SUNRISE: Using Mobile Games in Rural Tribal Communities to Promote Social and Emotional Resilience in Youth
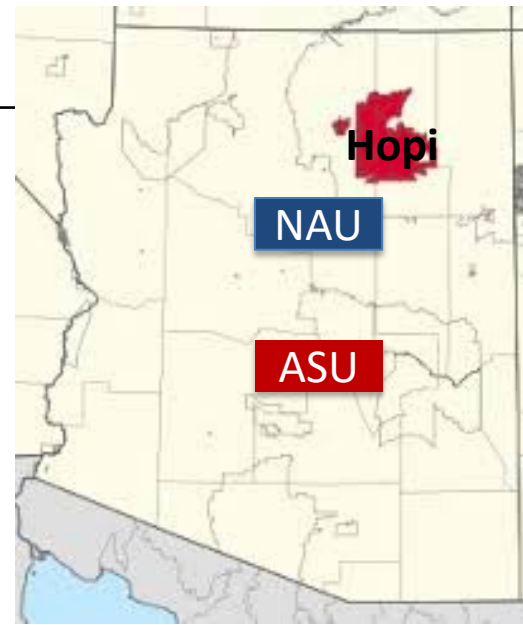## NSF 1951911
Morgan Vigil-Hayes, Northern Arizona University
PG, FY2020

Principal Research Investigators

Morgan Vigil-Hayes, Northern Arizona University (Comp. Sci.)
Ann Collier, Northern Arizona University (Psychology)
Darold Joseph, Northern Arizona University (Education)
Ashish Amresh, Arizona State University (Game Design)
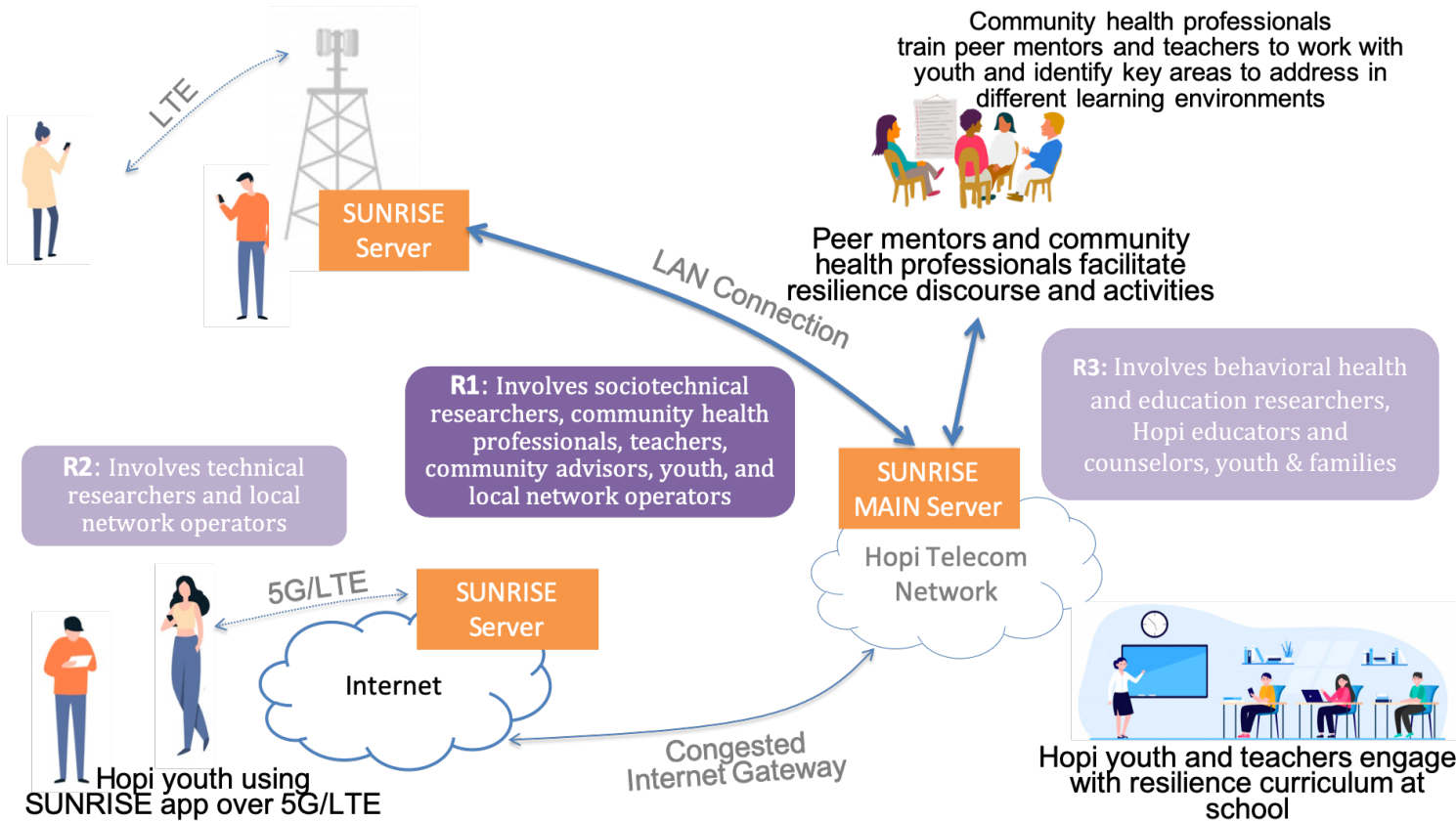Marissa Adams, Northern Arizona University (Public Health)

