TERMS OF REFERENCE # 1

COUNTRY: Regional

Dept./Unit: SCL/EDU

NAME OF THE PROJECT: Improving Education through Broadband: A toolkit for effective programs

NUMBER OF THE PROJECT: RG-T2634

NAME OF THE CONSULTANCY: Data Collection on technical requirements and costs of a supplemental CAI model and evaluation of supplemental CAI model in LAC.

BACKGROUND

Latin American and Caribbean countries fare poorly in international comparisons of learning assessments (Berlinski et al., 2011). Weak performance on these tests has been clearly linked to poor economic performance (Hanushek and Woessman, 2012). Consequently, many countries are actively seeking ways to improve children's educational outcomes. Recently, there has been substantial public investment in increasing students' access to computers and internet. Emerging evidence suggests that merely providing access to these resources may produce limited learning gains.

Governments lack clear models on how to use these technological resources effectively in education; in spite of that, a tendency exists to make renewed investments in this area. Hence, there could be large returns in guiding governments on how to make use of the opportunities opened up by technology for educational purposes. In order to develop sound public policies, it is crucial to produce a toolkit that will identify, critically assess and synthetize best practices on how to specifically design and implement programs that leverage access to computers and internet effectively for educational purposes. One of these programs seems especially suited to generate sizeable increases in Math learning at limited cost. These are the supplementary computer assisted instruction (or just supplemental CAI) models.

The TC "Improving Education through Broadband: A toolkit for effective programs" aims to summarize the existing evidence and knowledge relevant to the design and implementation of supplemental CAI programs, given that that seem to produce measurable increases in students learning. With this goal in mind, the TC will sponsor a number of studies covering different aspects of this type of programs. These studies will be integrated in a free, publicly available toolkit that could be used by governments, NGOs, and other actors that aim to use technology (and internet) to improve educational outcomes.

In important input for the development of the toolkit is a thorough analysis of a supplemental CAI program in LAC. To this end, this consultancy, aligned with this Technical Cooperation, will fund data collection activities aimed at documenting the effects, costs and technical requirements of a promising supplemental CAI program implemented in LAC.

CONSULTANCY OBJECTIVES

The main objective of this consultancy is to collect and analyze the relevant data and information about the implementation of a supplemental CAI model in LAC in order to determine the effects of the program on students' learning, the associated costs of the program and the technical requirements involved in its implementation.

MAIN ACTIVITIES

The activities to be conducted by this consultancy are part of the first and second activities of component 1 of the TC. The consultant will be responsible for conducting all the data collection on the technical requirements and cost for each of the components to design and implement a supplemental CAI model in LAC including infrastructure, content, pedagogical support and management. Moreover, to quantify the effects of the intervention, a non-experimental evaluation will be performed. This evaluation will exploit as much as possible administrative data to identify a suitable comparison group for the schools that are receiving the program.

The report should be written according to the following guidelines:

- The report will carefully review the existing evidence and if necessary, interview relevant policy makers and experts in the region in order to describe the specific educational challenges that need to be addressed in order to implement this type of programs.

- In addition, the report will analyze in detail: (i) The effects of the program on learning outcomes; (ii) the costs associated to the program; (iii) the activities, procedures and structure of the reviewed program. This analysis will emphasize how broadband access is used and how the program should be adjusted to be implemented in contexts with different levels of connectivity access.

- To facilitate using the evidence uncovered to other countries, the consultant should produce: (i) a tool that can estimate or predict the costs of implementing this type of program in other LAC countries for each of the components; (ii) A discussion of how the program should be altered to be implemented in other relevant LAC contexts.

It should be noted that all products and materials resulting from this consultancy should have the image of the Inter-American Development Bank. Additionally, no product or activity resulting from this consultancy can be sold or generate any income.

REPORTS

The product that should be submitted is a report. The report must be submitted to the Bank in one electronic file. Report should include cover, main document, and all annexes. (Zip files won't be accepted as final reports, due to regulations from the Records Management Section). The report may be included, with editions, as a chapter in a toolkit aimed at laying best practices in the use of broadband for educational purposes.

SCHEDULE OF PAYMENT

Payments will be made according to the following schedule:

- 20% upon signature.
- 30% upon delivery, satisfactory completion and review by the Bank of the intermediate version.
- 50% upon delivery, satisfactory completion and review by the Bank of the final version.

QUALIFICATION

The selected candidate should have the following qualifications:

- **Academic Degree/level and years of professional experience:** MA or PhD in Education or related field.
- **Language:** Fluency in English and/or Spanish.
- **Areas of expertise:** Strong background in education, in particular, in pedagogy at the primary level and on interventions to increase student learning. Demonstrated experience in the analysis curriculum, student assessments and in the design of technology in education programs.

CHARACTERISTICS OF THE CONSULTANCY

- **Consultancy Category & Modality: Type of Consultancy:** International Individual Consultancy & Lump Sum.
- **Contract Duration:** 4 months.
- **Place of work:** External Consultancy.
- **Division Leader or Coordinator:** Elena Arias Ortiz (SCL/EDU) and Julian Cristia (RES/RES)

Payment and Conditions: Compensation will be determined in accordance with Bank's policies and procedures. In addition, candidates must be citizens of an IDB member country.

