

TC ABSTRACT

I. Basic Project Data

▪ Country/Region:	NICARAGUA/CID - Isthmus & DR
▪ TC Name:	Differentiated instruction to close learning gaps across gender and diverse backgrounds
▪ TC Number:	NI-T1320
▪ Team Leader/Members:	NASLUND-HADLEY, EMMA INGRID (SCL/EDU) Team Leader; BLASCO, IVANA (SCL/EDU); ALEJANDRA FORERO PEREZ (SCL/EDU); RHYS LIM (SCL/EDU); LUGO MORENO, MONICA BIBIANA (LEG/SGO); HYE RI YANG (SCL/EDU); GRETA OLIVARES (SCL/EDU); MORENO, MICHELLE LEONOR (ITE/IPS)
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	11 Apr 2023
▪ Beneficiary:	Nicaragua
▪ Executing Agency:	INTER-AMERICAN DEVELOPMENT BANK
▪ IDB funding requested:	US\$550,000.00
▪ Local counterpart funding:	US\$0.00
▪ Disbursement period:	24 months
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	SCL/EDU - Education
▪ Unit of Disbursement Responsibility:	SCL/EDU - Education
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Gender equality; Diversity

II. Objective and Justification

- 2.1 The proposed Technical Cooperation (TC) will foster access to differentiated instruction in English and Mathematics among primary students (1st and 2nd grade). The overall objective is twofold: (i) adapt a differentiated learning application to the Latin American context; and (ii) implement an experimental pilot to close learning gaps through differentiated instruction.
- 2.2 Differentiated instruction (DI) can significantly improve students' learning outcomes and close learning gaps. Students learn best when they are challenged enough that they require guidance and support but not so challenged the task becomes impossible, what psychologist Lev Vygotsky calls proximal development. For teachers, tailoring and targeting instruction to each student's zone of proximal development means having awareness and ability to respond to the needs of over 30 different students with a wide range of abilities. To address this challenge, high achieving education systems increasingly use education technologies to provide DI. By using DI software in the classroom, teachers can vary the complexity of tasks among students, simultaneously engaging and challenging students through different experiences and teaching strategies. DI software does not replace the teacher but supports teacher efforts to respond to diverse learning needs.
- 2.3 Unfortunately, the school systems with the largest needs for education technologies, often have limited access and teacher skills. Nicaragua is no exception, ranking 62 out

of 65 countries in access to education digital "Applications and Training", surpassing only Haiti, Honduras, and Guyana (Zaballos et al., 2020). Nicaragua is a country with a medium level of human development and an incidence of poverty of 24.9% and extreme poverty of 6.9% (INIDE, 2016). All municipalities in the country have access to mobile telephones (CANITEL, 2018). All municipalities have internet access, including 92% with broadband (CANITEL, 2018) and 85% with mobile internet access (ProNicaragua, 2020). Aware of the use of DI applications in high achieving education systems, the Ministry of Education in Nicaragua (MINED) wishes to rigorously test if this pedagogical approach could help improve learning levels and close gaps among vulnerable students. MINED has identified an application that it wishes to pilot called Enuma School Global.

- 2.4 Enuma School Global is a DI application created by Enuma Inc., proven to engage and teach children how to read, write, and do basic math, even in under-resourced or nontraditional educational settings and hard-to-reach communities. It contains hundreds of activities, such as daily game-based lessons, books, and videos, that children can freely explore to learn two main subjects effectively: English and math. It provides videos with basic academic concepts in children's home language (Spanish) to help those new to English quickly adapt to learning it. The system is designed to be individualized in which children take a placement test to determine where they can best start within the Learning Course, and they are subsequently guided along a unique learning path for each subject that meets their individual learning needs. This tight scaffolding can helpfully pace content for struggling learners but does not hinder other learners. This breakthrough program does not require internet access, which means that it can be deployed swiftly in rural and offline areas. Enuma School Global demonstrated the highest learning gains among nearly 200 competitors around the world in rural Tanzania. Enuma School Global has been successfully deployed in Tanzania, Rwanda, Bangladesh, Indonesia, and Malaysia. Given the flexibility of where and how Enuma School can be used, it is a robust continuous learning tool for children to access learning opportunities regardless of their circumstances or local situation.

