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**Call for Proposals**

**DIGITAL LEARNING FOR DEVELOPMENT (DL4D)**

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The Foundation for Information Technology Education and Development (FIT-ED) of the Philippines, as part of the Information Networks in Asia and Sub-Saharan Africa (INASSA) program funded jointly by the International Development Research Centre (IDRC) of Canada and the Department for International Development (DFID) of the United Kingdom, announces this open call for full proposals on Digital Learning for Development (DL4D).

**1. Rationale of DL4D**

Asia, the largest and most populous continent in the world, is a vast, dynamic, and diverse region comprised of countries at varying stages of economic and social development. Since the global financial crisis of 2009, the Asia-Pacific region has accounted for almost 60% of global GDP growth and is projected to maintain a steady rate of growth through 2016 (Asian Development Bank [ADB], 2015). Concerns persist, however, over who benefits from this growth: as financial systems have deepened, so too have income inequalities particularly in developing countries (ADB, 2012; Dabla-Norris, Kochhar, Suphaphiphat, Ricka, & Tsounta, 2015). While the region has seen unprecedented increases in average incomes and the reduction of poverty generally, the gap between the rich and the poor has widened over the past two decades, including in its three largest economies – China, India and Indonesia (ADB, 2012). This is because the technological developments, globalization, and market-oriented reforms that have driven rapid growth have also tended to favor owners of capital, highly-skilled workers, and urban and coastal centers (ADB, 2012). The income disparities this creates interact with disparities in access to financial services, employment, health care, and educational opportunities to form a vicious cycle of inequality (ADB, 2012).

Education in developing Asian countries faces three key, inter-related challenges – equity, quality, and efficiency. Although these challenges are present in every country in the world to a greater or lesser extent, they are particularly germane to lower- and middle-income countries in the region that are either lagging behind or are transitioning from developing to developed country status. Equity pertains not only to access and participation but also to educational survival, transition, completion, and achievement. Particular attention must be given to how traditional barriers to inclusion such as income, gender, and geographic location combine with language, minority status, age, and disability to create "mutually reinforcing disadvantages" (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2011). The issue of quality revolves around the capacity of institutions and educators to meet the particular learning needs of particular learners in particular settings. This is most relevant in a region with wide ranging and diverse educational contexts within and across countries. Efficiency is an economic measure of education systems performance. On the one hand, internal efficiency involves the optimization of inputs (teachers, administrators and other human resources, physical facilities, materials, instructional methods, teacher training, etc.) to produce the desired outputs (learning gains). On the other hand, external efficiency relates to the outcomes of an education system, i.e., the social and economic benefits that redound from investment in education. For example, knowledge and skills acquired by graduates should match the needs of the labor market.

While worldwide progress over the past 15 years in universalizing access to quality basic education has been significant, much remains to be accomplished as only a third of countries have achieved measurable Education for All (EFA) goals: educational gains have been uneven and inequalities continue to be pronounced (UNESCO, 2015a). In the Asia-Pacific region, unprecedented inroads have been made in universalizing primary education and in bridging the gender gap at all levels of education yet efforts in improving life skills, literacy, and learning quality have fallen considerably short of EFA targets (UNESCO, 2015b). The Asia Regional Education For All Report (UNESCO, 2015b) reveals that 17 million Asian children and 34.5 million adolescents are still out of school; primary school dropout rates remain high in many low- and middle-income countries; transition rates from primary to secondary education remain low in some low- and lower middle income countries; 499 million of the world's 781 million adult illiterates (or 64%) live in the region; 147 million more adult females than males are illiterate; and wealth, ethnicity, and geographic location continue to be barriers to participation (UNESCO, 2015b).

Perhaps of even greater concern is the fact that little evidence has been found to indicate that the quality of education has improved in the region. Results of international student achievement testing, although admittedly an imperfect measure, suggest that students in developing Asian countries have fallen drastically behind their peers in more developed countries. In the most recent Program for International Student Assessment or PISA, a worldwide examination in science, mathematics, and reading of 15-year old students in 65 countries administered by the OECD, China, Hong Kong, Macau, Singapore, Taiwan, Japan, and Vietnam posted among the highest scores worldwide while Thailand, Malaysia, and Indonesia rated below the OECD average (OECD, 2014). It is important to underscore that the commitment to universal education must be foregrounded by a commitment to achieving learning quality. Having demonstrated that education can be made available on a scale previously unseen, particularly in developing countries, the challenge post-2015 must be learning at scale.

