Designing a Diabetes Self-Management Application for Underserved Populations

APPLIED COGNITIVE ERGONOMICS LAB

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Background

Diabetes

Every 30 seconds, one American will be diagnosed with diabetes and another will suffer a coronary event.[1]

It is the 7th leading cause of death, affecting 346 million people worldwide.[2]

Underserved populations are 60-65% more likely to be diabetic due to limited health literacy and access to care.[2]

Possible Effects and Symptoms

- Financial stress
- Depression
- High blood pressure
- Risk of heart disease
- Damage to blood vessels, nerves, eyes, and kidneys

Although there is no cure to type 2 Diabetes, it can be reversed. Normal blood sugar levels can be maintained without medication through healthy diets and weight loss.

Education on diabetes is important for prevention or early detection.

Mobile health application for Remote Patient Monitoring (RPM):
GlucoseCoach

Diabetes Self-Management App for Underserved Populations

Research Aims

Develop a mobile health application for patients with diabetes in underserved populations that provides health tracking features, educational content and connection with healthcare providers.
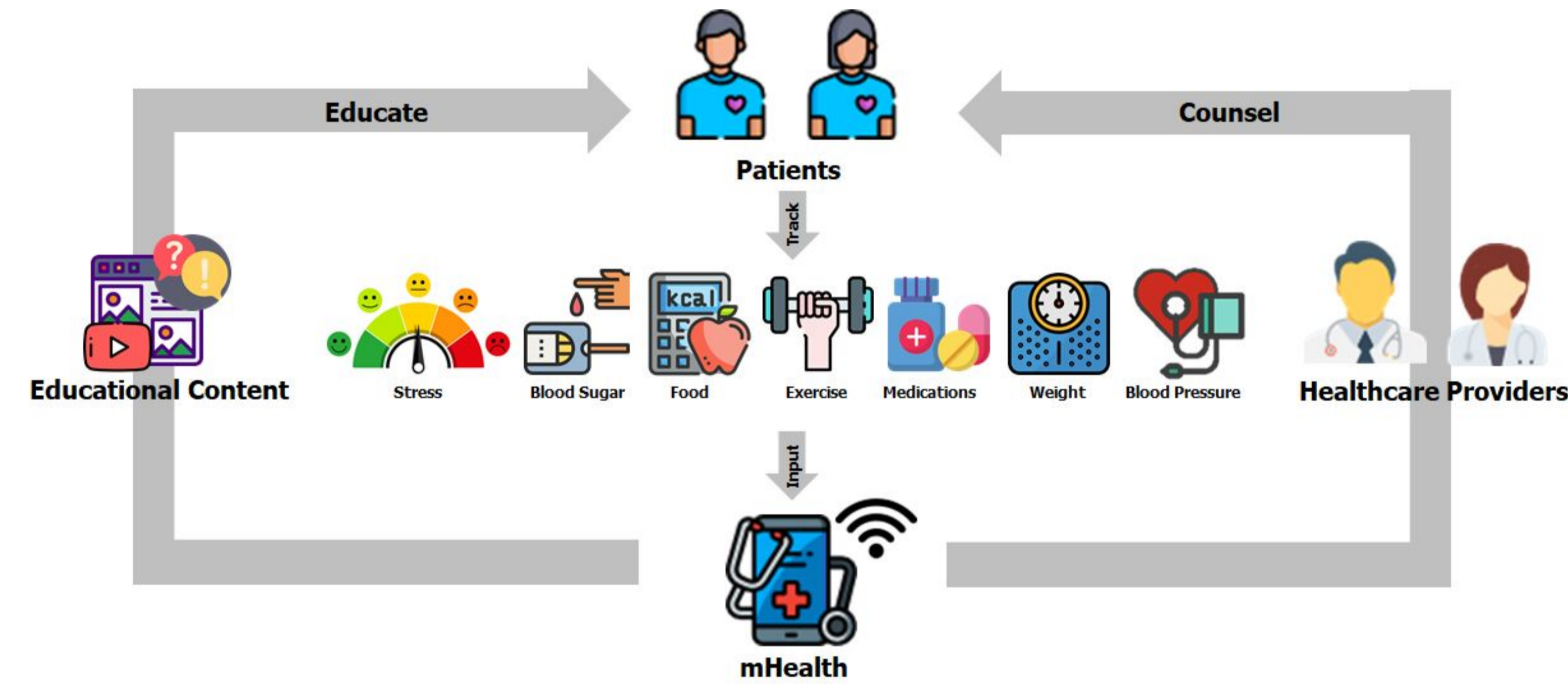

