

Terms of Reference

Institutional Consultancy **to develop and adapt open-source therapeutic virtual reality game-based** **modules to support children with ADHD in Viet Nam.**

Summary

Title	Virtual reality game-based modules to support children with ADHD in Viet Nam
Purpose	To design, develop and adapt open-source VR-based games modules supporting the improvement of cognitive and attention skills for children with ADHD aged 6 to 12 years old in Viet Nam.
Location	Viet Nam
Duration	One year
Start Date	01 August 2022
Reporting to	OIC Chief of Education Programme
Project and activity codes	2.1 LEARNING AND SKILLS

Background

Virtual Reality Therapy as a treatment for children with ADHD (Attention Deficit Hyperactivity Disorder)

Virtual Reality (VR) creates interactive computer-generated environments that mimic real life experiences and engage the users' multiple senses (1). VR has been recently investigated as a potential source of treatment for different mental health issues such as anxiety and depression, and psychiatric disorders (2) including ADHD, one of the most common psychiatric disorders in childhood (3). Children with ADHD usually have difficulties in problem solving, managing behaviour and cognitive flexibility (4). Various studies have confirmed the advantages of using VR in improving cognitive performance including working memory, executive functioning, and increasing attention span (5,6,7,8). Other studies have also indicated that VR can improve sensory processing and different levels of attention, including more focused, sustained, and selective attention, as well as ameliorating alternating and divided attention in individuals with ADHD (9). Another important aspect regarding this technology is the flexibility it offers to modify tasks according to the level of attention and cognitive requirements of each child with ADHD (10,11).

Current research on VR therapy for children with ADHD in Viet Nam

UNICEF Viet Nam in collaboration with the National Centre of Special Education under the Vietnamese National Institute of Educational Science is working on the pilot project using VR in improving cognitive and attention skills for children with ADHD in Viet Nam. For this project we are being supported by the UNICEF Innovation Fund to adapt therapeutic VR modules addressing three types of attention, namely, sustained, selective and alternating attention. These game modules are targeting children aged 6 to 12 years with IQ > 70, with no history of epilepsy or seizures. Each session is expected to entail wholly or in part a VR session of 20 minutes. All performance data are collected during the session via a desktop application so that the therapists can easily access and choose the customization for upcoming sessions.

We are looking for **International or national EdTech companies** to develop more content game modules to enrich the library for the research.

Objectives, deliverables, and technical specifications

Overall objective: To design, develop and adapt open-source VR-based games modules supporting the improvement of cognitive and attention skills for children with ADHD aged 6 to 12 years old in Viet Nam.

Key activities

1. To write technical documentation of the design and records of all the debugging and iteration.
2. To develop and adapt 5 fully immersive VR modules that target attention skills in Vietnamese children with ADHD aged 6 to 12 years.
3. To perform testing with a local partner indicated and coordinated by UNICEF.
4. To make iterations correcting any issues identified during the adaptation, testing and throughout the piloting periods.
6. To provide training sessions to local personnel on using the software, modules, headsets, data collection & data analysis.
7. To provide hands on support to the trained local personnel throughout the testing, finalization of the modules, and pilot sessions including data analysis.

No	Tasks	Deliverables	Tentative Dates
1	To write technical documentation of the design and performance data collected within the VR environment	First draft of technical design of the modules and performance data collected within the VR environment	31 st August 2022
		Final draft	31 st July 2023

2	To develop and adapt 5 fully immersive VR modules	First 2 modules available for adaptation	31 st August 2022
		First 2 modules ready for testing	15 th September 2022
		The 3 rd module available for adaptation & testing	30 th September 2022
		The 3 rd module ready for testing	15 st October 2022
		The 4 th & 5 th modules available for adaptation	31 st October 2022
		The 4 th & 5 th modules ready for testing	15 th November 2022
3	To support the debugging & modification during testing	Modules performing well with no more bugs or network issues	15 th September 2022 to 30 th November 2022
		First draft of debugging & iteration log file delivered (and continuously updated and shared)	30 th September
4	To support with hands on training of local personnel using the modules, collecting data and analysing data	At least 2 offline training workshops delivered	1 st December 2022 to 20 th January 2023
5	To support the pilot sessions on technical issues, data collection and data analysis	Pilot sessions with children conducted smoothly without errors.	1 st February 2022 to 31 st July 2023
		Final debugging and iteration log file submitted	15 th August 2023

Technical requirements:

- The modules should address at least 3 subtypes of attention skills: selective attention, sustained attention, alternating attention.
- The design methodology should be based on a widely adopted assessment tool for attention skills, e.g., Conners, TOVA, or others.
- The design is expected to adhere to widely adopted behavioural analysis approaches, e.g., ABA.

- The VR modules are expected to be compatible with diverse standalone VR headsets that come with 6 DoF (Degrees of Freedom) controllers.
- The VR modules are expected to gather performance data from within the VR environment. This information is expected to be available for the therapists in a readable and analysable format.

Justification

This activity requires high-level technical expertise and relevant experience in the fields of virtual reality game-based development. Given the nature of mixed competencies and expertise required, an institution with international and/or local knowledge in the fields of interest is needed. As this consultancy requires different sets of skills, one consultant will not be able to carry out the expected deliverables within a short time frame. As such, institutional consultancy is required for this assignment.

