



INSPIRATIONAL CASES |  FINALIST 2023 |  BOLÍVIA

#HEALTH

App created in class offers emotional support for young people with anxiety or depression

By combining technology and mental health, a STEM project from Bolivian students works as a virtual assistant to help other young people.

TEACHER

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COMMUNITY/CITY

El Alto

STEM AREAS

Technology

STUDENTS

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SCHOOL

Unidad Educativa Gral. Armando Escobar Uria UEPDB

OTHER AREAS OF KNOWLEDGE

Social Sciences or Sociology and Language

PROJECT NAME

El te entiende: sistema de apoio emocional para pessoas com ansiedade ou depressão

Adolescence is the period when people go through physical, emotional, and social changes that can leave them vulnerable. Sometimes teenagers have difficulty expressing themselves or do not know what to do when faced with emotional challenges. With this context in mind, students from El Alto, Bolivia, developed a mental health app that works as a support system to mitigate the effects of anxiety in adolescents.

The [prototype](#) uses [artificial intelligence](#) for mental health and aims to help young people aged 12 to 18. In the app, they can get useful information and chat with a bot trained to deal with these critical moments. The bot offers them advice to improve their mental health, kind words, and even suggestions that they seek support from an adult or even from a professional.

Computer science, information technology, and [programming](#) teacher Diego Candia says that at his school, Unidad Educativa Gral. Armando Escobar Uria UEPDB, students know robotics, information technology, and programming; they create profiles, blogs, web pages, and mobile applications. When educators learned about the Solve for Tomorrow program, they understood that it was an opportunity to show what they were already working on within the institution.

The institution's teams were formed according to affinities and through the guidance of teachers, to ensure that each group was gender diverse. "We saw that many were already thinking about problems such as the environment and they were looking for a different perspective," Candia informs. They then observed a situation in which, unfortunately, a student from the institution suffered an accident and partially lost his sight. "We did not know how to help him when he returned to the Educational Unit. When facing these types of problems we usually take care of physical health, but mental health is also very important," he points out.

This case drew attention to the issue and the group reflected that there are not many mechanisms in place to deal with mental health. "Unlike other departments in Bolivia, I feel that here in La Paz we are a little more closed; it is hard for us to interact with a person. So, the students say that sometimes they do not have anyone to share the situations with," he adds.

Technology and mental health side by side

After identifying the social challenge to focus on in this STEM project, the students observed which devices their colleagues used the most at school and found that they were digital ones: cell phones, tablets, or computers. "So, we saw the opportunity to work with artificial intelligence (AI) that can be quite useful and is the boom of the moment," reports the teacher.

The five students involved were between 13 and 16 years old and were in their fifth and fourth years of secondary school, the last years of compulsory schooling, at the time of their participation. Some of the students were in charge of designing the mental health app, while others completed the questionnaires.

For the questions, they got help from the school principal, who is a psychologist, and they based on the forms used by the school's Psychology department, which welcomes students who need help. "Using this as a base, we trained our artificial intelligence to respond promptly," he explains.

To train the bot, the team used the Natural Language Processing (NLP) model to understand and respond to the user. This technology, based on machine learning, allows machines to learn to recognize patterns in text and speech, creating more natural interactions with humans.

They also used GPT-3.5, a version of artificial intelligence capable of producing longer, more coherent texts. They also loaded information they managed to collect into the data, such as cognitive behavioral therapy. When the bot is unsure of the answer or deems it necessary, it recommends the user seek professional help.

The group also conducted interviews with other students and began modeling, based on trial and error. "The kids are in the process of training, they are not 100% programmers, but we use freely distributed applications to build apps through block codes," he explains, highlighting that they used [MIT App Inventor](#) to create the application that can be integrated into mobile phones with Android or iOS operating systems.

App seeks to provide emotional well-being

Although they already had programming basics, the students had to train more in AI to achieve the prototype. “We had read quite a few articles and we were careful to make sure it didn’t have discriminatory language, for example,” he recalls.

When the user enters the app, is greeted with an inspirational reflection message and has to click on an “Enter” button. Afterward, the person has to choose one of the activities available on the home page. The options are: Physical Activity; Taking care of your body (about hygiene); Appointments; Breathing; Good Nutrition; Talk to a friend. Each one contains texts with advice on the topic and the last one directs to a chatbot that begins with the message “Hi, how can I help you?”

According to the written response, artificial intelligence generates new motivational and instructive messages. The bot is trained to talk about issues such as academic pressure, sadness, feeling estranged from family, and friendship problems, among other topics.

The students faced challenges in perfecting the user experience. Narrowing down the scope of the prototype, for example, was no easy task. “The more we talked to other people and did tests, the more the project grew. It became very complicated because we had limited time to do everything. We had to put some ideas aside to focus on a viable product,” he says.



Eureka moment!

The testing stage was carried out with the group’s participants and with the Department of Psychology. First, they observed difficulty in improving the conversation with the robot. “Initially, one of the problems was that it always indicated to speak with a specialist,” he points out. To solve these challenges, there was no magic formula; only patience to continue training the AI better with trial and error, which the teacher credits as teaching young people persistence.



“In the end, the result was a project that, although it did not turn out 100% as we wanted, has made us proud”,

the teacher concludes.

The educator stresses that the prototype works like a virtual assistant, but that it does not replace a real psychologist. “We can somehow provide help for those students who need it. Suddenly you are at 3 in the morning and you don’t know who to talk to. You can go to your mobile device and have a conversation to calm down,” he believes.

According to the educator, participating in Solve for Tomorrow brought many lessons to young people, especially related to [soft skills](#), such as [communication](#). “El te entiende had students who were too shy. They had academic potential when he put them in front of the computer, but they had difficulties expressing themselves in public,” he recalls. With the program’s training, they improved this aspect in preparation for the [pitch](#) stage.



Explaining!

According to the [World Health Organization](#), one in seven adolescents between the ages of 10 and 19 (14%) suffers from a mental disorder. Despite this, many of these conditions do not receive the recognition and treatment they require. Young people with a mental disorder may suffer from social exclusion, discrimination, educational difficulties, poor physical health, and human rights violations. They may also be victims of stigmatization, which can discourage them from seeking help and engaging in risky behaviors.



Focus on practice!

Take a look at the teacher’s guide on how to develop a mental health app with your students to offer emotional support for young people.



Empathy

While searching for a topic to work on in their STEM project, students observed the case of a colleague who suffered an accident and partially lost his sight, which revealed the need for the school community to focus on mental health care. They even reflected on how many teenagers have difficulty expressing themselves; either for cultural reasons or because of the particularities of their age group.



Definition

After identifying the social challenge to focus on in this project, the students observed which devices their colleagues use the most at school and found that they are digital ones: cell phones, tablets, or computers. This opened the doors to the opportunity to work with artificial intelligence to create an app.



Ideation

Some of the students were in charge of designing the mental health app, while others completed the questionnaires. For the questions, they had help from the school principal, who is also a psychologist, and based themselves on the forms used by the school's Psychology department, which welcomes students in need.



Prototype

Using AI and a free app-building platform, the team was able to create the prototype. When the user enters the app, they are greeted with an inspirational reflection message and have to click on an "Enter" button. Afterward, they have to choose one of the activities available on the home page and have the option to chat with a chatbot.



Testing

The testing stage was done with the group participants themselves and with the Department of Psychology. After observing in practice the opportunities for improvement in the conversation with the robot, the students made changes based on trial and error to improve the AI and make the best viable product at that time.