Much of the interest in developing countries in technologies for learning lies in the perceived potential of these technologies to enable a convergence of quality and scale. From the earliest efforts in radio- and television-based instruction to more recent computer-assisted instruction, standardized, expert-authored content is delivered to those unable to access mainstream education services. The learning media serves to augment teaching resources where these are inadequate or in many cases, substitute for teachers where there are none at all. Where the learner base is large enough, economies of scale may be achieved. Continuing advancements in digital technologies and their growing ubiquity in developing countries, particularly of mobile technologies, have increased the potential for learning at scale even more. With the advent of online and blended learning systems, the increasing sophistication of intelligent tutoring systems, big data capture and learning analytics, and the proliferation of online peer networks, "learning at scale" has taken on a specific meaning: large-scale learning, whether remotely or in a face-to-face setting, synchronous or asynchronous, involving learners in the hundreds (face-to-face) or thousands (online). The MOOC or massive open online course is the exemplar of this new mode of learning enabled by emerging digital technologies. However, Evans and Popova (2015), in their meta-analysis of six recent systematic reviews of interventions to improve learning outcomes in developing countries, caution that computer-assisted programs can be highly effective only if they are curriculum-based, support individualized instruction, provide adequate user training to students or parents, include teacher training on technology integration, and do not substitute for other useful instruction in school or during home study.

From a broader institutional perspective, the collection and monitoring of learner and other education data through education management and information systems make it possible for policymakers and school leaders to make informed, evidence-based, and data-driven decisions for better governance.

The integration of digital technologies in education in Asia has by and large been more substantial, both in terms of scale and sophistication, in developed countries than in developing ones (UNESCO, 2014a; SEAMEO, 2010). This gap in digital learning uptake may be attributed to differences in infrastructural, technological, and socio-economic conditions; strategic thinking; curriculum design and overall education planning; and levels of investment in both technology buildup and research and development (R&D). R&D has been a critical pillar of the digital learning development master plans of countries such as China, Japan, Singapore, and South Korea. It serves three pivotal functions in the country’s overall education planning:

* *System-wide scaling up of innovations in technology-enhanced learning environments*: Systematic experimentation with emerging technologies and pedagogies in technology-enhanced learning environments for system-wide scaling up (Lim, 2007);
* *Evidence-based practices and policies for digital technologies in education*: Collection of evidence and lessons learned from the uses of digital technologies and their impacts on teaching and learning to inform practices and policies (Underwood, 2009); and
* *Adaption and customization of promising practices and models of digital technologies in education from one context to another*: This context may be within a country or across countries. Research projects may be customized from another project in another context for sustainable implementation in a particular context (Plomp, Anderson, Law, & Quale, 2009).

The absence of a robust body of evidence for or against adoption of particular innovations across a range of diverse developing country contexts suggests that a more prudent approach by these countries to accelerating adoption may be warranted. Sustaining and scaling up a new innovation that does not work may mean diverting scarce resources from a traditional one that does. It is clear therefore that for developing countries in Asia to effectively take up the affordances of digital learning, R&D in developing country contexts must be strengthened.

**2. Research themes, sub-themes, and indicative research questions**

This Call will support research on four priority research themes: MOOCs (massive open online courses), intelligent tutoring systems, digital game-based learning, and learning analytics. Specifically, research to be supported by this Call must contribute to the body of knowledge on the effectiveness, sustainability, and scalability of these digital learning innovations in a developing country context in Asia.

Digital learning innovations are classified into three types:

*Type A*: A mature innovation that has been previously implemented by one or more of the proposed principal investigators, with existing evidence of effectiveness in a developing country in Asia, to be tested for sustainability and scalability.

*Type B*: A mature innovation that has been previously implemented by one or more of the proposed principal investigators, with existing evidence of effectiveness in a developed country, to be localized for and tested for effectiveness in a developing country in Asia. If evidence of effectiveness is found, prospects for sustainability and scalability must be discussed.

*Type C*: A new innovation that has not been previously implemented to be tested for effectiveness in a developing country in Asia. If evidence of effectiveness is found, prospects for sustainability and scalability must be discussed.

**Research Theme 1: MOOCs** orMassive Open Online Courses are “*massive*, with theoretically no limit to enrollment; *open*, allowing anyone to participate, usually at no cost; *online*, with learning activities typically taking place over the web; and a *course*, structured around a set of learning goals in a defined area of study” (Educause, 2013, p.1). The combination of openness and technology-enabled scale that are inherent features of the MOOC make it a uniquely promising mode of learning for addressing equity, quality and efficiency issues in education.