Community Partners

Hannah Honani, Hopi Opportunity Youth Initiative
Lexie James, Hopi Opportunity Youth Initiative
Eugene Cody, Hopi Opportunity Youth Initiative
Darrell Tsimoga, Hopi Telecommunications, Inc

Hopi
NAU
ASU

The Hopi village of Walpi on First Mesa
CREDIT WIKIMEDIA COMMONS/JEFF BRUNTON

Project Overview

Project Vision

- **R1: Applied:** *Implement, pilot, and evaluate a culturally-responsive mHealth system for Hopi youth implemented with a federation of locally-operated CBRS networks and multi-tiered trained behavioral health response*

- **R2: Fundamental Tech:** *Investigate architectural mechanisms necessary to coordinate synchronous and asynchronous application operations over federated small-scale cellular networks*

- **R3: Fundamental Social:** *Investigate the effectiveness of independent vs. community-led vs. expert-led intervention types for developing social and emotional resilience and the scaffolding required to support each type.*

Second Mesa on the Hopi Reservation in Arizona.
Photo: biotour13

Project Overview

Use-Inspired Research

PG Activities

- **Tribal youth experience significant behavioral health disparities compared to their non-tribal counterparts in the US**
- We are working with the **Hopi Opportunity Youth Initiative (HOYI),** which operates out of Kykotsmovi Village, AZ on the Hopi Reservation to develop a culturally responsive, sociotechnical behavioral health intervention to promote social & emotional resilience for Hopi Youth

- Complete alpha prototype of mHealth app for feedback from Hopi community members
- Create community–facing website for research project
- Recruit CAB participants and cultivate (digital) presence through radio ads, social media, and web site
- Continue developing app concept designs to evaluate along with alpha prototype
- Interview Hopi youth, teachers, elders, families, health workers, and leaders to identify key strengths and challenges around youth resilience and mobile technology
- Evaluate mobile broadband connectivity on Hopi and work with Hopi Telecom, Inc. to identify key locations for the deployment of CBRS base stations and hotspots.
- Host Zoom workshops for Hopi community members to get feedback on alpha prototype
- Grant writing workshop with researchers and community champions for submission to NSF SCC IRG for FY 2022
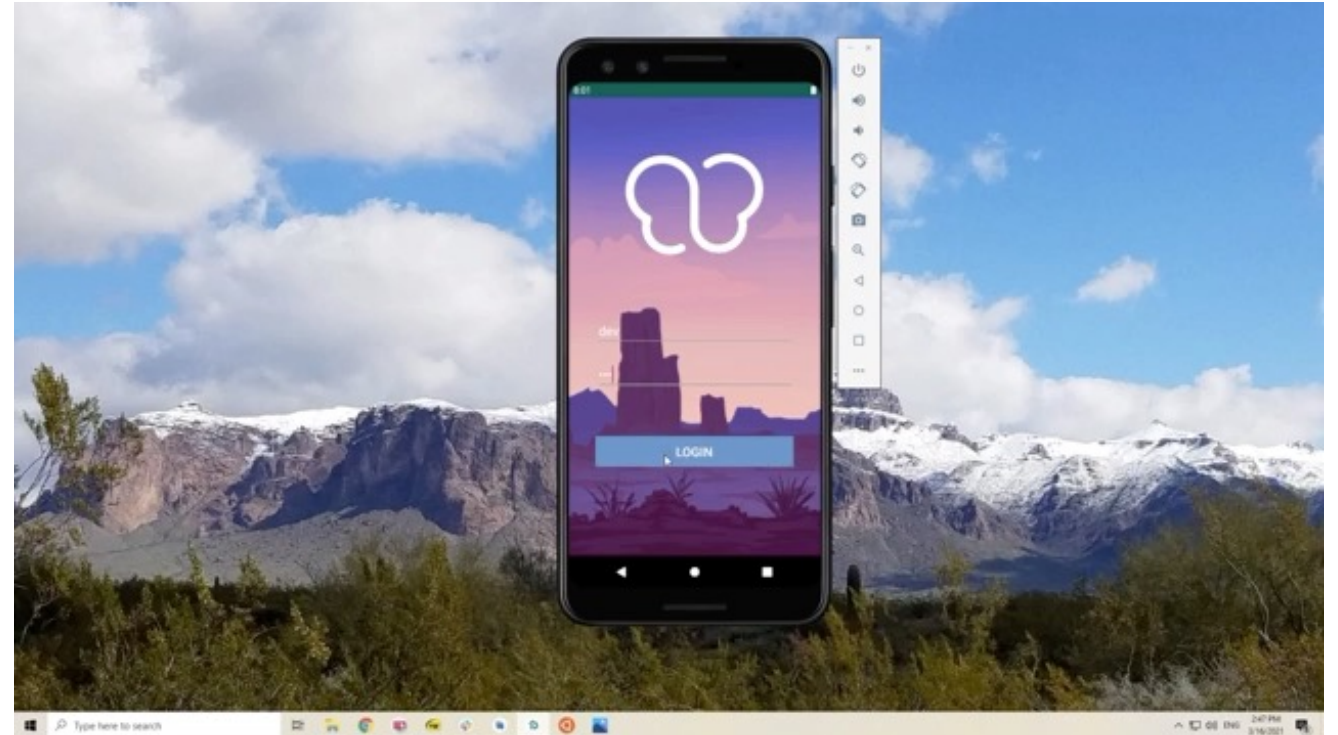
Project Update

