**TC Abstract**

**I. Basic Information for TC**

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| ▪ Country/Region: | Uruguay/CSC – Southern cone |
| ▪ TC Name: | High Touch High Tech: Teachers and Artificial Intelligence building an enhanced response to COVID emergency by fostering knowledge and skills. |
| ▪ TC Number: | UR-T1244 |
| ▪ Team Leader/Members: | Perez Alfaro, Marcelo A. (SCL/EDU) Team Leader; Arias Ortiz, Elena (SCL/SCL) Alternate Team Leader; Tournier Vasquez, Valentina (CSC/CUR); Scanonne Chavez, Rodolfo Andres (SCL/EDU); Mendoza Benavente, Horacio (LEG/SGO); Blasco, Ivana (SCL/EDU); Holguin Madrinan, Alejandra (SCL/SCL) |
| ▪ Indicate if: Operational Support, Client Support, or Research & Dissemination | Client Support |
| ▪ If Operational Support TC, give number and name of Operation Supported by the TC: | N/A |
| ▪ Date of TC Abstract authorization: | 15 May 2020 |
| ▪ Beneficiary: | Uruguay |
| ▪ Executing Agency: | CENTRO CEIBAL – Leandro Folgar |
| ▪ IDB Funding Requested: | US$800,000.00 |
| ▪ Local counterpart funding, if any: | US$80,000.00 (cash) |
| ▪ Disbursement period: | 24months |
| ▪ Types of consultants | Firms, individual consultant |
| ▪ Prepared by Unit: | SCL/EDU – Education |
| ▪ Unit of Disbursement Responsibility: | CSC/CUR – Uruguay Country Office |
| ▪ TC Included in Country Strategy (y/n):  TC included in CPD (y/n): | Yes  Yes |
| ▪ Alignment to the Update to the Institutional Strategy 2010-2020: | Social inclusion and equality |

**II. Objectives and Justification of the TC**

2.1 The objectives of the TC are: (i) to support CEIBAL’s educational response to the immediate and medium challenges arousing from the COVID 19 pandemic; (ii) to develop and implement innovative pedagogical approach with tele-edu technology for mathematics and computational thinking, using High Touch-High Tech (HT-HT) strategies; and (iii) to generate evidence about the results and impact of HT-HT strategies both in math learning outcomes and computational thinking skills; and to generate operational knowledge about the implementation of both pilots.

2.2 Apart from providing access to digital devices (2007- 2009), CEIBAL fosters their use in the classroom by deploying educational platforms - Digital Library, learning management systems, CEIBAL in English (CEI), Adaptive Mathematics Platform (PAM), Matific, a game-based math platform and Online Learning Appraisal System (SEA), creating digital educational content, and training teachers (2010-2012). Since 2013, CEIBAL emphasizes the use of technologies to leverage new teaching methods, transform teaching practices by integrating devices and new resources into the learning process and strengthening CEIBAL’s assessment capacities. Since 2018, Plan CEIBAL has developed a program for teaching Computational Thinking in primary schools. The challenge for the future are threefold: (i) maintain the high level of use of the various resources over time; (ii) integrate them effectively so as to consolidate their contribution to transforming the pedagogical process; and (iii) promote research and knowledge transfer to support decision-making by the education system’s various actors. CEIBAL’s track record—from closing the digital gap to this new focus on developing the maximum potential for learning, creativity, and critical thought in Uruguayan children and adolescents—has consolidated the institution’s pioneer status both within and beyond the region.

2.3 CEIBAL and COVID response. Uruguay closed the schools on March 10th. Since school closure, CEIBAL is at the forefront of education continuity, by digital means. The number of users soared and CEIBAL adapted their platforms and contents to the new situation.

