Social Media and Mobile Devices in Nutrition Education

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Whole Grain Summit, 2015

Session 6: Technology and New Tools in Nutrition Education

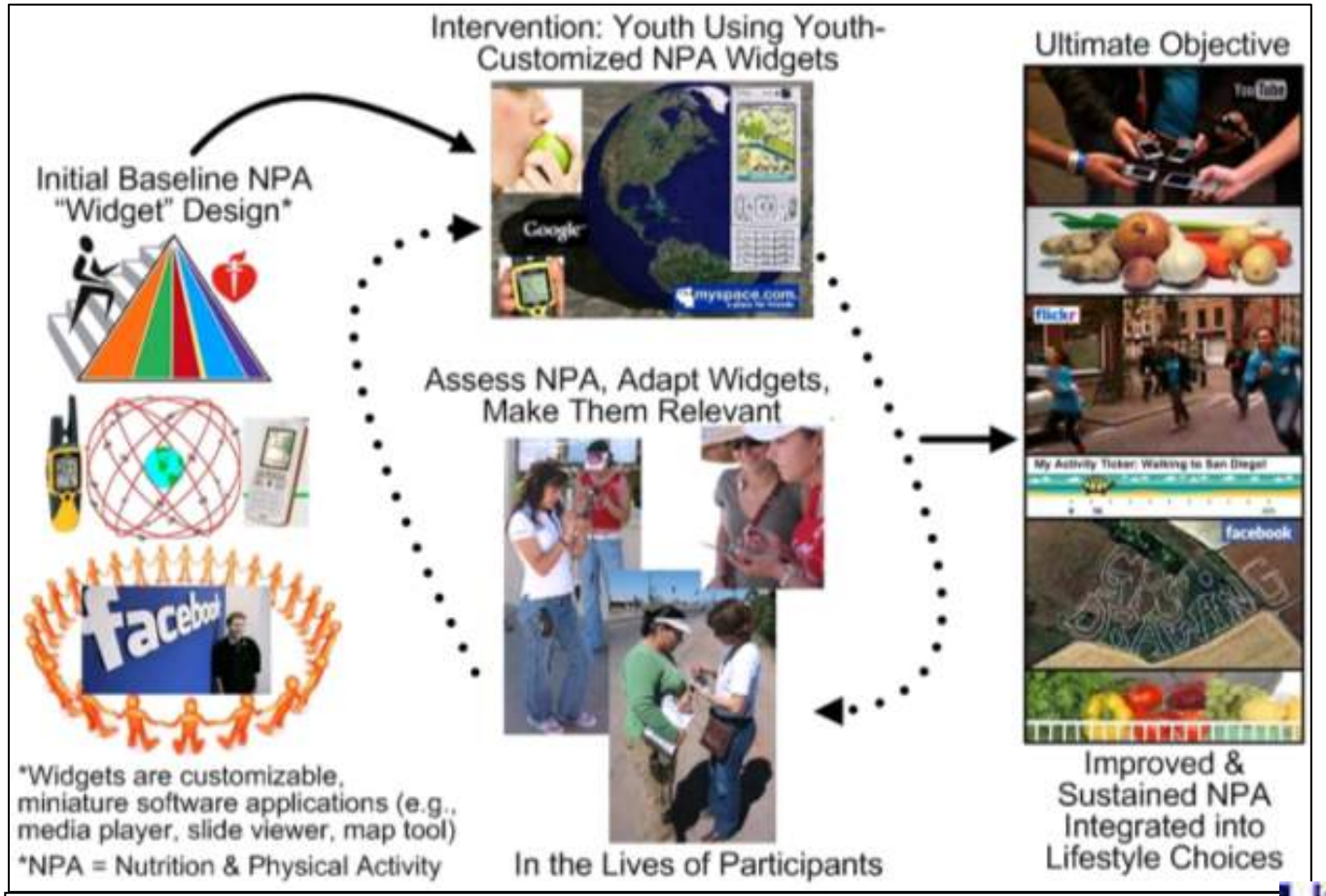
Thursday, June 25th, 2:00-3:30pm

ARIZONA | COLLEGE OF AGRICULTURE AND LIFE SCIENCES COOPERATIVE EXTENSION

NSc Department of Nutritional Sciences

Stealth Health Project

Youth Innovation, Mobile Technology, and Online Social Networking and Informal Learning to Promote Physical Activity



National Research Initiative Grant #2009552150518 from the USDA Cooperative State Research, Education & Extension Service

