

Amsterdam, March 3, 2021

## CALL FOR PROPOSALS

Call no. 1/03-2021

# IEA Research and Development Funds: Thematic Call for Research Proposals on Computer-Based Assessment

### 1. Introduction and objectives

From 2021, the International Association for the Evaluation of Educational Achievement (IEA) invites proposals to advance and improve the science and methodology of IEA studies, ensuring that they remain at the forefront of international large-scale assessments (ILSA) in education. The aim of the IEA Research and Development (R&D) Funds relates to IEA's mission to advance research and innovation. Funding is drawn from a 3% overhead on participation fees across IEA studies. Over time, the R&D program will address a range of topics through *open* and *thematic* calls. For clarity, they are not aimed towards substantial or policy-related studies.

R&D calls for proposals are open to external researchers (e.g., individuals or those associated with a university or survey organization), staff and experts from study centers for IEA studies, as well as IEA staff. The program welcomes proposals from all groups and award will be based on proposal merit only.

The level of funding is generally based on the proposed project's needs and will fall into either tier 1: projects up to 50,000 EUR; or tier 2: projects between 50,000 and 100,000 EUR.

All projects covered by the R&D funds must:

- be based on rigorous, intellectually ambitious, and technically sound research that is relevant to the most pressing questions and opportunities in IEA's work on ILSA;
- be clearly related to methods and approaches that IEA uses in one or more of its studies, or related to those methods and approaches that would, in a forward-looking way, have the potential to significantly improve IEA's work in the future; and
- propose specific approaches, innovations, and methods with a tangible outcome or recommendation that adds value to IEA studies and can be realistically implemented and used within the work of IEA.

R&D projects should relate to one or more of the four major strands of the *Technical Standards for IEA Studies* (Martin, Rust, & Adams, 1999):

- Designing, Managing, and Implementing IEA Studies
- Developing Data Collection Instruments
- Data Collection and Processing
- Analyzing Data and Reporting Results

Proposals can also be related to other quality frameworks, including the *total survey error* paradigm (Biemer et al., 2017) or the *Cross-cultural Survey Guidelines* (CCSG; Survey Research Center, 2016), i.e., those covering major aspects across the full lifecycle of international surveys and assessments.

Proposed projects can hence result in recommendations for changes to the design, implementation, and/or data work in IEA studies, or changes or improvements to the use of the collected data.

## 2. Thematic direction

The direction for this first *thematic* call in the series is:

# Technology/Computer-Based Assessment (TBA/CBA) with proposals accepted for both Funding tier 1 and 2

International large-scale assessments (ILSAs) in education have undergone foundational transformations in the recent decade and many areas of earlier roadmaps (for example, Scheuermann & Björnsson, 2009) have seen substantial progress. To date, most ILSAs have completed or at least began the transition from paper-based to computer-based—or, more generally, *technology-based*—administration, typically for the majority of countries involved.

This also applies to IEA and its studies.<sup>1</sup> The International Computer and Information Literacy Study (ICILS) was designed for the computer from its inception in 2013, and for the 2018 and 2023 cycles. IEA's flagship mathematics, science, and reading assessments, TIMSS and PIRLS, completed the transition for the 2019 and 2021 cycles, respectively. The International Civic and Citizenship Education Study (ICCS) will be computer-based for the majority of countries in 2022, following exclusively paper-based cycles in 2009 and 2016.

Technology-based assessments entail many advantages yet also raise substantial questions or imply potentially breaking changes for existing assessment, for example, related to mode effects, construct representation, or deeper insights from the collected data. Bennet (2018) attempts to describes the possible future of educational assessment a decade from now, including what is likely to change and what is unlikely to do so. Veldkamp and Sluijter (2019) review a range of considerations for advancing assessments further. Sibberns (2020) provides an overview of these aspects for IEA studies from the perspective of validity, reliability, and comparability. Taken together, these publications offer potential directions that IEA hopes to explore further and can help guide R&D proposals for the current call.

### 3. Possible topics

Within this general context and thematic scope, IEA welcomes proposals that address the topic of technology/computer-based assessment and administration with respect to the current state of transitioning IEA studies to the computer, as well as future opportunities or threats.

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<sup>&</sup>lt;sup>1</sup> For a full description see: <u>https://www.iea.nl/studies/ieastudies</u>

Interesting methodological aspects that could be explored in relation to this thematic call for proposals include, but are not limited to:

- transition from paper-based to computer-based assessments, especially how to capture and address mode-effect in both cognitive assessment materials as well as for questionnaires;
- the collection and use of log and process data, from the perspective of research ethics, deeper understanding of the constructs measured or test taking behavior, and analytical approaches;
- overcoming obstacles related to general and country-specific conditions of administering assessments on the computer, for example, around web-based vs. local administration, or home and school resources;
- innovative assessments, for example, frameworks for building interactive items, automatic generation, novel items types, and/or assembling these in more efficient adaptive designs;
- innovative approaches to questionnaire administration, related to their design, assembly, item typology, and analysis; and
- approaches related to the design of user interfaces and test taking experience, in the frame of development and data analytics.