2.4 High-Touch, High-Tech: Addressing those challenges hinges on the ability to provide personalized learning at scale for every student. Teaching at the right level has been identified as a key constraint to learning and technology could help achieve this. Artificial Intelligence (AI) offers one of the most promising breakthroughs towards making quality education available for all and addressing 21st-century skills. AI can cater to the different abilities and backgrounds of every student, which earlier and more standardized technologies were not able to do. In this way, AI directly addresses the key binding constraint - the mismatch between classroom instruction (delivered in a standard way) and student learning levels. Adaptive learning technologies can provide targeted support at scale by adapting teaching materials to students’ prior knowledge. These adaptive learning algorithms offer a cost-effective way of learning at the right pace and at the right level for students in resource-constrained contexts, with the potential to enable low-income countries to leapfrog current constraints to development. However, to personalize learning for every student, adaptive (High-Tech) learning should be combined with High-Touch learning: students need human connections and guidance that AI cannot offer. Teachers should be empowered to shift their roles toward High-Touch learning. Students no longer need teachers to the same extent for knowledge acquisition, but the human connection and guidance is needed to help students develop higher order skills necessary for the 21st century. Thus, HT-HT learning hinges on the radical shift in the role of teachers to offer human touches for students (High-Touch) while using AI to effectively deliver content knowledge for students (High-Tech). HT-HT will enhance the education system’s response to the COVID-19 emergency.

**III. Description of activities/components and budget**

3.1 **Component I: Design and implementation of HT-HT learning strategies in math teaching [US$330.000].** This component seeks to improve mathematics learning and pedagogical practices. Taking advantage of PAM that offers students more than 100,000 math activities, this component will pilot HT-HT providing different learning paths for each student because aiming at giving students individualized attention. Local counterpart of US$30,000.00.

3.2 **Component II: Design and implementation of HT-HT learning strategies for computational thinking [US$400.000].** This component seeks to foster problem-solving skills that involve the action of computational agents, as a basic skill that all students should develop for the digital society. Local counterpart of US$30,000.00.

3.3 **Component III: Monitoring, and evaluation of results [US$150.000].** This component will finance:(i) Results assessments of the HT-HT learning strategies in math and CT especially on how HT-HT learning enables students to create and develop skills. The evaluation will look at how AI and mobile technology facilitate students remembering and understanding content (High-Tech), that followed by learning how to apply, analyze, evaluate what they understand, and finally results in learning to create, through engaging with teachers (High-Touch); and (ii) an assessment of the process. Local counterpart of US$20,000.00.

**Indicative Budget**

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| --- | --- | --- | --- |
| **Activity/Component/Description** | **IDB/Fund Funding** | **Counterpart Funding** | **Total Funding** |
| Component I: Design and implementation of HT-HT learning strategies in math teaching. | US$300,000.00 | US$30,000.00 | US$330,000.00 |
| Component II: Design and implementation of HT-HT learning strategies for computational thinking. | US$370,000.00 | US$30,000.00 | US$400,000.00 |
| Component III: Monitoring, and evaluation of results. | US$130,000.00 | US$20,000.00 | US$150,000.00 |
| **Total** | **US$800,000.00** | **US$80,000.00** | **US$880,000.00** |

**V. Executing agency and execution structure**

5.1 The executing agency will be CEIBAL with the support of the Executing Unit of Loan UR-L1141.

5.2 The reasons for requesting the support of the Executing Agency are: (i) it has wide experience and expertise in executing IDB loans and TCs; and (ii) it is the Government agency for innovation in education and for the implementation of digital transformation projects and policies in Uruguay, related to the education sector. CEIBAL will contract the goods, services, and consultancies necessary for the project in accordance with Bank policies (documents GN-2349-9 and 2350-9). CEIBAL will work in collaboration with the Education Commission (EC), implementing the project together along its components. Their implementation and research teams together with technology providers, will examine the best suitable HT-HT model for both pilots so that it could be scaled in the future. EC is partnering with selected countries, academic institutions, and tech thought leaders to test the applicability and adaptability of HT-HT learning in diverse contexts. The first pilot - currently in Vietnam - will be followed by the second pilot in Uruguay.

**VI. Major issues**

6.1 The risks associated with this operation are low and manageable. The main risks identified for the implementation are: (i) to adequately address privacy concerns in data management and data retrieval; and (ii) to ensure the engagement of all relevant institutional stakeholders in the project and the coordination with the education authorities.

**VII. Environmental and Social Strategy**

7.1 Given the characteristics of the project, no negative environmental or social risks are expected. Therefore, the classification of this operation according to environmental safeguards is “C”.