Methods

1. Interview Stakeholders
   a. Developed patient & physician interview instruments
   b. Interviewed 100 patients and 11 physicians
   c. Analyzed interview data
2. Market Research
   a. Reviewed free diabetes self-management apps
   b. Reviewed diabetes app literature
   c. Analyzed best-in-business diabetes apps
3. Functional Requirements:
   a. Specifications compiled
4. App Prototyping
   a. Created wireframes according to specifications
   b. User-experience design process
5. Usability Testing
   a. Usability study with patients with diabetes
   b. Focus group with nurse educators

Results

- Home screen features relevant measurements (blood pressure, blood sugar, etc.) and recents statistics on them.
- Capable of manually recording or syncying blood sugar/pressure, food intake, medication, stress, exercise, and weight.

- Data and statistics section visually may represent trends and insight into the patients' life.
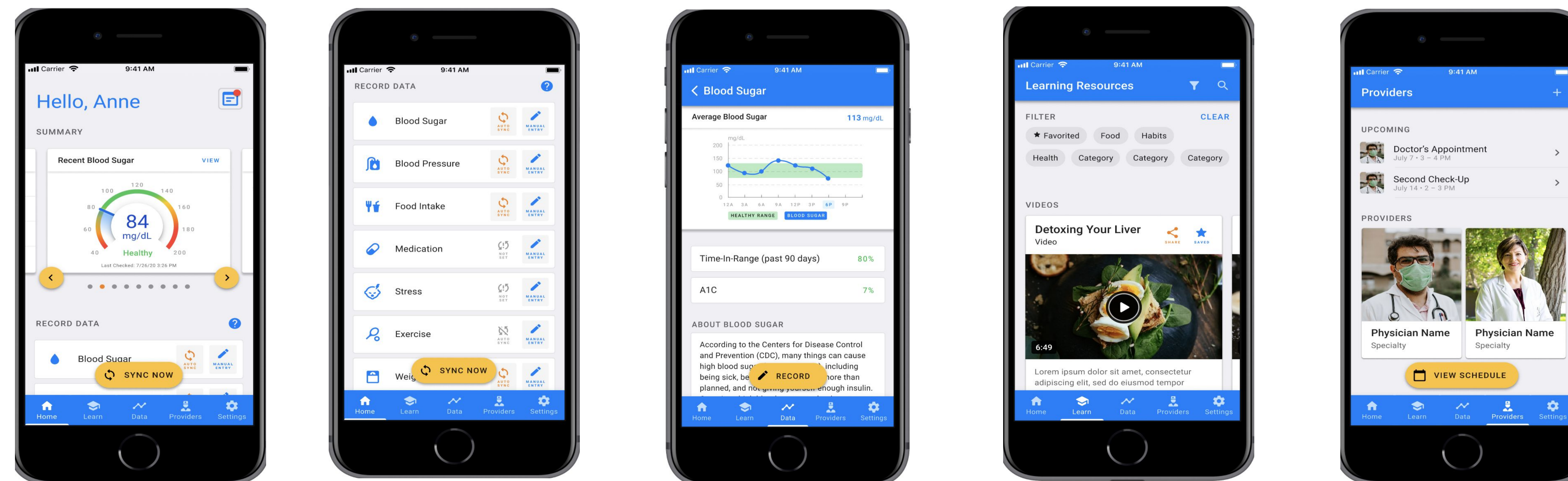
Future Work

- Additional round of usability testing focused on evaluating app design and flow.