Consanguinity: Pursuant to applicable Bank policy, candidates with relatives (including the fourth degree of consanguinity and the second degree of affinity, including spouse) working for the Bank as staff members or Complementary Workforce contractuals, will not be eligible to provide services for the Bank.

Diversity: The Bank is committed to diversity and inclusion and to providing equal opportunities to all candidates. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.

TERMS OF REFERENCE # 2

COUNTRY: Regional

Dept./Unit: SCL/EDU

NAME OF THE PROJECT: Improving Education through Broadband: A toolkit for effective programs

NUMBER OF THE PROJECT: RG-T2634

NAME OF THE CONSULTANCY: External coordinator for the development of the toolkit for the design and implementation of technology programs

BACKGROUND

Latin American and Caribbean countries fare poorly in international comparisons of learning assessments (Berlinski et al., 2011). Weak performance on these tests has been clearly linked to poor economic performance (Hanushek and Woessman, 2012). Consequently, many countries are actively seeking ways to improve children's educational outcomes. Recently, there has been substantial public investment in increasing students' access to computers and internet. Emerging evidence suggests that merely providing access to these resources may produce limited learning gains.

Governments lack clear models on how to use these technological resources effectively in education; in spite of that, a tendency exists to make renewed investments in this area. Hence, there could be large returns in guiding governments on how to make use of the opportunities opened up by technology for educational purposes. In order to develop sound public policies, it is crucial to produce a toolkit that will identify, critically assess and synthetize best practices on how to specifically design and implement programs that leverage access to computers and internet effectively for educational purposes. One of these programs seems especially suited to generate sizeable increases in Math learning at limited cost. These are the supplementary computer assisted instruction (or just supplemental CAI) models.

The TC "Improving Education through Broadband: A toolkit for effective programs" aims to summarize the existing evidence and knowledge relevant to the design and implementation of supplemental CAI programs, given that that seem to produce measurable increases in students learning. With this goal in mind, the TC will sponsor a number of studies covering different aspects of this type of programs. These studies will be integrated in a free, publicly available toolkit that could be used by governments, NGOs, and other actors that aim to use technology (and internet) to improve educational outcomes. The services of an educational expert are sought to provide advice and support to the Bank specialists that are coordinating this project.

CONSULTANCY OBJECTIVES

The main objective of the external advisor working under this consultancy will be to provide scientific and technical guidance to the Team Leaders and researchers participating in this project. Based on his knowledge and experience in the field, the external advisor will make suggestions and provide recommendations regarding the design of the overall project. Additionally, the external advisor will provide comments and suggestions on selected chapters

that should be taken into consideration to increase the relevance and quality of the toolkit to be produced.

MAIN ACTIVITIES

As External Advisor, the consultant will carry out the following activities:

i. Advise on the overall design of the project, the identification of consultants to be retained to conduct research in the different chapters and in the negotiation of methodological changes for the selected proposals

ii. Review reports by consultants involved and provide methodological and technical guidance to research teams for the development of the preliminary reports into research papers.

iii. Participate in the Technical Workshops or videoconferences to discuss first and second drafts of research papers.

iv. Advise Bank coordinators on their review of the first and second drafts.

It should be noted that all products and materials resulting from this consultancy should have the image of the Inter-American Development Bank. Additionally, no product or activity resulting from this consultancy can be sold or generate any income.

REPORTS

The consultant will provide:

1. Recommendations and advice about the overall design of the project and the identification of consultants.
2. Drafting of terms of references for consultants for the project.
3. A presentation of related background research at the Technical Workshop.
4. Written reviews and comments of the first drafts of research papers.
5. Written reviews and comments of the second drafts of research papers.

SCHEDULE OF PAYMENT

Payments will be made according to the following schedule:

- 20 % within 15 days of receipt by the Bank of the signed agreement;
- 40% within 15 days upon delivery of the products mentioned in points 1 and 2;
- 40% within 15 days of receipt by the Bank of the products mentioned in points 3, 4 and 5.

QUALIFICATION

The selected candidate should have the following qualifications:

- **Academic Degree/level and years of professional experience:** PhD in Education, Economics or related field with at least 10 years of experience in the field. The consultant must have publication records on issues related to the research to be carried out.
- **Language:** Fluency in English and/or Spanish.

- **Areas of expertise:** Strong background in education, in particular, in pedagogy at the primary level and on interventions to increase student learning. Demonstrated experience in the analysis curriculum, student assessments and in the design of technology in education programs.

CHARACTERISTICS OF THE CONSULTANCY

- **Consultancy Category & Modality: Type of Consultancy:** International Individual Consultancy & Lump Sum.
- **Contract Duration:** 6 months.
- **Place of work:** External Consultancy.
- **Division Leader or Coordinator**: Elena Arias (SCL/EDU) and Julian Cristia (RES/RES)

Payment and Conditions: Compensation will be determined in accordance with Bank's policies and procedures. In addition, candidates must be citizens of an IDB member country.

