

Call for Expressions of Interest:

Artificial Intelligence for Education Innovation Research Network in Africa

Date of issue: 2-June-2022

Closing Date: 6-July-2022 at 11:59pm WAT

Summary

This Call invites Expressions of Interest (EoI) for funding Artificial Intelligence (AI) for education innovation research and to partake in the Artificial Intelligence for Education Innovation Research Network in Africa. The goal of the network is to advance quality and inclusive education across sub-Saharan African (SSA) countries through the responsible development and deployment of artificial intelligence-enabled innovations. The network will be managed by the EduAI Hub consisting of the University of Lagos in Nigeria, Université d'Abomey Calavi in Benin Republic, and Data Science Nigeria (DSN).

This call is part of the [AI4D Africa program](#) and is funded by Canada's International Development Research Centre and the Swedish International Development Agency.

Eligibility: Universities, research institutes, legally incorporated small and medium enterprises and technology-based hubs, civil society and non-governmental organizations in SSA.

Grant Categories:

Category 1: Education Administration - Grants for design, development, and evaluation of Artificial Intelligence technologies for educational administration (admission and counselling), educational leadership and administrative functions relating to teaching and learning.

Category 2: Inclusion – Grants for development of AI solutions that tackle exclusion, disparities and inequalities in education and learning outcomes across sub-Saharan Africa

Category 3: Language Barriers - Grants for Artificial Intelligence innovations that address language barriers in education.

Grant Period: 18 Months

Grant Budget: Between US\$30,000 and US\$45,000

Submission of EoI deadline: 6-July-2022 at 11:59pm WAT

Response to Applicants: 25-July-2022

1. Background

Statistics from UNESCO shows that sub-Saharan Africa (SSA) has the highest rate of education exclusion in the world. It has over 38 million out of school children (OoSC) with one-fifth of children between the ages of 6 and 11 out of school and one-third of youth between the ages of 12 and 14. Almost 60% of youth between the ages of 15 and 17 are also not in school. The gender gap in education across the region is equally problematic, and the disadvantage starts early. According to the data from UNESCO, 9 million girls between the ages of 6 and 11 will never go to school at all, compared to 6 million boys. Also, 23% of girls are out of primary school compared to 19% of boys, and by the time they become adolescents, the exclusion rate for girls is 36% compared to 32% for boys.

Language barriers, limited content delivery and inefficient administration in education also perpetuate exclusion. UNESCO's 2016 global education monitoring report shows that 40% of the global population does not have access to education in a language that they understand. This is the case in most countries in SSA where content is delivered either in English or French or a combination of both, and where many school age children struggle to learn in these official languages. Also, administrative tasks ranging from lesson planning to grading and maintaining student records take up much of teachers' time. It is estimated that teachers worldwide spend less time (less than 50%) in direct instruction and engagement of students than in preparation, evaluation, and administrative duties. The problem is compounded by the high student-to-teacher ratio in some countries in SSA.

AI can be leveraged to address some of these challenges. For example, automating basic (and sometimes complex) administrative tasks will free up teachers' time for teaching, lesson preparation and even professional development, enabling more teachers to engage not only with students within the formal education sector, but also those outside the system. AI can be used to innovate teaching and learning through content creation and delivery in the mother tongue or indigenous languages. This can contribute to basic literacy skills and overall positive outcomes for learners, whether they are within or outside the formal education sector. AI innovations that target girls, people living with disability, internally displaced people or other marginalised demographics can also facilitate inclusion and reduce gender and other forms of inequality in access to education.

This call is designed to create a sub-Saharan Africa-wide network of researchers, developers and designers interested in applying AI to improve access to quality education. The objective of the network is to drive inclusive and sustainable education in Africa and enhance the competitiveness and capacity of African AI designers to create solutions that meet emerging global standards for education.

In furtherance of this objective, the network will fund responsible and ethical AI solutions that are adaptable and scalable across three thematic areas: language, inclusion and education administration.

2. Grant size and duration

Selected projects will receive between US\$30,000 and US\$45,000 depending on the scope, scale and budget. The duration of each project is to be no more than 18 months.

