01.114 Instructional Design of
Serious Games for Healthcare (AY2023 Term 7)

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Glucose Conquest

What is Glucose Conquest?

Glucose Conquest is a virtual pet simulation game designed to empower children dealing with Type 1 Diabetes (T1D). This innovative game turns education into an adventure, where young players care for virtual pets, manage their health, and learn vital skills like the know-how of taking glucometer readings and performing insulin injections.

Members

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Target Audience

Children aged 10 to 12, specifically those with T1D

Clinical Mentor

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Objectives Of Game

The game aims to educate the target audience (i.e., children) on essential diabetes management skills, including:

1. How to manage glucose levels with proper food intake, exercise and insulin
2. How to prepare and administer insulin injection
3. How to use a glucometer to measure glucose levels

Step 1: Choose A Pet

Allowing players to choose their pets provides them with a **sense of autonomy**, which in turn can motivate them to play the game, based on the Self-Determination Theory.

Step 2: Watch Tutorial

The tutorial aims to provide players with an **understanding of T1D**, including its causes and the importance of a healthy diet for individuals with T1D. As part of the tutorial, a quick walkthrough of the game can visually guide players on **how to play the game** before starting it, drawing inspiration from Vygotsky's Zone of Proximal Development Theory.

Step 3: Start Game

Players will have to balance a few parameters, namely the pet's **hunger, health and sugar level** to ensure that their pet remains healthy!

Hunger
Indicates the hunger level of the pet and signals when it's time to feed it.

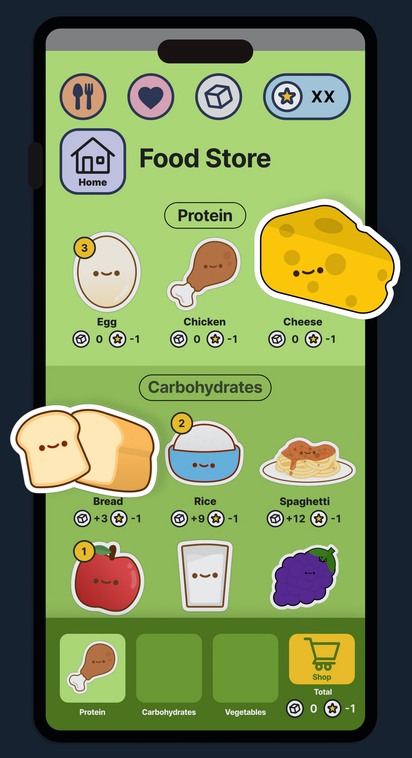
Health
Displays the health status of the pet, influenced by its hunger and sugar levels.

Sugar Level
Tracks the pet's sugar level. Uncontrolled sugar levels will negatively affect its health.

Game Coins
Earned through mini-games. Players can use these coins to purchase food for their pets.

Step 4: Food Store

Players can visit the food store to purchase food for their pets. Through the food store, they will learn more about the **importance of a balanced diet** (i.e., having adequate amounts of protein, carbohydrates and vegetables) and the **effects of certain food items on sugar levels.**



Protein

These are like tiny superheroes in the body, helping to build and repair tissues, provide energy, and support muscle movement and growth.

Carbohydrates

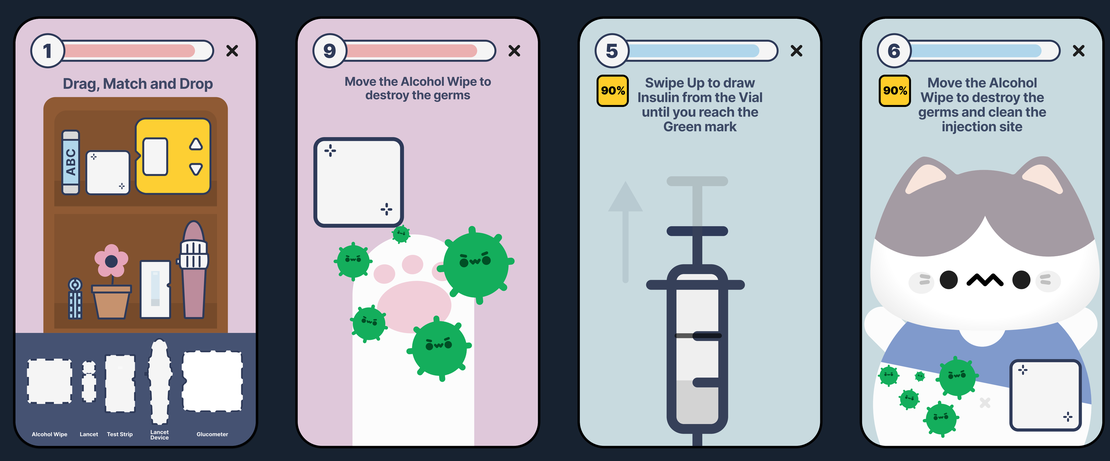
These are the body's favourite sources of energy, giving one the power to play, learn, and have fun every day!

Vegetables

These are like magical foods, enriching the body with important vitamins and minerals to keep one strong and healthy.

Step 5: Random Events

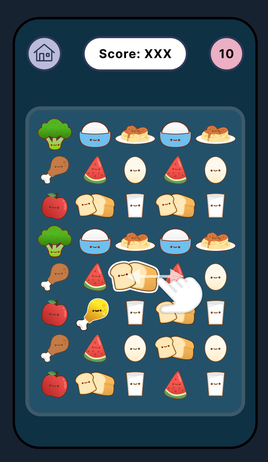
Random events may occur, such as the pet forgetting how to **measure its glucose levels or administer insulin**. In these situations, players must step in to assist by executing simple actions, like Drag and Drop or Swiping. Their **performance in these tasks will be assessed**.



Step 6: "Exercise"

Regular exercise can help to lower sugar levels too! Players can exercise with their pets, which comes in forms of **mini-games like Glucose Crush**.

Players can accumulate game coins by actively participating in the gameplay. The difficulty level of these games **dynamically adjusts according to the pet's health status**, adding an extra layer of challenge. This makes the gaming experience not only more **engaging** but also **reflective of the pet's well-being**.



Conclusion

- Glucose Conquest transforms the management of Type 1 Diabetes (T1D) into an engaging game, enabling children to learn about their condition in a **fun and effective** way.
- Glucose Conquest instils a **sense of responsibility** in players, as they take charge of managing their pet's hunger, health, sugar level, and game coins.
- Glucose Conquest provides newly diagnosed children with an **entertaining yet educational way** to learn about T1D.