Consanguinity: Pursuant to applicable Bank policy, candidates with relatives (including the fourth degree of consanguinity and the second degree of affinity, including spouse) working for the Bank as staff members or Complementary Workforce contractuals, will not be eligible to provide services for the Bank.

Diversity: The Bank is committed to diversity and inclusion and to providing equal opportunities to all candidates. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.

TERMS OF REFERENCE # 3

COUNTRY: Regional

Dept./Unit: SCL/EDU

NAME OF THE PROJECT: Improving Education through Broadband: A toolkit for effective programs

NUMBER OF THE PROJECT: RG-T2634

NAME OF THE CONSULTANCY: Chapter 1 of the toolkit on Infrastructure: providing devices, connectivity and related services.

BACKGROUND

Latin American and Caribbean countries fare poorly in international comparisons of learning assessments (Berlinski et al., 2011). Weak performance on these tests has been clearly linked to poor economic performance (Hanushek and Woessman, 2012). Consequently, many countries are actively seeking ways to improve children's educational outcomes. Recently, there has been substantial public investment in increasing students' access to computers and internet. Emerging evidence suggests that merely providing access to these resources may produce limited learning gains.

Governments lack clear models on how to use these technological resources effectively in education; in spite of that, a tendency exists to make renewed investments in this area. Hence, there could be large returns in guiding governments on how to make use of the opportunities opened up by technology for educational purposes. In order to develop sound public policies, it is crucial to produce a toolkit that will identify, critically assess and synthetize best practices on how to specifically design and implement programs that leverage access to computers and internet effectively for educational purposes. One of these programs seems especially suited to generate sizeable increases in Math learning at limited cost. These are the supplementary computer assisted instruction (or just supplemental CAI) models.

The TC "Improving Education through Broadband: A toolkit for effective programs" aims to summarize the existing evidence and knowledge relevant to the design and implementation of supplemental CAI programs, given that that seem to produce measurable increases in students learning. With this goal in mind, the TC will sponsor a number of studies covering different aspects of this type of programs. These studies will be integrated in a free, publicly available toolkit that could be used by governments, NGOs, and other actors that aim to use technology (and internet) to improve educational outcomes. The services of an educational expert are sought to provide advice and support to the Bank specialists that are coordinating this project.

CONSULTANCY OBJECTIVES

The objective of the consultancy is to produce a chapter that provides guidance regarding key design decisions faced when developing a technology in education program based on supplemental CAI models in the area of *Infrastructure: the provision of devices, connectivity and related services*. The chapter should be based on original work.

MAIN ACTIVITIES

The Contractual should write a chapter according to the following guidelines:

i. The toolkit will review the key design decision when implementing effective technology in education programs and the main challenges linked with the components that need to be addressed for supplemental CAI models to meet their objectives. This toolkit will examine four such components, or building blocks, that are commonly found in effective programs of technology in education: infrastructure, content, human resources, and management (Severín, 2010; Arias and Crista, 2014). The toolkit will devote one chapter to each component mentioned above.

ii. The questions to be addressed will be operational or practical in nature and should be relevant for the design of programs in LAC. The main audience of the toolkit are directors of technology in education programs in LAC, their technical teams and education specialists from multilateral organizations, NGO's and other organization involved in the implementation of projects in this specific area. The questions to be tackled in this chapter will be relevant to the design of technology in education programs that aim to improve primary Math learning but also to other subjects and levels of education, except for the chapter about content, which will focus on the existing resources relevant for programs designed to improve primary Math learning.

iii. This chapter will be devoted to the Infrastructure component. The objective of the infrastructure component is to provide access to devices and connectivity that work properly so students and teachers can focus on using them effectively for learning. Ensuring that users have access to well-functioning hardware and connectivity requires analyzing a series of areas (devices, connectivity, electricity, lay out, security, technical support).

iv. The chapter will focus on analyzing the technical considerations that should guide the selection, deployment and installation of devices and complementary technologies including servers and peripherals.

v. The chapter should analyze the provision of connectivity and how to provide solutions that maximize access under sustainable cost structures taking into account the existing infrastructure conditions in LAC. Similarly, even if in urban areas school electricity access is almost universal, issues related with the reliability of the provision and how to protect the equipment from unreliable supply should be considered.

vi. It is important to analyze the requirements in terms of physical space (e.g. computer lab rooms), furniture and other adjustments that need to be performed to ensure that the devices are easily accessible and properly organized. This includes the need to delve on security measures and describe solutions adapted to specific settings found in the region.

vii. The chapter should analyze in depth how to provide technical support at a reasonable cost to ensure that the devices, connectivity and related services can be adequately used. Finally, a comparative analysis between different infrastructure models (e.g. one-to-one, computer labs, mobile labs) and technical requirements of the associated devices, space, security, maintenance and other areas should be included.

viii. The chapter should include between 8,000 and 10,000 words.

ix. The chapter should be written as an applied handbook and should not be overly technical.