**Research Theme 2: Intelligent Tutoring Systems (ITS)** refer to technology-based learning environments that make use of artificial intelligence to provide learners with finely tuned learning experiences that cater to individual needs (Woolf, 2010). Built into intelligent tutors may be a representation of expert knowledge of the domain of interest, a model of the learner’s knowledge that is updated with every learner transaction, a pedagogical model that determines what teaching approach to use under different circumstances, and a user interface with which the learner interacts (Beck et al., 1996; Woolf, 2010). Ideally, when a learner reaches an impasse, the system should be able to provide alternative explanations, learning paths, and resource materials that will help the learner achieve the learning goal. Its pedagogical affordances aside, the use of intelligent tutoring systems has also been motivated by a desire to increase instructional efficiency by reducing the reliance on human teachers.

**Research Theme 3: Digital Game-Based Learning (DGBL)** refers simply to learning through digital games. Proponents of DGBL assert that the "fun" aspect of game play—created through the use of elements of challenge, fantasy, and curiosity that engage and motivate players (Malone, 1981)—can be harnessed for engaging and effective learning. Whether digital games are designed primarily for entertainment or expressly for education and training purposes, DGBL is intended to facilitate improvements in a range of cognitive, skill-based, learning, motivational, and behavioral outcomes.

**Research Theme 4: Learning Analytics** refers to the collection, analysis, and reporting of data about learners and their contexts to improve student learning (Aljohani & Davis, 2012). It is focused on improving learning quality and efficiency and is distinct from what is termed 'academic analytics', which is concerned with the analysis of organizational processes, workflows, resource allocation, and institutional measurement to improve organizational effectiveness (Society for Learning Analytics Research, 2011). The growing popularity of analytics in education is driven by at least three factors: the emergence of big data--datasets whose size and variety are beyond the ability of typical database software to capture, store, manage, and analyze; online learning and its systematic collection of user transactional data; and the growing need for measurement to empirically demonstrate learning enhancements (Ferguson, 2012).

Analytics may be applied to the learning process in several ways: 1) tracking student performances; 2) disaggregating student performances by selected characteristics; 3) identifying outliers for early intervention; 4) predicting student performances; 5) improving student retention; 6) improving instructional models; 7) analyzing assessment techniques and instruments; and 8) evaluating curricula (IBM Software Group, 2001).

The sub-themes and indicative research questions for the four priority research themes are presented in Tables 1 and 2 below.

**Table 1.** Cross-cutting sub-themes and indicative research questions for MOOCs, ITS, and DGBL

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| --- | --- |
| **Subtheme** | **Indicative research questions** |
| Localization/Customization | What curricular, pedagogical, technological, organizational, economic, and socio-cultural issues must be considered in designing, developing and implementing effective digital learning innovations in diverse developing country contexts? How can these issues be addressed? Is mobile use a significant factor in developing countries? If so, what are the implications of mobile use for the design and implementation of effective digital learning innovations across the range of developing country contexts? What issues are at play and how can these issues be addressed effectively?  |
| Equity | How, to what extent, and in what contexts do digital learning innovations broaden access to education in developing countries? For whom and under what conditions?Are there any differences in participation in digital learning innovations based on gender? Are benefits and risks the same for males and females? What factors contribute to any gender-based differences? What strategies can be employed to achieve greater inclusion?  |
| Quality | How, to what extent, and in what contexts do digital learning innovations enhance learner engagement in developing countries?How, to what extent, and in what contexts do digital learning innovations improve learning outcomes in developing countries? What particular learning outcomes and under what conditions?Are there differential effects across learning domains, levels, settings, types of learners, level of technology integration, etc.? If so, what factors account for these differences?What are the parameters and requirements for teacher professional development and professional learning in relation to digital learning innovations? What strategies may be employed to meet these requirements? |
| Efficiency | Are digital learning innovations in developing countries more cost-effective than comparable traditional interventions? What are the tradeoffs? Given these tradeoffs, under what conditions are digital learning innovations desirable? How and to what extent do digital learning innovations improve the fit between education and societal needs and aspirations in developing countries? |
| Sustainability | What are the drivers and barriers to sustaining effective digital learning innovations in diverse developing country contexts?How can local and national ownership of effective digital learning innovations be fostered in developing countries?What are the human, infrastructural, technical, organizational, and financial requirements for achieving sustainability?What strategies can be employed to increase the capability of stakeholders to sustain an effective digital learning innovation? |
| Scalability | What are the key issues in scaling up effective digital learning innovations in developing countries? How can these issues be addressed effectively? |