3. Category of grants

a. Category 1: Education Administration - Grants for design, development, and evaluation of Artificial Intelligence technologies for educational administration (admission and counselling), educational leadership and administrative functions relating to teaching and learning.

The grant should minimise the friction between teaching and administration by automating basic and complex administrative processes carried out by administrators, teachers and support staff.

Key activities in this category include (but are not limited to):

- i. Developing human-inspired AI solutions to enhance learners' performance at individual, dyadic and group levels. The solution should demonstrate understanding of the instructional system design, content knowledge and utilization procedure. Applicants should indicate how relevant data for the research will be gathered and how the research will address or impact gender inequality and exclusion in this category; and
- ii. Developing AI tools for enhancing education administration and connections between administrators, facilitators, learners, and the society.

b. Category 2: Inclusion – Grants for development of AI solutions that tackle exclusion, disparities and inequalities in access to education and learning outcomes across sub-Saharan Africa.

Under the inclusion theme, the AI4 Education network aims to fund projects that address the challenges of out of school children and other groups excluded from formal education systems or who face learning barriers within existing systems.

Key activities in this category include (but are not limited to):

- i. Aggregation, curation and refining of corpora data for inclusive AI projects (inclusive AI in education focuses on groups that are excluded or marginalised in education and learning outcomes based on factors that include but are not limited to gender, age, location, income and wealth inequality, disability, and conflict and crises). Data collected must be demonstrably usable for building inclusive solutions across the education sector;
- ii. Development of AI solutions that deliver improved access to educationally excluded or marginalised groups across sub-Saharan Africa;
- iii. Solutions that responsibly track and support marginalised and excluded learners (such as internally displaced people or those constrained by culture, religion or crises);
- iv. Solutions that support education of women and girls;

- v. Solutions that support personalized learning and mentoring e.g., based on individual learning pattern recognition and diagnostic technologies for learning difficulties;
 - vi. Solutions that support learning and mentoring of learners with disabilities such as visual and hearing impairments; and
 - vii. Solutions that provide access to regional and global learning resources.
- c. **Category 3: Language Barrier - AI for breaking down language barriers in education.**

Priority in this category is given to research projects and innovations leveraging AI and Natural Language Processing (NLP) to make quality education accessible to learners in their local languages or adapted to their level in the official instructional languages in schools and other learning contexts.

Key activities in this category include (but are not limited to):

- i. Aggregation, curation, and refining of corpora data for NLP projects on low-resourced African languages with demonstration of likely usage of such data in enhancing access to quality education;
- ii. Building AI models and tools for machine translation of local African languages (special consideration should be given to models and tools that can translate learning content from one language to another); and
- iii. Developing AI models and tools for fast-tracking learning of official instructional languages in schools.

The solutions can be at prototype development stage or those at the point of experimentation, refining and deployment (or real-life application) of prototypes that are adaptable and scalable to solving inclusion problems in education.

4. Eligibility Requirement

Universities, research institutes, legally incorporated small and medium enterprises and technology-based hubs, civil society and non-governmental organizations in sub-Saharan Africa (SSA). Applicants can choose to team up with other collaborators outside the SSA countries, however the lead organization **MUST** have its headquarters based in SSA and the balance of the team should be in SSA as well.

5. EoI Guidelines

- i. Applicants must demonstrate how they will contribute to applying AI to enhance access to education and organise activities towards developing relevant, responsible, and scalable solutions.
- ii. Applicants should clearly demonstrate how they intend to closely collaborate and incorporate key innovation actors (such as schools, universities or research institutes, policymakers and government agencies) within the respective country/region of the proposed project.
- iii. The EoI should clearly define the roles of the different collaborating institutions (if any) and the interplay among them during the execution of the project.

- iv. Lead applicants should demonstrate commitment to contribute to their countries' transition into knowledge-based solutions for quality education.
- v. Application will be submitted through the baobab platform (URL).

Researchers should apply for the grants as an organisation but will be required to demonstrate in their proposals joint activities with educational institutions, such as primary and secondary schools, during the implementation of the project.