It should be noted that all products and materials resulting from this consultancy should have the image of the Inter-American Development Bank. Additionally, no product or activity resulting from this consultancy can be sold or generate any income.

REPORTS

The consultant will provide:

- A draft version of the chapter.
- The complete draft of the chapter.

Zip files won't be accepted as final reports, due to regulations from the Records Management Section.

SCHEDULE OF PAYMENT

Payments will be made according to the following schedule:

- 30% upon signature of contract
- 30% upon submission of draft chapter
- 40% upon acceptance of complete draft of chapter with changes incorporated

QUALIFICATION

The selected candidate should have the following qualifications:

- **Academic Degree/level and years of professional experience:** PhD in Education, Economics or related field with at least 5 years of experience in the field. The consultant must have publication records on issues related to the research to be carried out.
- **Language:** Fluency in English and/or Spanish.
- **Areas of expertise:** Strong background in education, in particular, in pedagogy at the primary level and on interventions to increase student learning. Demonstrated experience in the analysis curriculum, student assessments and in the design of technology in education programs.

CHARACTERISTICS OF THE CONSULTANCY

- **Consultancy Category & Modality: Type of Consultancy:** International Individual Consultancy & Lump Sum.
- **Contract Duration:** 6 months.
- **Place of work:** External Consultancy.
- **Division Leader or Coordinator**: Elena Arias (SCL/EDU) and Julian Cristia (RES/RES)

Payment and Conditions of Employment: Remuneration will be determined in accordance with Bank regulations and criteria.

Consanguinity: Individuals with relatives working for the IDB within, and including the fourth degree of consanguinity and the second degree of affinity are not eligible for employment as

staff or consultants. Candidates must be citizens of a member country of the Inter-American Development Bank.

Diversity: The IDB is committed to diversity and inclusion and to providing equal opportunities in employment. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.

TERMS OF REFERENCE # 4

COUNTRY: Regional

Dept./Unit: SCL/EDU

NAME OF THE PROJECT: Improving Education through Broadband: A toolkit for effective programs

NUMBER OF THE PROJECT: RG-T2634

NAME OF THE CONSULTANCY: Chapter 2 of the toolkit on *Content: offering engaging and academically effective instructional digital resources*.

BACKGROUND

Latin American and Caribbean countries fare poorly in international comparisons of learning assessments (Berlinski et al., 2011). Weak performance on these tests has been clearly linked to poor economic performance (Hanushek and Woessman, 2012). Consequently, many countries are actively seeking ways to improve children's educational outcomes. Recently, there has been substantial public investment in increasing students' access to computers and internet. Emerging evidence suggests that merely providing access to these resources may produce limited learning gains.

Governments lack clear models on how to use these technological resources effectively in education; in spite of that, a tendency exists to make renewed investments in this area. Hence, there could be large returns in guiding governments on how to make use of the opportunities opened up by technology for educational purposes. In order to develop sound public policies, it is crucial to produce a toolkit that will identify, critically assess and synthetize best practices on how to specifically design and implement programs that leverage access to computers and internet effectively for educational purposes. One of these programs seems especially suited to generate sizeable increases in Math learning at limited cost. These are the supplementary computer assisted instruction (or just supplemental CAI) models.

The TC "Improving Education through Broadband: A toolkit for effective programs" aims to summarize the existing evidence and knowledge relevant to the design and implementation of supplemental CAI programs, given that that seem to produce measurable increases in students learning. With this goal in mind, the TC will sponsor a number of studies covering different aspects of this type of programs. These studies will be integrated in a free, publicly available toolkit that could be used by governments, NGOs, and other actors that aim to use technology (and internet) to improve educational outcomes. The services of an educational expert are sought to provide advice and support to the Bank specialists that are coordinating this project.

CONSULTANCY OBJECTIVES

The objective of the consultancy is to produce a chapter that provides guidance regarding key design decisions faced when developing a technology in education program based on supplemental CAI models in the area of *Content: offering engaging and academically effective instructional digital resources*. The chapter should be based on original work.

MAIN ACTIVITIES

The Contractual should write a chapter according to the following guidelines:

    i.   The toolkit will review the key design decision when implementing effective technology in education programs and the main challenges linked with the components that need to be addressed for supplemental CAI models to meet their objectives. This toolkit will examine four such components, or building blocks, that are commonly found in effective programs of technology in education: infrastructure, content, human resources, and management (Severín, 2010; Arias and Crista, 2014). The toolkit will devote one chapter to each component mentioned above.

    ii.   The questions to be addressed will be operational or practical in nature and should be relevant for the design of programs in LAC. The main audience of the toolkit are directors of technology in education programs in LAC, their technical teams and education specialists from multilateral organizations, NGO's and other organization involved in the implementation of projects in this specific area. The questions to be tackled in this chapter will be relevant to the design of technology in education programs that aim to improve primary Math learning but also to other subjects and levels of education, except for the chapter about content, which will focus on the existing resources relevant for programs designed to improve primary Math learning.