**Table 2.** Sub-themes and indicative research questions for learning analytics

|  |  |
| --- | --- |
| **Subtheme** | **Indicative research questions** |
| Institutional and technological conditions for adoption of learning analytics in developing Asian countries | * What are the institutional and technological conditions that be present to support the adoption of a learning analytics approach in developing countries in Asia? What are the drivers and the barriers to adoption?
* How can effective dialogue and collaboration between experts from multiple disciplines be fostered and sustained? What is the role of education policymakers and administrators in this regard? What is the role of learners? Of other stakeholders?
* What technology resources are required? How can the appropriate technology resources be built up and sustained? What role can government, the private sector, and the community play in this regard?
 |
| Professional development of teams engaged in learning analytics in developing Asian countries | * What are the competencies that are required of a team in a developing country in Asia that is adopting a learning analytics approach to document learning engagement and outcomes, and to revise and refine teaching and learning strategies?
* How can the capacity of the team to adopt a learning analytics approach be built up?
 |

**3. Funding scope and duration**

Grants of up to CAD 60,000 will be awarded to approved research proposals under this call, subject to the availability of funds.

Projects must not exceed 12 months, including all research activities and final reporting. Projects are expected to begin March 2016; activities must be planned accordingly.

Please note that there will be a two-month inception phase from January to February 2016, which will include an inception workshop in mid-January 2016, to allow for fine-tuning of the original technical and cost proposal, further development of the work plan, monitoring and evaluation plan, and research communication plan; the processing of ethical clearance; and the fulfillment of all legal, financial, and administrative requirements for the approval and successful implementation of the grant project.

# 4. Eligibilities

* The proposing institution must be registered in Asia (*see Appendix A for a list of eligible countries*). Institutions from developed Asian countries must have at least one institutional partner from a developing country in Asia. South-south and north-south collaborations will be given preference.
* The primary research site or sites must be in one or more developing Asian countries.
* The research project must fall under at least one of the prescribed research themes and must address all relevant sub-themes.
* The research project may be conducted at any educational level (early childhood, K-12, TVET, higher education, continuing education) and setting (formal, non-formal, informal).
* Grant funds must be used primarily for research activities and not for developing a digital learning solution or resource. A small portion of the grant may be applied to enhancing or modifying an existing solution or resource, if necessary.

**5. Selection criteria**

Proposals will be assessed against criteria described in Table 3 below.

**Table 3.** Selection criteria

|  |  |
| --- | --- |
| **Criterion** | **Weight (%)** |
| **Problem formulation, objectives and relevance*** well-defined and articulated problem statement related to educational quality, equity, and/or efficiency
* well-developed and realistic objectives based on defined problem
* clear articulation of the intended users and uses of the research outputs
* relevance of study to developing countries in Asia
 | 10 |
| **Theoretical foundation and literature review*** robustness and appropriateness of the theoretical approach
* critical review of up-to-date knowledge on the topic
* clear justification for the study as a way of addressing the problem
 | 10 |
| **Research methods*** adequacy and appropriateness of study design to achieve the research objectives
* clear description of methods and rigor and appropriateness of methods for data gathering and analyses
* feasibility of the study including the accessibility of participants
 | 25 |
| **Sustainability and/or scalability** * clear articulation of potential sustainability and scalability issues in the specific contexts involved
* adequacy of methods assessing the potential for sustaining and/or scaling up the innovation being studied
 | 10 |
| **Knowledge transfer and capacity building** * clarity and practicality of plans for knowledge transfer and capacity building between project partners, between project partners and their local communities, and between the project partners and the rest of the network
 | 10 |
| **Project leaders*** suitability of the project leaders’ expertise and experience
* credible track record of the project leaders in the proposed theme
* experience of the project leaders in managing complex projects including strong administrative, communication, and collaboration skills
 | 10 |
| **Work plan and budget*** clarity and soundness of the work plan, with activities matched to objectives, clear deliverables and a realistic time frame
* reasonableness, realism and completeness of proposed costs
 | 25 |

