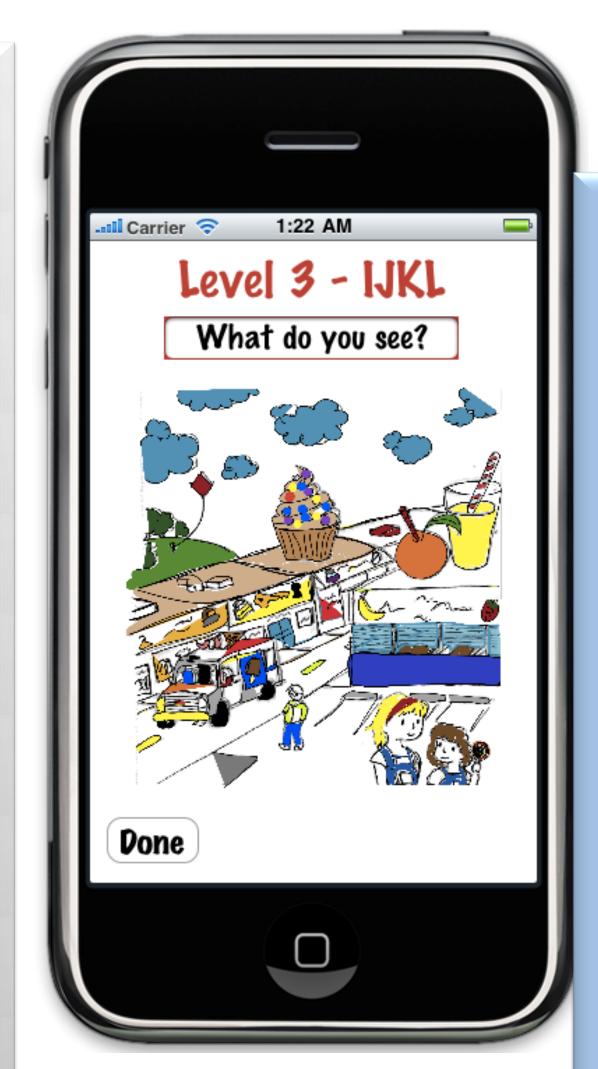# Motivating Adolescents to be Physically Active Using a Mobile Game

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Motivation

- An estimated 17% of adolescents aged 12-19 are obese (2007-2008 National Health and Nutrition Examination Survey).

- Obese adolescents are at risk for serious health problems such as Type II Diabetes.

- Amount of physical activity is related to lower obesity rates in youth.

- Physical activity levels decrease significantly during adolescence.

- New approaches are needed to address the problem of lack of physical activity in adolescents.

Theories and Goals

Understanding the factors that contribute to behavior adoption in adolescents is required when designing technology that will be motivating for adolescents. The following theoretical models guide our design:

- Theory of Meaning Behavior – the idea that internal motivators lead to long term behavior adoption

- Theory of Planned Behavior – the concept that behavior is a result of perceived control beliefs, perceived social norms, and perceived behavioral beliefs

Methods

- Game Design Requirements
  - Design a game application for the iPhone OS that uses the built in accelerometer
  - Game should motivate adolescents to walk more
- Game Description – Scavenger Hunt Game
  - Search for objects in images that pop up after walking for a predetermined number of steps
  - Objects hidden in each image must start with specific letters of the alphabet as displayed to the user
  - Game has 3 levels of difficulty: Beginner (1 mile); Intermediate (2 miles); and Challenge (3 miles)
- Game Evaluation
  - Conduct a focus group with a group of teenagers to test the game and gather feedback
  - Focus group goals:
    - Learn about game's entertainment value
    - Explore whether or not teenagers would like to continue using game
    - Explore usability problems
    - Learn about ways to improve the game and motivation

Results

- Most teenagers would play the scavenger hunt game outdoors and individually.
- They would do the challenge if they were walking a long distance for entertainment.
- It can be aimed at a wide group age (pre-teens and teenagers).
- Teenagers prefer challenging games – high scores and timed.
- They would like an activity log to keep track of their exercise.

Future Work

Improve the game by making it more challenging:

- Add timer
- Add levels – images
- Make it more difficult to find the objects
- Add an activity log – date and distance covered

Acknowledgements

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