    iii.   This chapter will be devoted to the Content component. The objective of the chapter is to provide relevant information to identify, review and select engaging content that can be used to improve primary Math learning in LAC.

    iv.   Even if the focus is on supplemental CAI, the chapter will provide a conceptual framework to understand the different types of software available and identify the types of programs they can support. The chapter should analyze the different software types defining the relevant dimensions that can differ across applications. For example, applications to supplement regular instruction can have different features regarding tutorial and practice opportunities, personalization, and feedback to teachers and students.

    v.   The chapter should analyze issues related to the costs associated in the acquisition of content and the possibility of using freely available digital resources and the challenges associated with the limited available content in Spanish and Portuguese and potential strategies to deal with this issue.

    vi.   The chapter should include between 8,000 and 10,000 words.

    vii.   The chapter should be written as an applied handbook and should not be overly technical.

It should be noted that all products and materials resulting from this consultancy should have the image of the Inter-American Development Bank. Additionally, no product or activity resulting from this consultancy can be sold or generate any income.

REPORTS

The consultant will provide:

- A draft version of the chapter.
- The complete draft of the chapter.

Zip files won't be accepted as final reports, due to regulations from the Records Management Section.

SCHEDULE OF PAYMENT

Payments will be made according to the following schedule:

- 30% upon signature of contract
- 30% upon submission of draft chapter
- 40% upon acceptance of complete draft of chapter with changes incorporated

QUALIFICATION

The selected candidate should have the following qualifications:

- **Academic Degree/level and years of professional experience:** PhD in Education, Economics or related field with at least 5 years of experience in the field. The consultant must have publication records on issues related to the research to be carried out.
- **Language:** Fluency in English and/or Spanish.
- **Areas of expertise:** Strong background in education, in particular, in pedagogy at the primary level and on interventions to increase student learning. Demonstrated experience in the analysis curriculum, student assessments and in the design of technology in education programs.

CHARACTERISTICS OF THE CONSULTANCY

- **Consultancy Category & Modality: Type of Consultancy:** International Individual Consultancy & Lump Sum.
- **Contract Duration:** 6 months.
- **Place of work:** External Consultancy.
- **Division Leader or Coordinator**: Elena Arias (SCL/EDU) and Julian Cristia (RES/RES)

Payment and Conditions of Employment: Remuneration will be determined in accordance with Bank regulations and criteria.

Consanguinity: Individuals with relatives working for the IDB within, and including the fourth degree of consanguinity and the second degree of affinity are not eligible for employment as

staff or consultants. Candidates must be citizens of a member country of the Inter-American Development Bank.

Diversity: The IDB is committed to diversity and inclusion and to providing equal opportunities in employment. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.

TERMS OF REFERENCE # 5

COUNTRY: Regional

Dept./Unit: SCL/EDU

NAME OF THE PROJECT: Improving Education through Broadband: A toolkit for effective programs

NUMBER OF THE PROJECT: RG-T2634

NAME OF THE CONSULTANCY: Chapter 3 of the toolkit on *Human resources: engaging, training and supporting teachers and other actors*.

BACKGROUND

Latin American and Caribbean countries fare poorly in international comparisons of learning assessments (Berlinski et al., 2011). Weak performance on these tests has been clearly linked to poor economic performance (Hanushek and Woessman, 2012). Consequently, many countries are actively seeking ways to improve children's educational outcomes. Recently, there has been substantial public investment in increasing students' access to computers and internet. Emerging evidence suggests that merely providing access to these resources may produce limited learning gains.

Governments lack clear models on how to use these technological resources effectively in education; in spite of that, a tendency exists to make renewed investments in this area. Hence, there could be large returns in guiding governments on how to make use of the opportunities opened up by technology for educational purposes. In order to develop sound public policies, it is crucial to produce a toolkit that will identify, critically assess and synthetize best practices on how to specifically design and implement programs that leverage access to computers and internet effectively for educational purposes. One of these programs seems especially suited to generate sizeable increases in Math learning at limited cost. These are the supplementary computer assisted instruction (or just supplemental CAI) models.

The TC "Improving Education through Broadband: A toolkit for effective programs" aims to summarize the existing evidence and knowledge relevant to the design and implementation of supplemental CAI programs, given that that seem to produce measurable increases in students learning. With this goal in mind, the TC will sponsor a number of studies covering different aspects of this type of programs. These studies will be integrated in a free, publicly available toolkit that could be used by governments, NGOs, and other actors that aim to use technology (and internet) to improve educational outcomes. The services of an educational expert are sought to provide advice and support to the Bank specialists that are coordinating this project.

CONSULTANCY OBJECTIVES

The objective of the consultancy is to produce a chapter that provides guidance regarding key design decisions faced when developing a technology in education program based on supplemental CAI models in the area of *Human resources: engaging, training and supporting teachers and other actors*. The chapter should be based on original work.

