Call for Expressions of Interest

GUIDEBOOK ON DIGITAL GAME DEVELOPMENT FOR EARLY LITERACY LEARNING IN DEVELOPING COUNTRIES

Released by: Digital Learning for Development (DL4D)
and All Children Reading: A Grand Challenge for Development (ACR-GCD)
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Digital Learning for Development (DL4D) and All Children Reading: A Grand Challenge for Development (ACR-GCD) invite all eligible parties to submit an expression of interest in developing a **Guidebook on Digital Game Development for Early Literacy Learning in Developing Countries**.

Literacy - the ability to understand, exchange, and create meaning through text, speech, and other forms of language - involves the foundation skills of phonological awareness, decoding and word recognition, vocabulary knowledge, oral reading fluency, and reading comprehension. A diverse body of evidence shows children from developing countries are often at particular risk for the lack of development of these skills because of a range of educational, structural, cultural and socio-economic factors. Digital games have been acknowledged as having great potential to not only engage learners and encourage interactions to the language but also to provide an immersive environment for language input and output. However, many existing digital game-based or game-enhanced early literacy education programs and systems fail to achieve the above aim due to limitations of design and development, an aspect that requires serious consideration.

This Guidebook is intended as an evidence-based practical guide to game developers, instructional designers, early literacy researchers and practitioners, education leaders, and international and national agencies for designing, developing and deploying effective digital games for early literacy learning in developing countries. In particular, the Guidebook will include key principles and components of digital game development for developing country contexts in support of several, if not all, of the five component skills of reading (*see below*). The principles are expected to be at different levels: content, pedagogical, technological, and contextual. In addition, this Guidebook will feature at least 10 case

studies of existing digital game-based early literacy learning projects. These case studies will 1) describe how digital games have been integrated into the overall early literacy intervention; 2) analyze the design of the digital games used; 3) examine how design and development processes have been managed; and 4) evaluate the effectiveness of the use of digital games in achieving their intended purpose.

1. DL4D and ACR-GCD

Digital Learning for Development (DL4D) is 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, and administered by the Foundation for Information Technology Education and Development (FIT-ED) of the Philippines.

DL4D aims to improve educational systems in developing countries in Asia through testing digital learning innovations and scaling proven ones. Specifically, it seeks to:

- better understand how digital learning innovations contribute to improved educational equity, quality, and efficiency in developing countries in Asia;
- foster international collaboration and partnerships on digital learning innovation research in developing country contexts in Asia and the rest of the world in order to expand the reach, scope, and impact of the DL4D network; and
- scale proven digital learning innovations through contributing to educational policy-making and action at national and sub-national levels in developing countries in Asia.

All Children Reading: A Grand Challenge for Development (ACR-GCD) seeks to identify and analyze the effects of technology on early grade literacy rates in developing countries to optimize the allocation of resources, inform decisions, and enhance solutions. Launched in 2011 by the United States Agency for International Development (USAID), World Vision, and the Australian Government, it is an ongoing series of competitions that leverages science and technology to create and apply scalable solutions to improve literacy skills of early grade learners in developing countries.

2. Background on Reading Instruction

Reading is a set of five component skills–phonological awareness, decoding and word recognition, vocabulary knowledge, oral reading fluency, and comprehension–that can and should be learned separately, but it is also an activity that requires students to integrate all those skills to perform tasks (such as reading for entertainment, for answering a question, for engaging in a discussion with others, or for completing a work activity) with print or digital text. Good readers efficiently and effortlessly integrate multiple, discrete component skills in order to make meaning from text. A good reader immediately processes the visual information presented in the form of letters and can instantaneously use this visual processing to call up information about sounds that the spelling patterns represent and to immediately activate knowledge about word meaning and use.

Children learn best through instruction and practice in the component skills of reading, along with practicing reading by employing all five component skills to accomplish tasks with text. Teaching that focuses on components only, without reading practice, does not provide sufficient support to children so that they can develop into good readers. The tasks and the texts should be chosen to challenge students to improve their reading; they should not be too difficult for them and should also be

interesting and enjoyable. Teachers should teach the component skills by starting with easy, simple skills and then slowly introducing more difficult, complex skills.

Five component skills of reading

Phonological awareness is the ability to recognize the different sounds of spoken words, parts of words (syllables), or phonemes (the smallest unit of sound in a language). Recognizing phonemes is more difficult than recognizing syllables, but phonemic awareness is crucial to word recognition. Instruction that builds phonemic awareness is most effective when 1) children are taught to manipulate sounds with letters, 2) lessons are short and frequent, and 3) children are taught in small groups.