To date, many materials related to past and current IEA studies are available publicly, including in the respective technical reports, studies' collection instruments, and international public-use databases with, for example, time on task information (ICILS) or other high-level process indicators (TIMSS 2019). Access to confidential or restricted-use data may be facilitated on a case-by-case basis under IEA guidance.

## 4. Evaluation process and criteria

The review process will consist of a single-blind review approach. The identity of the applicant(s) will be known to the reviewer(s) but not vice versa. Two reviewers from IEA's staff and expert network will be assigned to each proposal based on the relevance of their methodological and/or subject matter expertise. At all stages, those with conflicts of interest in regard to a particular proposal will be excused from the review process and subsequent award decisions.

Reviewers will evaluate each proposal for scientific quality and originality using the following set of criteria (each rated on a scale from 1 = outstanding to 4 = poor):

- Significance/relevance of the project for IEA
- Theoretical background
- Research design
- Potential impact and feasibility ("theory of change")
- Adequacy of budget, relative to the call's funding tiers
- Appropriateness of timeline
- Project team competence and qualification

Proposals that use data and/or insights from multiple countries and those that have relevance for multiple countries and/or across IEA studies are preferred.

Proposals will be reviewed, and any requests for clarification made, within a two-month period following the submission deadline.

The R&D funds administrators will formulate recommendations based on the merit of the reviewed proposals and submit those to the IEA Standing Committee, which will decide on one or more projects to fund, followed by award notification (or rejection) in July 2021 and, later, regarding contractual arrangements.

In the interest of generating tangible and timely impact, projects should start as soon as possible after award and typically be completed within three to six months (tier 1) or three to twelve months (tier 2). Exceptions are possible but require clear justification, for example if projects require data to be collected as part of an IEA study.

Lead researchers may only hold one active grant from the fund. This restriction does not apply to any administering organizations, which may submit multiple proposals as long as they are for different projects and have different research teams.

Lead researchers may not submit more than one application for a given deadline in the program.

Rejected proposals can be invited for re-submission or be re-submitted by the lead researcher(s) for subsequent calls for proposals, provided that substantial concerns and feedback are addressed in the revised proposal.

## 5. Guidelines for submission

Proposals must be submitted electronically (pdf format) in English and include:

- Summary (one page)
- Description and possible impact (up to five pages, including references)
- Timeline (one page)
- Budget and justification (up to two pages)
- Team members and roles (max. half a page per researcher, plus CV of lead researcher)
- Declaration of no conflicts of interest with respect to commercial/financial interests
- Signature from an authorized representative of the organization

There is no requirement to submit a letter of intent. There is no requirement to separate technical and financial proposals. The proposal should use a 12-point single-spaced Times New Roman, Arial, or similar type font.

Biographical notes on team members should highlight the relevance of the person's expertise and experience to the proposed activities.

Importantly, proposals need to discuss the type and use of project outcomes envisaged (e.g., a tool, methodology, report, or framework). Further, proposals should clearly describe the extent to which collaboration with IEA and/or access to non-public/confidential information is expected or required.

When developing timelines, proposals should assume a start date of August 1, 2021. As outlined in the evaluation process and criteria, it is envisaged that most projects will be completed within three to six months (tier 1) or three to twelve months (tier 2). Starting later or extending the duration is possible but requires clear justification.

Budgets must include the expected number of working days needed to complete each activity related to the project and a total budget in Euros or US dollars. Funding would be provided as a lump sum and can be used for staff (including one's own position) and direct project costs (e.g., travel, software, publication). Indirect cost charges and institutional overheads need to be clearly described and justified.

Proposals may be submitted by email to RD@iea.nl

The deadline for proposals is 1:00 p.m. CET on Monday, May 3, 2021.

Questions may be submitted at any time to Dr Lauren Musu and Mr Ralph Carstens using the email address above.

#### References

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Martin, M.O., Rust, K., & Adams, R.J. (1999). *Technical standards for IEA studies*. Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

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Sibberns, H. (2020). Technology and assessment. In H. Wagemaker (Ed.), *Reliability and validity of international large-scale assessment* (Chapter 10, pp. 169–186). IEA Research for Education, vol 10. Cham, Switzerland: Springer. <u>https://doi.org/10.1007/978-3-030-53081-5\_10</u>

Survey Research Center. (2016). *Guidelines for best practice in cross-cultural surveys*. Ann Arbor, MI: Survey Research Center, Institute for Social Research, University of Michigan. <u>http://ccsg.isr.umich.edu/</u>

Veldkamp, B.P., & Sluijter, C. (Eds.). (2019). Theoretical and practical advances in computer-based educational measurement. Cham, Switzerland: Springer. <u>https://doi.org/10.1007/978-3-030-18480-3</u>