III. Description of Activities and Outputs

- 3.1 **Component I: Component I – Differentiated Learning Pilot** . Resources will finance the implementation of a Differentiated Learning (DL) pilot in a group of primary schools in Nicaragua, including professional development of teachers in mathematics and English. To enable the evaluation, schools will be randomly assigned to a treatment or control group. Treatment group will receive DL in mathematics and English through the Enuma application; and the control group will receive instruction based on the regular pedagogical approach used in Nicaraguan schools.
- 3.2 **Component II: Component II – Application Adaptation and Support** . Resources will finance application adaptation & support: i) Development of home language instructional videos to contextualize; ii) support for teachers in implementation through a Learning Management System (LMS); iii) tracking of usage & progress data; iv) training of trainers & enumerators in the use of the LMS; v) continuous analysis of app user experience to improve the design & implementation for Nicaragua; & vi) revision & production of the app log data to be used for program evaluation.
- 3.3 **Component III: Component III – Experimental Impact Evaluation** . Resources will finance an experimental impact evaluation of the pilot, comparing any changes in learning of children in the treatment group with children from a group of comparison schools. The data collection will include the assessment of children's cognitive and non-cognitive skills; as well as data on teacher perceptions and expectations, and beliefs about the development of cognitive and non-cognitive skills, and rich data on families and schools to allow for a heterogeneity analysis.

- 3.4 **Component IV: Component IV – Dissemination** . The TC will finance logistics related to the organization of a dissemination workshop in Nicaragua and a publication on the results from the Differentiated Learning program. The workshops will take place once the evaluation of the program has been completed, inviting representatives from the education community in Nicaragua.

IV. Budget

Indicative Budget

Activity/Component	IDB/Fund Funding	Counterpart Funding	Total Funding
Component I– Differentiated Learning Pilot	US\$220,000.00	US\$0.00	US\$220,000.00
Component II – Application Adaptation and Support	US\$100,000.00	US\$0.00	US\$100,000.00
Component III – Experimental Impact Evaluation	US\$200,000.00	US\$0.00	US\$200,000.00
Component IV – Dissemination	US\$30,000.00	US\$0.00	US\$30,000.00
Total	US\$550,000.00	US\$0.00	US\$550,000.00

V. Executing Agency and Execution Structure

- 5.1 The TC will be executed by the Inter-American Development Bank (IDB) through the Education Division (SCL/EDU). As the executing agency of the TC, the Bank will be responsible for: (i) coordinating the actors involved in the activities of the initiative/project; (ii) identify the studies and technical work necessary to carry out the TC; (iii) select and contract consultants to provide the necessary services; (iv) supervise the consulting services to which the beneficiary provides technical inputs; and (v) manage the execution and provision of consulting services.
- 5.2 The TC will be executed by the Inter-American Development Bank (IDB) through the Education Division (SCL/EDU). The Government has requested that the Bank execute the TC based on its long experience in conducting experimental evaluations in early childhood education (see Annex). The justification is consistent with 2.2 (iii) of Appendix 10 of the Operational Guidelines for Technical Cooperation Products (as modified Annex 2 of GN-619-4) criteria for contracting by the Bank, which establishes that Bank execution is justified when it helps ensure independence. In this case, the credibility of the evaluation of a government program is enhanced when conducted by an impartial entity.

VI. Project Risks and Issues

- 6.1 The execution of a pilot based on an experimental design in a context such as rural Nicaragua presents logistical challenges. This is particularly true communities where many schools are located in difficult terrain and with extreme weather conditions. However, MINED and the IDB have many years of experience in working with schools in remote geographic areas, including the delivery of education technology programs in rural and urban marginalized schools. Moreover, both institutions have gained important experience through the socioemotional learning application (NI-T1304) in how to implement and experimental pilot in Nicaragua. To mitigate risks associated to logistics, the project includes enough resources for face-to-face data collection.

VII. Environmental and Social Classification

7.1 The ESG classification for this operation is "undefined".