MAIN ACTIVITIES

The Contractual should write a chapter according to the following guidelines:

i. The toolkit will review the key design decision when implementing effective technology in education programs and the main challenges linked with the components that need to be addressed for supplemental CAI models to meet their objectives. This toolkit will examine four such components, or building blocks, that are commonly found in effective programs of technology in education: infrastructure, content, human resources, and management (Severín, 2010; Arias and Crista, 2014). The toolkit will devote one chapter to each component mentioned above.

ii. The questions to be addressed will be operational or practical in nature and should be relevant for the design of programs in LAC. The main audience of the toolkit are directors of technology in education programs in LAC, their technical teams and education specialists from multilateral organizations, NGO's and other organization involved in the implementation of projects in this specific area. The questions to be tackled in this chapter will be relevant to the design of technology in education programs that aim to improve primary Math learning but also to other subjects and levels of education, except for the chapter about content, which will focus on the existing resources relevant for programs designed to improve primary Math learning.

iii. This chapter will be devoted to the Human Resources component. The objective of the chapter is to analyze how to prepare and support teachers and other staff that are responsible for the use of technology. In certain programs, teachers will conduct the technology sessions but in other specialized personnel will play this role. In either case, it is important to determine the competencies that these personnel should have and how to properly train them to ensure their capacity in conducting effectively the technology sessions. The training should cover both skills in using technology in education as well as learning specific skills for the use of software for Math learning.

iv. The chapter should also analyze the attitudes of these actors and strategies to motivate them to use effectively technology. Also, past experience suggests that beyond training, it is important to support teachers in the implementation of the programs, as they are likely to face challenges overtime that might discourage them to continue with novelties and go back to old ways (Strigel and Pouezevara, 2012). There are a variety of ways to provide pedagogical support that should be analyzed in the chapter including school visits, online coaching and the development of support networks.

v. The chapter should analyze the relevance and potential actions to build support for the program from the perspective of different actors including directors, supervisors and parents.

vi. The chapter should include between 8,000 and 10,000 words.

vii. The chapter should be written as an applied handbook and should not be overly technical.

It should be noted that all products and materials resulting from this consultancy should have the image of the Inter-American Development Bank. Additionally, no product or activity resulting from this consultancy can be sold or generate any income.

REPORTS

The consultant will provide:

- A draft version of the chapter.
- The complete draft of the chapter.

Zip files won't be accepted as final reports, due to regulations from the Records Management Section.

SCHEDULE OF PAYMENT

Payments will be made according to the following schedule:

- 30% upon signature of contract
- 30% upon submission of draft chapter
- 40% upon acceptance of complete draft of chapter with changes incorporated

QUALIFICATION

The selected candidate should have the following qualifications:

- **Academic Degree/level and years of professional experience:** PhD in Education, Economics or related field with at least 5 years of experience in the field. The consultant must have publication records on issues related to the research to be carried out.
- **Language:** Fluency in English and/or Spanish.
- **Areas of expertise:** Strong background in education, in particular, in pedagogy at the primary level and on interventions to increase student learning. Demonstrated experience in the analysis curriculum, student assessments and in the design of technology in education programs.

CHARACTERISTICS OF THE CONSULTANCY

- **Consultancy Category & Modality: Type of Consultancy:** International Individual Consultancy & Lump Sum.
- **Contract Duration:** 6 months.
- **Place of work:** External Consultancy.
- **Division Leader or Coordinator**: Elena Arias (SCL/EDU) and Julian Cristia (RES/RES)

Payment and Conditions of Employment: Remuneration will be determined in accordance with Bank regulations and criteria.

Consanguinity: Individuals with relatives working for the IDB within, and including the fourth degree of consanguinity and the second degree of affinity are not eligible for employment as staff or consultants. Candidates must be citizens of a member country of the Inter-American Development Bank.

Diversity: The IDB is committed to diversity and inclusion and to providing equal opportunities in employment. We embrace diversity on the basis of gender, age, education, national origin,

ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.

TERMS OF REFERENCE # 6

COUNTRY: Regional

Dept./Unit: SCL/EDU

NAME OF THE PROJECT: Improving Education through Broadband: A toolkit for effective programs

NUMBER OF THE PROJECT: RG-T2634

NAME OF THE CONSULTANCY: Chapter 4 of the toolkit on *Management: planning, implementing, monitoring and evaluating programs*.

BACKGROUND

Latin American and Caribbean countries fare poorly in international comparisons of learning assessments (Berlinski et al., 2011). Weak performance on these tests has been clearly linked to poor economic performance (Hanushek and Woessman, 2012). Consequently, many countries are actively seeking ways to improve children's educational outcomes. Recently, there has been substantial public investment in increasing students' access to computers and internet. Emerging evidence suggests that merely providing access to these resources may produce limited learning gains.