- Collect reliable educational resources and develop educational scripts for the app.
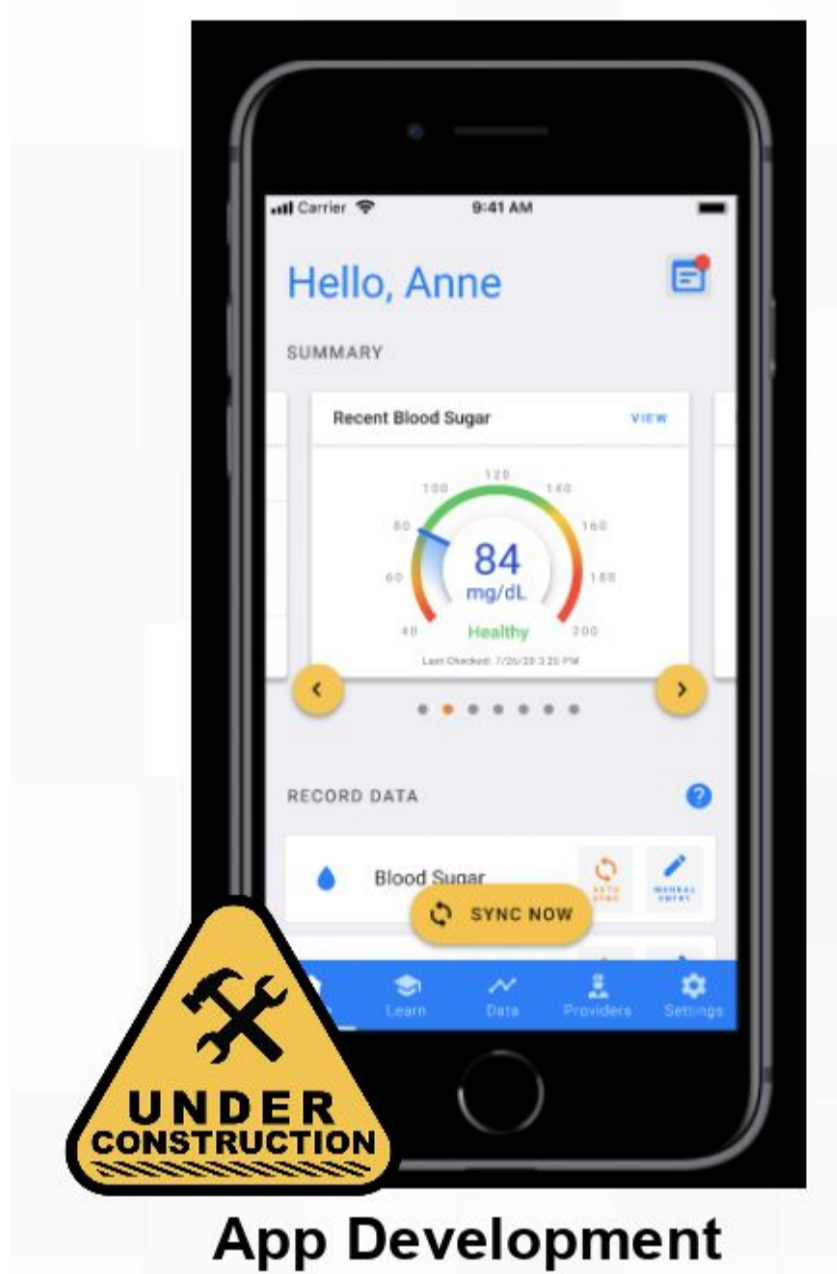
App Development

- Research devices and technology connectivity.

References

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2. To Tackle Health Disparities, Make Care More Affordable. (2020, March 16). Retrieved from https://familiesusa.org/resources/to-tackle-health-disparities-make-care-more-affordable/