LAS ESCUELAS COMO ESPACIOS SALUDABLES: PROMOCIÓN DE PRÁCTICAS SALUDABLES Y REDISEÑO DE PATIOS, BARES Y COMEDORES DE LA CIUDAD DE CUENCA INTEGRANDO SOLUCIONES BASADAS EN LA NATURALEZA (NBS)

La Carrera de Ingeniería de Sistemas de la Facultad de Ingeniería de la Universidad de Cuenca forma parte del equipo de trabajo en la ejecución del proyecto de vinculación "Escuelas como Espacios Saludables".

Nuestro objetivo en esta colaboración es desarrollar al menos dos aplicaciones computacionales ya sean para dispositivos móviles o para computadores de escritorio, que ayuden a **motivar una alimentación nutritiva y actividad física en niños y adolescentes** de instituciones educativas fiscales de la provincia del Azuay.

En primer lugar, es necesario conocer la infraestructura tecnológica (básicamente, computadores disponibles, conexión a Internet) en las escuelas donde se realizarán todas las actividades mencionadas como parte del proyecto de implementación de las aplicaciones mencionadas.

Para los fines pertinentes, se considera necesario realizar tres intervenciones en dichas instituciones educativas:

1. En primer lugar, es necesario realizar una visita inicial que permita entender mejor las necesidades y expectativas de los usuarios de las aplicaciones a desarrollar, de manera que se pueda disponer de información requerida para el diseño de las dichas aplicaciones.
   Se planea realizar una encuesta en cinco instituciones educativas, seleccionando un grado en cada una de ellas. El grado debe ser diferente en cada institución con la finalidad de cubrir diversas edades entre los 9 y 13 años. La encuesta durará entre 10 y 15 minutos. Se tendrán 6 estudiantes en cada institución realizando la encuesta: 1 moderador, 1 facilitador y 4 personas ayudando a completar la encuesta.

   Se estipula que hasta realizar el contacto y planificación con las instituciones, la encuesta deberá realizarse la segunda o tercera semana de abril durante dos días ya sea un miércoles o viernes. Esto se debe considerar por asuntos de planificación interna de las personas (docentes y estudiantes) de la carrera de Ingeniería de Sistemas que laborarán en el proyecto.

2. Una vez que los prototipos de las aplicaciones se encuentren listos se requiere nuevamente visitar las instituciones educativas para realizar una validación de los prototipos. Analizar la aceptación por parte de los estudiantes (usuarios de las aplicaciones), la usabilidad de dichas aplicaciones, etc.

3. Finalmente, una vez que las mejores aplicaciones sean seleccionadas se requerirá una tercera intervención en donde ahora si se selecciona un solo usuario objetivo de la misma edad en todas las instituciones para que se ponga a prueba las aplicaciones con la finalidad de recolectar datos para análisis y generación de publicaciones.

TAREAS PLANIFICADAS

1. Explicar el proyecto a los estudiantes
2. Visitar escuelas para encuesta y diálogo con los estudiantes

3. Conformación de grupos de trabajo
4. Presentar una primera propuesta de la aplicación a realizar
5. Presentar un primer avance del proyecto que incluya el análisis
6. Presentar un segundo avance del proyecto que incluya el diseño
7. Desarrollo de la Aplicación. En la Casa Abierta se deberá presentar un producto presentable.
8. A fines del mes de junio (fin de clases) deberá presentarse a los jueces para su evaluación.
9. Selección de las instituciones educativas para implementación
10. Implementación de la aplicación
11. Análisis de resultados

Debemos definir nuevas fechas de presentación y debemos definir entregables para reportes de avance del proyecto.

REQUISITOS INICIALES LEVANTADOS DE UNA INVESTIGACIÓN REALIZADA PREVIAMENTE

- Study performed in college freshmen and sophomores, as the program was developed in 2012 for the students last time in local high schools in Cuenca.

- In Ecuador, studies are not available that evaluate the effectiveness of the use of mobile health apps as part of health behaviour change programs. Other studies conducted in Latin America about the use of mobile health apps demonstrate that apps are used mostly for monitoring patients with chronic diseases, accessing healthcare providers, and as health information resources (Saigí-Rubio, Novillo-Ortiz, & Piette, 2017). Therefore, creating and implementing an app represents an opportunity for researchers to explore and evaluate the outcomes and experiences of audiences in Latin America for preventive healthcare and behaviour change. Such an app could also introduce mobile health communications that can help teenagers not only from a city but also could reach audiences in other cities and communities of Ecuador.