Governments lack clear models on how to use these technological resources effectively in education; in spite of that, a tendency exists to make renewed investments in this area. Hence, there could be large returns in guiding governments on how to make use of the opportunities opened up by technology for educational purposes. In order to develop sound public policies, it is crucial to produce a toolkit that will identify, critically assess and synthetize best practices on how to specifically design and implement programs that leverage access to computers and internet effectively for educational purposes. One of these programs seems especially suited to generate sizeable increases in Math learning at limited cost. These are the supplementary computer assisted instruction (or just supplemental CAI) models.

The TC "Improving Education through Broadband: A toolkit for effective programs" aims to summarize the existing evidence and knowledge relevant to the design and implementation of supplemental CAI programs, given that that seem to produce measurable increases in students learning. With this goal in mind, the TC will sponsor a number of studies covering different aspects of this type of programs. These studies will be integrated in a free, publicly available toolkit that could be used by governments, NGOs, and other actors that aim to use technology (and internet) to improve educational outcomes. The services of an educational expert are sought to provide advice and support to the Bank specialists that are coordinating this project.

CONSULTANCY OBJECTIVES

The objective of the consultancy is to produce a chapter that provides guidance regarding key design decisions faced when developing a technology in education program based on supplemental CAI models in the area of *Management: planning, implementing, monitoring and evaluating programs*. The chapter should be based on original work.

MAIN ACTIVITIES

The Contractual should write a chapter according to the following guidelines:

i.   The toolkit will review the key design decision when implementing effective technology in education programs and the main challenges linked with the components that need to be addressed for supplemental CAI models to meet their objectives. This toolkit will examine four such components, or building blocks, that are commonly found in effective programs of technology in education: infrastructure, content, human resources, and management (Severín, 2010; Arias and Crista, 2014). The toolkit will devote one chapter to each component mentioned above.

ii. The questions to be addressed will be operational or practical in nature and should be relevant for the design of programs in LAC. The main audience of the toolkit are directors of technology in education programs in LAC, their technical teams and education specialists from multilateral organizations, NGO's and other organization involved in the implementation of projects in this specific area. The questions to be tackled in this chapter will be relevant to the design of technology in education programs that aim to improve primary Math learning but also to other subjects and levels of education, except for the chapter about content, which will focus on the existing resources relevant for programs designed to improve primary Math learning.

iii. This chapter will be devoted to the Management component. The objective of the chapter is to articulate the three building blocks described earlier and ensure that the design and implementation of the program is oriented to achieve the proposed learning objectives. Thus, this chapter will review best practices regarding program management on four crucial areas: planning, implementation, monitoring and evaluation.

iv. The chapter should analyze in depth the critical planning stage. It should describe the different steps including first, the definition of the key pedagogical elements of the program: learning goals, pedagogical processes to support learning activities and classroom time management. Additionally the planning stage should include standard management activities including budgeting, scheduling, the selection of component coordinators and their profiles and responsibilities. Once these key personnel are selected, a more detailed planning for each component (infrastructure, content, human resources) should take place including the definition of deliverables, activities and the profiles and responsibilities of all staff.

v.   The second area will focus on the implementation. Along this stage, important aspects include coordination of the different activities and communication of advances and next steps to all relevant parties including teachers, directors and parents. Implementation also includes the introduction of corrective measures to solve problems detected.

vi. The third area pertains to monitoring how the program is implemented, and especially, the definition and production of indicators on deliverables for the infrastructure, content and human resources components. Moreover, the program should measure the amount of time and monitor the type of activities performed during the technology sessions given that this is the crucial step to expect learning impacts. Finally, the chapter should describe effective and efficient strategies for evaluating the program and how the evidence uncovered can be used for decision-making.

vii. The chapter should include between 8,000 and 10,000 words.

viii. The chapter should be written as an applied handbook and should not be overly technical.

It should be noted that all products and materials resulting from this consultancy should have the image of the Inter-American Development Bank. Additionally, no product or activity resulting from this consultancy can be sold or generate any income.

REPORTS

The consultant will provide:

- A draft version of the chapter.
- The complete draft of the chapter.

Zip files won't be accepted as final reports, due to regulations from the Records Management Section.

SCHEDULE OF PAYMENT

Payments will be made according to the following schedule:

- 30% upon signature of contract
- 30% upon submission of draft chapter
- 40% upon acceptance of complete draft of chapter with changes incorporated

QUALIFICATION

The selected candidate should have the following qualifications:

- **Academic Degree/level and years of professional experience:** PhD in Education, Economics or related field with at least 5 years of experience in the field. The consultant must have publication records on issues related to the research to be carried out.
- **Language:** Fluency in English and/or Spanish.
- **Areas of expertise:** Strong background in education, in particular, in pedagogy at the primary level and on interventions to increase student learning. Demonstrated experience in the analysis curriculum, student assessments and in the design of technology in education programs.

CHARACTERISTICS OF THE CONSULTANCY

- **Consultancy Category & Modality: Type of Consultancy:** International Individual Consultancy & Lump Sum.
- **Contract Duration:** 6 months.
- **Place of work:** External Consultancy.
- **Division Leader or Coordinator**: Elena Arias (SCL/EDU) and Julian Cristia (RES/RES)

Payment and Conditions of Employment: Remuneration will be determined in accordance with Bank regulations and criteria.

