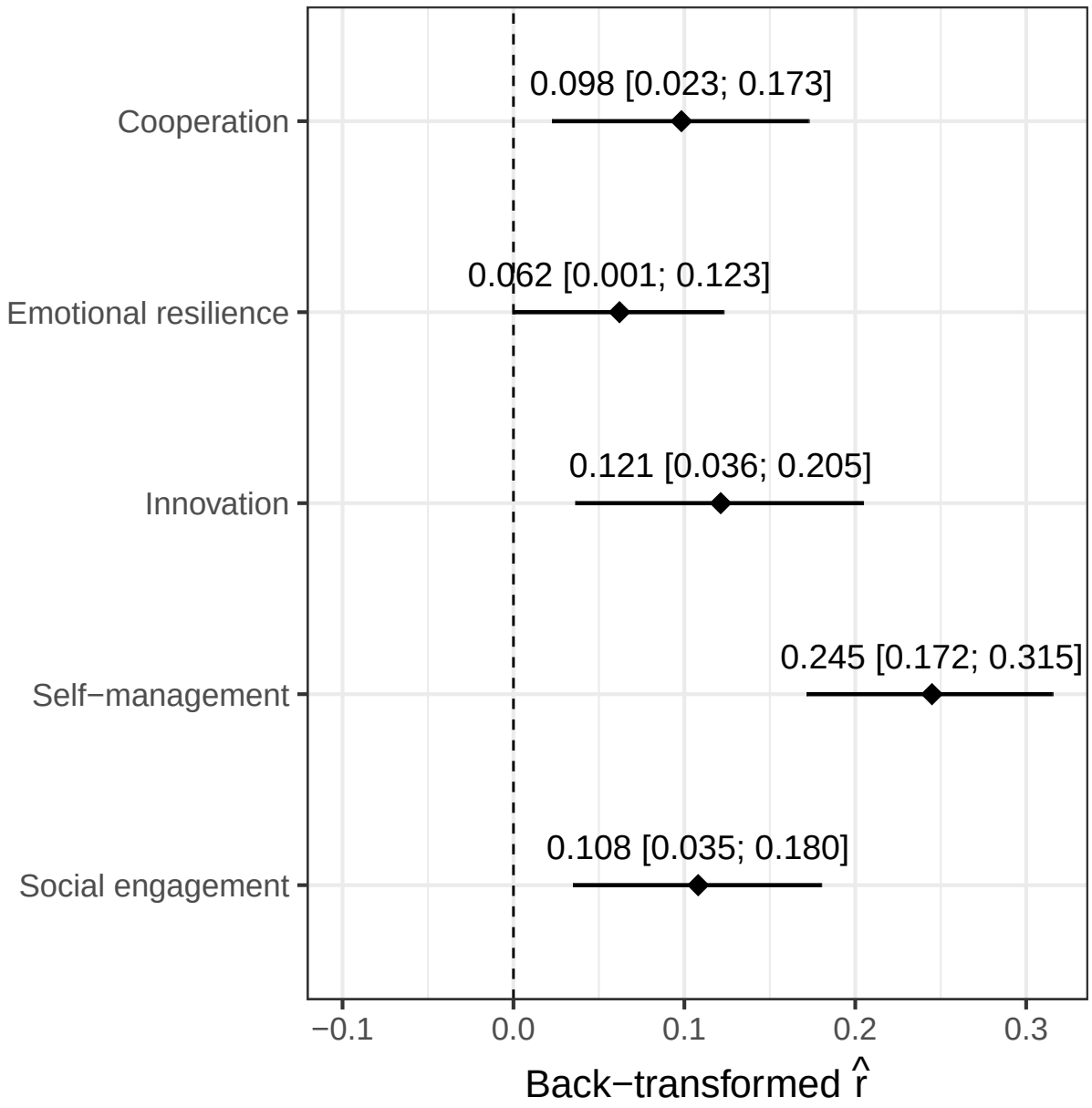

Figure 3

Pooled correlation matrix