- Studies in Ecuador demonstrate that female teenagers aged 13 to 17 are at risk, because they have tendencies toward altered perception of their body image six times more than male teenagers (Barros-Ruiz & Yánez-Arias, 2018). Another recent study developed in Cuenca determined that teenagers have high levels of body dissatisfaction. Results of this study showed that 50% of the male and female participants of 14 years old had a moderate level of body dissatisfaction (Rodríguez et al., 2018).

- Regarding physical activity habits, a study found that 30% of teens younger than 18 are sedentary and do not exercise. Moreover, their high schools did not offer an appropriate physical and health education curriculum (Rodriguez-Torres et al., 2018).
- Promote a healthy lifestyle through nutrition and physical activity. For this purpose, internet-based conduits and social media aim to engage parents and to concentrate the program's information on different platforms that are integrated.

- Promote to learn about the importance of sustaining a healthy behaviour as part of their lifestyle beyond pursuing an attractive appearance.

- The activities inside the app should be interactive, more fun, more easily learned, and they should use dynamic strategies to capture the high schoolers' attention.

- An alternative is that the new games and activities needed prizes to motivate participants and to reinforce the goals of the program. The suggestion was that healthy meals and snacks would be the best prizes.

- Combinar un tutorial con un juego o actividad.
- Aplicación que guíe o recuerde a los usuarios si están tomando suficiente agua durante el día.
- One of the activities they remembered as positive was the nutritional pyramid game, which was a diagram with the food groups, and they had to locate correctly each food by cutting and pasting the food image in the correct section. However, the students said they believed this activity was quite complex for their age because they were confused frequently trying to identify the correct food portions and combinations. For example: If they had already eaten a fruit and then combined a meal with a protein portion with a carbohydrate such as bread, they had doubts about how much fruit and what kind of fruit would have less sugar (a citrus or berries) to not unbalance the intake of sugars that later become carbohydrates.

  Even though the pyramid activity was difficult, the student collaborators acknowledged that they learned to vary their foods and to balance their meals in the long term. Yet they suggested that this activity could be redesigned as a game through an app or a website, which would make it more interactive and fun also might help to correct wrong ideas for future participants.

- Una aplicación llamada día saludable que cuando la abran muestre recetas saludables para las tres comidas del día.
- Una aplicación que le recomiende al usuario los lugares cercanos que tiene para realizar actividades físicas ya sea parques, gimnasios, ciclo vías, rutas de caminatas, etc., de igual forma que liste todas las actividades gratuitas planificadas en la ciudad.
- Application of trivia about balanced nutrition.
- The app should have a first step where the avatar of the participants (male and female versions) can be personalized with the age, height, and weight of the user. The second step would be to offer a meal registry for breakfast, lunch, dinner, and snacks that should be filled in every day. This section should also have a place to register physical activity. The app should be able to send reminders to the user to register their eating and exercising and/or physical activity. This aspect should be linked to the ideal intake of food groups and calories. Also, the avatar's look should be transformed, depending on the healthy or unhealthy habits. For example, with junk food and not exercising, the app should have images of looking sick, chubby, and sad. And if the registry is healthy, the avatar would look leaner, healthy, and happy. The app should be available as a free download for smartphones but also should offer a website version for teenagers who do not have access to such devices.
    - an attractive feature would be that users could create an avatar of themselves. The avatar would have the same age, weight, and physical characteristics of the user. Moreover, the avatar would be linked to the food registry and the game, and the user would be able to see how the avatar changes, depending on the registry of their meals and physical activity.

- The messages should be fun and use slang that teenagers use to talk to their friends with positivity.
- The messages of the program needed to inform high school teenagers about the consequences of unhealthy habits, such as chronic diseases.
- The messages should always focus on how and which habits can be useful to prevent these illnesses.

- The app should include a game that invited the participants to move around and be active. such as Pokémon go the participants play the game by collecting fruits, vegetables, and healthy snacks that would make their avatar healthier. The game should consume at least 30 minutes per day to make the participant move around and walk. The healthier foods the participant collected, the more points they would accumulate, and the points translate to a prize. Prizes could be coupons for healthy foods available at local businesses.
- The app also could include a virtual health-meter that looked like the speedometer of a car that goes from green to red according to the overall performance of the participant; the app would show how much healthy food and physical activity were combined.