Consanguinity: Individuals with relatives working for the IDB within, and including the fourth degree of consanguinity and the second degree of affinity are not eligible for employment as staff or consultants. Candidates must be citizens of a member country of the Inter-American Development Bank.

Diversity: The IDB is committed to diversity and inclusion and to providing equal opportunities in employment. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.

TERMS OF REFERENCE # 7

COUNTRY: Regional

Dept./Unit: SCL/EDU

NAME OF THE PROJECT: Improving Education through Broadband: A toolkit for effective programs

NUMBER OF THE PROJECT: RG-T2634

NAME OF THE CONSULTANCY: Design and support of the implementation of dissemination strategy

BACKGROUND

Latin American and Caribbean countries fare poorly in international comparisons of learning assessments (Berlinski et al., 2011). Weak performance on these tests has been clearly linked to poor economic performance (Hanushek and Woessman, 2012). Consequently, many countries are actively seeking ways to improve children's educational outcomes. Recently, there has been substantial public investment in increasing students' access to computers and internet. Emerging evidence suggests that merely providing access to these resources may produce limited learning gains.

Governments lack clear models on how to use these technological resources effectively in education; in spite of that, a tendency exists to make renewed investments in this area. Hence, there could be large returns in guiding governments on how to make use of the opportunities opened up by technology for educational purposes. In order to develop sound public policies, it is crucial to produce a toolkit that will identify, critically assess and synthetize best practices on how to specifically design and implement programs that leverage access to computers and internet effectively for educational purposes. One of these programs seems especially suited to generate sizeable increases in Math learning at limited cost. These are the supplementary computer assisted instruction (or just supplemental CAI) models.

The TC "Improving Education through Broadband: A toolkit for effective programs" aims to summarize the existing evidence and knowledge relevant to the design and implementation of supplemental CAI programs, given that that seem to produce measurable increases in students learning. With this goal in mind, the TC will sponsor a number of studies covering different aspects of this type of programs. These studies will be integrated in a free, publicly available toolkit that could be used by governments, NGOs, and other actors that aim to use technology (and internet) to improve educational outcomes.

This consultancy seeks to support the dissemination efforts aimed at promoting the use of the report amongst policy makers in the region.

CONSULTANCY OBJECTIVES

The main objective of this consultancy is the design and support in the implementation of a complete communication strategy involving the identification of the targeted audience, the

elaboration of the products to use and the determination of the activities that will be executed to disseminate the main findings of the toolkit.

MAIN ACTIVITIES

The activities to be conducted by this consultancy are part of component 3 of the TC. The consultant will be responsible for producing targeted products that will be used in the dissemination of the main findings of the produced toolkit. This will include the production of policy briefs, blog posts and short videos.

The consultant will work together with the TC coordinators to identify the main audiences of this report. Directors of technology in education programs in the region will be important expected users of the toolkit. However, relevant policy makers in the Ministries of Education and Telecommunication should also be targeted. Additional potential users, such as policy makers in charge of the digital agendas in countries in LAC as well as education sector analysts in the Ministries of Finance should also be identified.

The consultant will work with the coordinators in defining a number of products to reach these different audiences. The consultant will then produce the dissemination products to be used exploiting intensively digital media tools. Finally, the consultant will propose a communication strategy to ensure that the main findings are disseminated across the targeted audience and that the potential users know how to easily access the toolkit.

It should be noted that all products and materials resulting from this consultancy should have the image of the Inter-American Development Bank. Additionally, no product or activity resulting from this consultancy can be sold or generate any income.

REPORTS

The product of this consultancy will include a complete communication strategy describing the main audiences to reach, the products to use to target them and the activities to implement to ensure that the toolkit is widely disseminated. The report must be submitted to the Bank in a number of electronic files. (Zip files won't be accepted as final reports, due to regulations from the Records Management Section).

SCHEDULE OF PAYMENT

Payments will be made according to the following schedule:

- 20% upon signature of contract
- 30% upon delivery of the intermediate version of the communication strategy
- 50% upon delivery of the final version together with the dissemination products

QUALIFICATION

The selected candidate should have the following qualifications:

- **Academic Degree/level and years of professional experience:** BA or MA (preferred) in Communications or related field.
- **Language:** Fluency in English and/or Spanish.

- **Areas of expertise:** Strong background in communication. Demonstrated expertise in dissemination of research products to non-technical audiences is required. Experience in designing and implementing communication activities targeting policy makers in LAC is desired.

CHARACTERISTICS OF THE CONSULTANCY

- **Consultancy Category & Modality: Type of Consultancy:** International Individual Consultancy & Lump Sum.
- **Contract Duration:** 2 months.
- **Place of work:** External Consultancy.
- **Division Leader or Coordinator**: Elena Arias (SCL/EDU) and Julian Cristia (RES/RES)

Payment and Conditions of Employment: Remuneration will be determined in accordance with Bank regulations and criteria.

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