Priority will be given to projects that demonstrate the following:

- i. Due consideration of implications of the design on individuals, communities, and the society
- ii. Understanding of ethical and human rights implications of the proposed AI innovation in education, throughout its entire lifecycle, particularly respect to gender equality, non-discrimination, and privacy
- iii. Capacity for implementation and application of the invention/solution within the lifetime of the project, that is, project must be implemented in a real-world context, using data, and working with real people
- iv. A focus on adaptability and positioning for scale of the invention/solution
- v. Clear explanation of the expected outcomes on completion of the project for which funding is sought.

6. Application Guidelines

Applicants are required to develop an EoI providing details of their innovation research projects. The EoI should clearly demonstrate how the project is aligned with the thematic areas (or categories) described in Section 3. The EoI should contain the following sections (Project description outline):

Section A. Contact information

Please provide the organization-based contact information of the lead applicant and the other partner organizations.

Section B. Abstract (250 words)

Please provide a short abstract of the proposed project. It should be written clearly for a non-technical audience. Avoid acronyms and technical jargon. Describe the development of the problem being addressed, the purpose/objectives of the project, and expected results in the form of project outputs and outcomes.

Section C. Research problem(s) and justification (800 words)

This section describes the potential range of problem(s) and or problem area(s) that could be investigated and the questions that will guide the innovation research conducted by the applicant. To show the importance of the problems, this section should discuss: how the

research (or invention or innovation) proposes to tackle pressing challenges in education in its area of coverage, the magnitude of the problems and how the research will contribute to solutions.

Section D. Objectives (250 words)

This section should provide both the general and specific objectives of the project that are aligned to one (1) or more of the three (3) thematic areas of language, inclusion and education administration. The general objective should state the development goals being pursued by the research. The specific objectives should indicate the specific types of knowledge to be produced, the audiences to be reached, and forms of capacity to be reinforced. These are the objectives against which the project's success will be judged.

Section E. Methodology (1500 words)

This section should list key research questions the applicant will seek to address and give an overview of how the questions will be answered. Describe your plan on how your project aligns to Responsible Artificial Intelligence for Education Innovation network research themes (or categories) described in Section 3 and how the research objectives are to be addressed. The applicant must be clear about what activities are envisaged and how they will contribute to achieving each objective and define the budget in terms of these activities. The applicant should also provide a clear description of the innovation to be developed, and justify their approach, articulating how the AI innovation addresses the identified problem(s) and the potential impact of the innovation. The applicant should specify the AI technique(s) they are using and why it is appropriate for the task. The applicant should also vividly indicate how they plan to tackle other important aspects such as gender considerations and other cross-cutting issues, and ethical considerations. [IDRC's Equality Statement](#) and [Equality Statement and the Actions Promoting the Equality and Status of Women in Research](#) provided by the Global Research Council will serve as a reference guide and applicants should ensure that their projects adhere to these.

Section F. Project schedule

The research project schedule should include a list of key outputs (key events and deliverables) and outcomes that can be related to the items included in the project budget. A theory of change can be included in this section if desired.

Section G. Responsible AI, Gender Equality, Support and Inclusion. (300 words)

The applicant (and any collaborating organization) must demonstrate commitment to incorporate and promote Responsible AI, inclusion and gender considerations. Describe how the project meets the following:

- i. Responsible AI key considerations (150 words)
- ii. Key gender equality, support, and inclusion considerations (150 words).

Section H. Intended Outcomes (250 words)

Please define the major outputs expected from the research and how the research findings will be disseminated or implemented.

Section I. Budget Guidelines

Please provide indicative budgets for your proposed project considering key items such as Personnel costs, Equipment Costs, Consumables, Travels, Consultancy, Communications, Indirect costs, and any other costs relevant to your proposed project with a brief description on each as shown in Table 1.

Table 1: Sample indicative budget

Budget category	%	Amount (US\$)	Brief description of budget item
Personnel			
Consultants			
Equipment			
Data Collection and Analysis			
Travel			
Communications			
Consumables			
Total Direct Costs			
Indirect Costs			
Total			

Section J. Institutions and personnel (800 words)

The applicant should describe the institutions/ SMEs/ organizations, including its history and objectives. List key personnel, their qualifications, roles, and time commitments. State who will own the equipment during and after the project. Describe any administrative arrangements that may include third parties. If this project includes more than one organization, please describe how the partnership will be structured and managed.