**6. Selection process**

Research proposals under this call will be reviewed and assessed by a panel of technical specialists. Final funding decisions based on the review and recommendations of the Technical Panel will be made jointly by FIT-ED and IDRC. Proposals will be either accepted or rejected. Accepted proposals may receive specific comments from the reviewers and will be required to satisfactorily address them before signing grant agreements. FIT-ED and IDRC reserve the right to cancel the process at any time without prior notice and/or at its discretion to grant all or none of the awards under this process

**7. Selection timeline**

* Release of Call for Proposals – September 10, 2015
* Deadline for submission of proposals – 5:00 PM UTC/GMT +8 (Philippine Time), October 21, 2015
* Review of full proposals by the DL4D Technical Panel – October 22 to November 30, 2015
* Final decision communicated to applicants – December 1, 2015.
* Internal project approval and granting processes – December 2015 to January 2016
* Inception Meeting and Pre-Award Workshop for successful grant applicants – January 15 to 18, 2016 in Metro Manila, Philippines

**8. Proposal requirements and format**

Applicants are required to submit a 1) technical proposal and 2) cost proposal, along with a completed General Information Form (*Appendix B)*

Technical proposals must include the following sections:

* Title page
* Table of contents
* Abstract (*start page 1 here*)
* Statement and justification of the research problem
* Objectives and research questions
* Review of related literature and conceptual framework
* Methods
	+ design
	+ data collection: subjects, instruments, procedures
	+ data analysis
	+ gender considerations and analysis
	+ ethical considerations
* Workplan: Objectives, activities, outputs, and timetable (Month 1, Month 2, …, Month 12)
* Open access dissemination plan (*see Section 12*)
* Risks and mitigating actions
* References
* Annexes

Required annexes

* A one-page profile of all institutions involved in the research project (proposing, collaborating, and participating).
* A past performance profile of the proposing institution listing up to five programs or projects within the past five years that are related to the research project being proposed.
* A description of the roles, responsibilities, and time commitments of key personnel
* Detailed CVs of the Project Leader/Principal Investigator and all other Principal Investigators. CVs must include a listing of related research and publications.
* Selected samples of related work (e.g., published articles, research reports, academic/technical papers, policy papers, etc.) of each Principal Investigator.

Technical proposals must directly address each of the selection criteria listed in Table 3.

Technical proposals must be written in English. They must not exceed 10 pages (excluding the title page, table of contents, references, and annexes), formatted as follows:

paper size: 8-1/2” x 11”

margins: 1" all around

font: Calibri, 11 points

spacing: single

pagination: continuous, starting at page 1 on the abstract page

Pages that exceed page limits will not be evaluated.

Cost proposals must be presented using the budget template (*Appendix C)*

**9. Submission process**

Full proposals (technical and cost) with all the required annexes must be submitted by email to **dl4d@fit-ed.org** on or before **5:00 PM UTC/GMT+8 (Philippine Time), 21 October 2015**. Incomplete proposals or proposals received after this deadline will not be considered.

All inquiries regarding this Call should be directed to vltinio@fit-ed.org.

# 10. Country clearance requirements

IDRC has conducted general agreements for scientific and technical cooperation with a number of governments. These agreements establish the framework for IDRC cooperation with that country by defining the rights and obligations of both IDRC and the government. As such, any applicant institution selected to receive funding may be required to obtain country approval in accordance with these agreements prior to receiving funding from IDRC. Prospective applicants are encouraged to familiarize themselves with their respective country clearance requirements and take these into account in their research planning.

**11. IDRC standard grant conditions**

Each applicant organization selected for funding shall be required to sign IDRC's standard grant agreement. A sample of IDRC standard grant agreement terms and conditions is available here: [http://www.idrc.ca/EN/Funding/Guides\_and\_Forms/Documents/MGC-Att-A-e.pdf](http://www.idrc.ca/EN/Funding/Guides_and_Forms/Documents/MGC-Att-A-e.pdf%20)

# 12. Open access policy

IDRC believes that publicly funded research should be freely and openly available. All IDRC-funded projects must adhere to IDRC’s open access policy, which may be viewed at <http://www.idrc.ca/EN/Misc/Pages/Open-Access-Policy.aspx>. Research proposals submitted to IDRC must include an open access dissemination plan.

# 13. Permission for use and disclosure of information

By submitting a proposal under this call, the applicant consents to the disclosure of all submitted documents to the Technical Panel and others from FIT-ED, IDRC, DFID and third parties who are involved in the review and selection process. If selected for funding, the applicant further consents to the disclosure of the name of the applicant, the name of the team leader, and the title of the proposed project in any announcement of selected projects.

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