Management

The overall management of the package will be managed by the OIC Chief of Education while day-to-day advice and management will be undertaken by the Education Officer (Digital Learning & Skills) at UNICEF Viet Nam.

Estimated budget

- Cost estimate: lump sum contract including the budget for hiring development team, technical knowhow on VR development, all translation costs and travel in/to Viet Nam (in case of International companies).
- This budget does not include the costs of the venue for conducting consultative workshops/meetings with related national and local stakeholders if deemed necessary. This will be organised on need bases by UNICEF and therefore covered directly by UNICEF.

Payment method

- 1st payment: 30% of total contract value made after the finalization of the first 2 modules and the first draft of technical design and data collection tentative date: 30th of September, 2022
- 2nd payment: 40% of total contract value made after the finalization of the next 3 modules tentative and log file (continuously updated and shared), tentative date: 1st of December, 2022
- 3rd payment: the remaining 30% of total contract value made after receiving deliverables of task (3) + (4) + (5), tentative date: 15th August 2023.

Time Period

The contract for this assignment will cover a period from 1st August 2022 to 1st August 2023.

Reporting requirements

The team leader of the selected contractor is expected to provide an update status in a written format every month. Formal reporting is expected upon delivery of each module. Additional reporting activities may be requested by UNICEF on a needs basis.

Qualifications & experiences required

The successful bidder is expected to demonstrate experience and list relevant projects as follows:

Mandatory

- Proven solid knowledge in VR, web, and mobile development technologies.
- Proven solid knowledge in developing solutions for diverse standalone VR headsets that come with 6 DoF controllers.
- Proven track record of previous products that have been developed for the scope of developmental and learning disorders.
- A comprehensive skill set in programming, technology research, 3D art creation, behavioural analysis, and cognitive psychology.

Desirable

- Previous work with UNICEF, other UN agencies or other international organizations and/or major institutions in development of youth focused and/or gamified digital solutions.
- Previous work on software solutions with education institutions in a developing country.

Submission of the proposal

- (1) A technical proposal describing how the assignment will be carried out; and
- (2) A financial proposal clearly itemizing cost per production stage (in USD) exclusive of all taxes as UNICEF is a tax-exempt organization.

All Proposals must be in pdf. format and duly signed, stamped by the authorized person of the company.

Structure of the Technical Proposal

The technical proposal should include:

- Presentation of your institution (including registration & tax documentation).
- Detailed plan for the development process: key milestones and deliverables, including how the technical requirements of the modules and team will be met.
- Past experience in working on similar project and assignments.
- Proposal of the timeline.
- Please attach the resumes of the team members in the technical proposal.
- Please mark any information that the bidder considers confidential.

- Submissions must be made in English.
- No price information should be contained in the technical proposal.

The financial proposal should detail the appropriate price schedule which includes an indication of which items may be negotiated, if applicable, or which items can be modified as per budget. Full and final costing should be exclusive of all taxes as UNICEF is a tax-exempt organization.

Any submissions made outside of the allotted time frame or without adequate information will be automatically disqualified.

Evaluation process and methods

Weighted ratio between the technical and the price criteria: (70:30)

Such the proposed programme is new and not available in Viet Nam. Given the newness, complexity, and strong requirement of innovative and creativity of the assignment, the ratio between the technical and the financial proposal for this task is 70:30 respectively. Only those proposals that score 60% of technical points on the technical proposal will be shortlisted.

Each technical proposal will be assessed first on its technical merits and subsequently on its price. A maximum of 70 points is allocated to the technical component and 30 points for the price component, with a maximum possible total score of 100 points.

The proposal obtaining the overall highest score after adding the scores for the technical and financial proposals is the proposal that offers best value for money and will be recommended for award of the contract. UNICEF will set up an evaluation panel composed of technical UNICEF staff.

In making the final decision, UNICEF considers both technical and financial aspects. The evaluation panel first reviews the technical aspect of the offer, followed by the review of the financial offer of the technically compliant vendors. UNICEF will award the contract to the vendor whose response is of high quality and meets the specific objectives.

The proposals will be evaluated against the following criteria:

a) Technical Proposal

Criteria		Points
1	Company Information	5
1.1	Legal Structure (Registration and taxes)	
1.2	Years of expertise and experience	
2	Technical Expertise	40
2.1	Relevance of the approach to meet the specific objectives and technical requirements	

2.2	Realistic workplan with specific deliverables	
2.3	Quality of previous works example in developing and adapting VR game modules for children with special needs following the technical requirements specified above	
3	Personnel	25
3.1	Management position and technical competences (CV)	
3.2	Number of key staff assigned to the project management	
	Total	70

b) Financial Proposal

The Financial Proposal should be broken down for each component of the proposed work. Please make sure to have separate line items in price proposal for the following:

- Strategy and planning
- Designing and development process and options
- Finalization and delivery of the products

The total amount of points allocated for the price component is 30. (The maximum number of points will be allotted to the lowest price proposal of the technically qualified proposals).

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