Decoding refers to the ability to connect phonemes to letters in order to sound out unknown words. Because some languages, such as English, preserve the historical origins of words at the expense of clear sound-to-letter relationships, decoding requires knowledge not only of those relationships but also of unusual clusters of letters (such as *–ight* in n*ight* and r*ight*). ***Word recognition*** refers to the rapid and effortless ability to read whole words, or word parts, after patterns have been encountered in print a sufficient number of times to allow for automatic retrieval from memory. This automatic reading of individual words out of context is critical for effective reading and is highly correlated with reading comprehension outcomes. Multiple encounters with words and letter patterns enable readers to retrieve words as whole units, freeing them from the need to decode those words, even words that are spelled phonetically. Children with weak decoding and word recognition skills may rely on contextual information as a primary strategy for reading words. Because they over-rely on context, these children make more errors in word recognition, and they exhibit lower levels of comprehension.

Teaching decoding and word recognition is most effective when children are systematically taught the relationships between sounds and letters, referred to as phonics instruction. Moreover, sight word instruction (introducing words as whole units rather than analyzing their letter-sound correspondences) is also a critical part of early reading instruction, particularly in languages such as English, since many of the highest frequency words are not decodable using a set of rules (for example, *one*). Decoding in many mother tongue languages is easier because the sound-to-letter (or sound-to-letter combinations) relationship is less complicated than in some official languages, such as English. This makes learning to decode in some languages easier; however, for children to read fluently, they must be able to both automatically decode unfamiliar words and automatically recognize familiar words.

Vocabulary knowledge is the understanding of the meanings of words and their uses in varying contexts. A strong relationship between vocabulary knowledge and reading comprehension is well-established in the literature on learning to read. However, different kinds of vocabulary instruction lead to varying degrees of reading comprehension. Specifically, vocabulary instruction that focuses on definitions is less effective at supporting comprehension than vocabulary instruction that strives to explore word meaning and usage in several contexts.

Oral reading fluency is reading with speed and accuracy, but it also includes reading with the correct stress, intonation, and prosody (the pauses and emphasis in oral language that are often necessary to understanding). The development of oral reading fluency is critical because even students who are reading with a high degree of accuracy may have trouble understanding what they read if they are reading too slowly or with poor stress, intonation, and prosody. Effective fluency instruction involves oral reading of text at a level of difficulty that is comfortable for a student or just slightly above that level. A student should be encouraged to read the same passage several times, each time trying to come closer to the oral reading demonstrated by a teacher.

Reading comprehension occurs when readers actively work to make sense out of what they are reading by constantly integrating what they are learning in the text with what they know from their own experience and accumulated knowledge. Learners should be taught how to build a model of the text in their minds. In other words, in order to construct the meaning of what they are reading, children must learn how to pay attention to whether what they are reading makes sense to them. From this perspective, one of the most important things for students to learn is how to develop self-monitoring habits. Active comprehension strategies for self-monitoring should be taught by demonstration and description to help children understand the active thinking processes that make comprehension possible. Learners can demonstrate deep comprehension by talking about how they are making sense of what they read and by answering questions about or discussing text events, information, characters, actions, and thematic elements of a text.

Learners will only develop strong component skills and practice reading if they are motivated to do so. Reading instruction, therefore, should be fun, interesting, challenging, and satisfying and provide students with feedback about their progress. One important goal of reading instruction is to instill in each child a love of reading.

3. General Specifications of the Guidebook

The Guidebook must contain, but is not limited to, the following sections:

a. Rationale, statement of purpose and intended use, and description of intended users of the Guidebook
b. Review of literature on digital-game based learning on early literacy and related fields with a focus on instructional models and design elements
c. Framework for analyzing and evaluating digital game-based learning on early literacy specific to developing country contexts
d. Case studies of early literacy digital game-based learning projects in developing countries. Digital games will be described, analyzed and evaluated in terms of:

    - learning objectives/targeted component skills or sub-skills;
    - language and language-related features;
    - instructional design including appropriateness to the age group, possibilities of students' independence to learn, cognitive development, gamification of learning tasks, level of learner control, conditions of collaboration, sophistication of scaffolding, and approaches to assessment;
    - game design, mechanics and functionalities including level of complexity of gameplay, visual realism, clarity of rules, feedback and reward system, and adaptation of challenge levels;
    - game development process and issues including socio-cultural considerations, media of delivery, and technical (hardware, software, connectivity) requirements; and
    - cost analysis of development, deployment, and maintenance.

The featured cases should be identified from the literature review. DL4D and ACR-GCD may also suggest projects for evaluation.

e. Guidelines for game design, development and implementation in a developing country context
f. Suggested supplementary references and resources
g. Areas for further research

4. Eligibilities

Organizations with the capacity to conduct research are eligible for this grant. North-south collaborations are encouraged. The Research Team must include an early literacy learning specialist, an ICT in education specialist with experience in developing countries, a game development specialist, and a cost analysis specialist.

5. Standard Grant Terms and Conditions

The 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

6. 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.

7. Guidelines for Submitting the Expression of Interest

Submission Package

The submission package consists of a completed Expression of Interest Form and the credentials of the Principal Investigator and Co-Investigators. Credentials include a curriculum vitae and at least two samples of related work.

Language of submission

Submissions must be written in English.

Closing date

Expressions of interest must be submitted via email to dl4d@fit-ed.org on or before 20 May 2016, 5 PM UTC/GMT+8 (Philippine time).

Further information

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