Section K. Additional materials

In the appendix to your EoI, you are allowed to include any further documentation that supports your EoI. This should include:

- Abridged CVs of key project members;
- Letters of affiliation to an institution;
- Support letters from the participating partners/organizations;
- Relevant experiences/project references from previous projects;
- Certificate of incorporation or registration for the Lead Institution.

7. Evaluation process and criteria

EoI will be judged according to the following evaluation criteria:

Evaluation Criteria	Details	Maximum Points
Understanding the Problem and Context	Approaches demonstrate a clear understanding of the problem and how it manifests in their context. This should include any current and potential impacts of AI in education, considering the three themes, administration, inclusion and language.	10 points
Feasibility	Approaches are feasible to implement in the appropriate geographic, cultural and/or social context, and demonstrate demand and buy-in from relevant stakeholders.	10 points
Methodology	The quality of the research questions, clarity of the methodology, clear description of the innovation to be developed, justification for using AI and potential impact.	35 points
Potential for Development Impact	To what degree is the approach likely to create change for those affected by gender inequity as a result of AI systems in the context of the problem? To what degree can the solution be scaled or adapted in new geographies, sectors, or contexts to reach marginalised or excluded communities.	10 points
Responsible AI and gender considerations	Clearly demonstrate the steps to be taken to ensure development of responsible AI, including a commitment to ensuring research design is gender responsive	10 points
Team Composition	Multidisciplinary, gender-sensitive, inclusive, and equitable research team.	5 points
Budget	Demonstrated clear and coherent plans for the use of available funds for the proposed project activities.	10 points
Total Points Possible		90

Selected projects will be taken through preliminary training with the help of the Hub multidisciplinary experts. They will then be required to develop their EoIs into full project proposals. Opportunity for alliances of similar initiatives and research consortia will be encouraged at that stage for a more impactful project. Only 6-10 projects will be awarded

after final reviews and due diligence, taking into account both technical excellence scores and equity criteria such as gender balance and geographic diversity.

8. Call Timeline

Activity	Date
Expression of interest release date	2-Jun-22
Deadline for submission of questions	16-Jun-22
Answers to questions posted	20-Jun-22
Submission deadline	06-Jul-22
Response to Applicants	25-Jul-22
Workshop on Proposal, Responsible AI, Gender Considerations	04-Aug-22 to 08-Aug-22
Launch of the call for proposals	09-Aug-22
Submission of full proposals	08-Sep-22
Announce Successful Proposals	27-Sep-22

9. How to apply

The expression of interest and all requested supporting materials must be consolidated into one PDF/Word document and submitted on the baobab system via <https://baobab.ai4d.ai/responsibleAIeducation/apply> no later than 6th July 2022 before 11:59pm WAT.

EoIs which are submitted late or are incomplete will not be considered in the review process

10. Responsible AI and Ethical Issues

The EoI should clearly articulate the steps to be undertaken to ensure the innovation is responsible, i.e., it is (human) right-respecting, ethical, fair, explainable, and relies on transparent AI development approaches, including a commitment to ensuring research design is gender responsive. Further explanation on responsible AI and the principles of ethical AI can be found in the UNESCO Principles on the Ethics of Artificial Intelligence [here](#).

In the process of preparing the grant application, the Applicant is obliged to observe ethical principles and rules and describe how ethical issues in the application will be addressed. The applicant should indicate plans to obtain ethical approval from relevant bodies (as needed and if the proposed project involves human or animal subjects).

11. Contact Information and Support

If you have any questions about this call for expressions of interest, please contact EduAI hub at eduaihub@unilag.edu.ng.

Any inquiries that affect all applicants will be posted anonymously online on an FAQ site on <https://eduaihub.org/>. Applicants are strongly encouraged to monitor this website for any updates regarding the call.

Annex A: Eligible Countries

The lead applicant must be headquartered in a country in sub-Saharan Africa, as per the country classification of the World Bank. Eligible countries include the following: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Brazzaville), Congo (Democratic Republic), Côte d'Ivoire, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Tanzania, Togo, Uganda, Zambia and Zimbabwe.