Development of **app prototype** for feedback from Hopi youth and community members.

Interviewed five community members over Zoom, representing Hopi youth, school counselors, and teachers. Interviews with **12 more individuals being scheduled**.

Monthly meetings with all PIs and HOYI staff to discuss project progress, project communications with the community, and community needs.

Meetings with Hopi Telecommunications, Inc. with ongoing project to **measure mobile broadband coverage and availability on Hopi Reservation.**
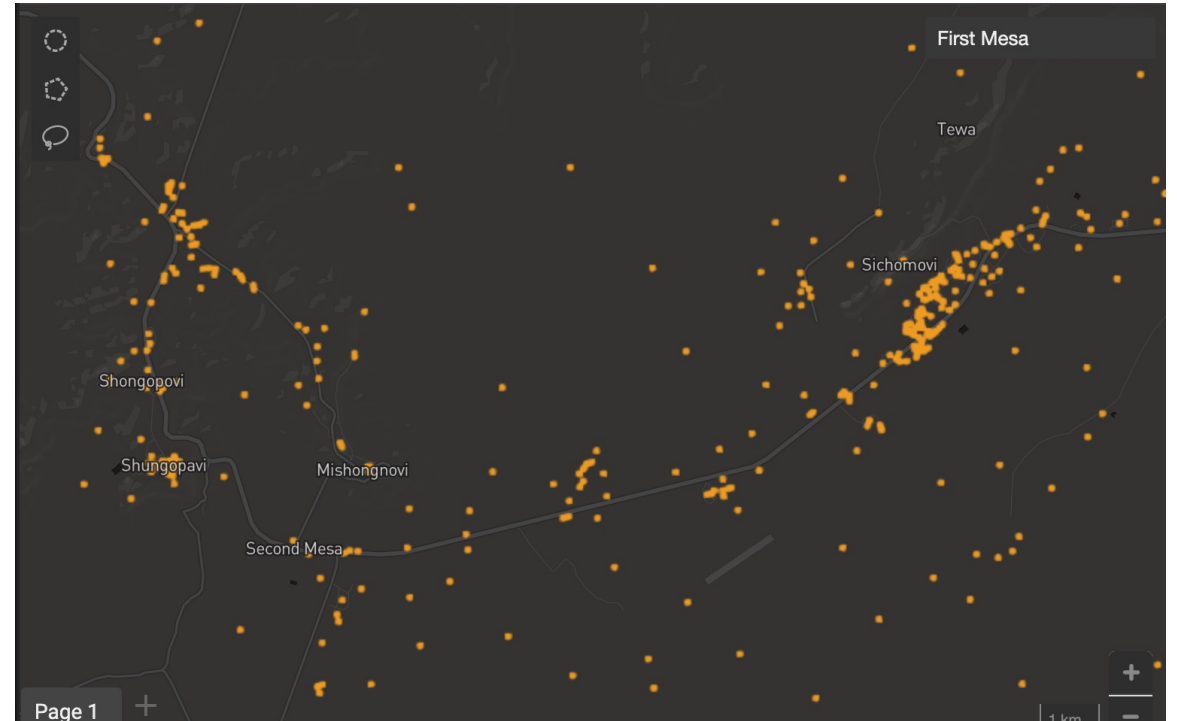

Demo of SUNRISE app prototype

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Examining broadband coverage and availability in Hopi

Project Evolution

"We learned that **youth preferred to discuss the challenges of hard times with peers**, rather than with adults. As a result, **we are re-evaluating our initial plan for how to bring behavioral health professionals and trained peers into the loop** for helping Hopi youth engage in activities and behaviors that promote resilience."

"We learned that Internet connectivity on the Hopi Reservation is an even more critical obstacle for sociotechnical systems than we anticipated, with a **significant challenge being the lack of gateway Internet capacity to the area**. As a result, we are **designing the network architecture for the SUNRISE Health App and Services to leverage local area network connectivity and to support operation in disconnected or intermittently connected states**."