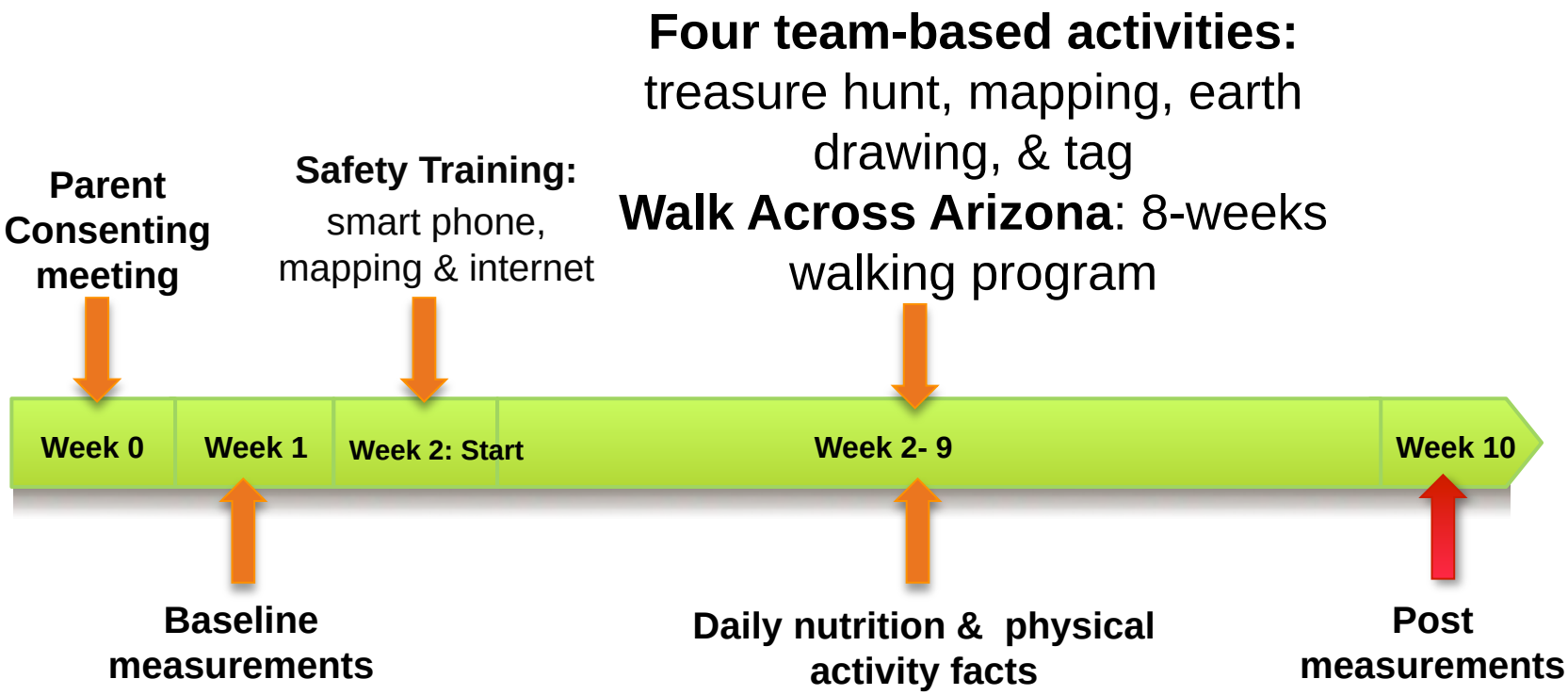
i-Challenge!, a pilot program

Objectives:

- To implement smart phone based nutrition and physical activity as part of a physical education class at a junior high school
- To evaluated participation in an 8-week program in youth using smart phone vs. paper version

eat right. Academy of Nutrition and Dietetics

Timeline


Four team-based activities:
treasure hunt, mapping, earth drawing, & tag
Walk Across Arizona: 8-weeks walking program
Parent Consenting meeting
Safety Training:
smart phone, mapping & internet
Week 0
Week 1
Week 2: Start
Week 2- 9
Week 10
Baseline measurements
Daily nutrition & physical activity facts
Post measurements

Study Design

- **Experimental** group: (Sequoia Pathway Academy, Maricopa, AZ)
  - Used smart phones during activities
  - Recorded daily walking miles using cell phone
  - Received weekly Newsletters on their cell phones
  - Instant scoreboard updates of total walking miles for each team
- **Control** group: (Hohokam Middle school, Coolidge, AZ)
  - No smart phones
  - Recorded daily walking miles on hard-copy sheets
  - PE teacher gave weekly Newsletters
  - PE teacher update the total walking miles for each team

Participants

- Total 49 youths in two schools participated
- Over 70% of enrolled students were participating in free or reduced meals program
- 11-14 years old, with 20 girls and 29 boys
- Experimental group (n=30), Control group (n=19)

Experimental group
wt:47.7±9.2kg, BMI:18.8±2.4

Control group
wt:57.5±14.8kg, BMI:24.3±5.2

Measurements

- Baseline & post-intervention measurements
  - Weight, Height, BMI
- Physical Activity: Pedometer
- Feedback survey after each team-based activity

Yamax Digi-Walker, SW200 pedometer

Post-Activity Feedback Survey

***Walk Across Arizona*: i-Challenge Treasure Hunt**

Post-challenge questionnaire

1. Your WAAZ User Name:_____

2. Did the i-challenge Treasure Hunt activity encourage or motivate you to be more physically active?
   - ☐ Yes
   - ☐ No

3. Was it fun?
   - ☐ Yes
   - ☐ No

4. Were the directions for using phone easy to follow?
   - ☐ Yes
   - ☐ No

5. How many steps did you have during the challenge today? _____ steps

6. Any comments or suggestions?

Thank you very much for your participation!!!

i-Challenge! WALK ACROSS ARIZONA

Smart Phone & Apps

- T-Mobile® myTouch 3G Slide™
- Android platform
- GPS capabilities
- Unlimited text messages
- The *Stealth Health* Project team: Arizona Research Laboratories, School of Natural Resources and the Environment, and NASA Space Grant Interns developed applications (*GeoKnect & GeoSnap)*

NASA

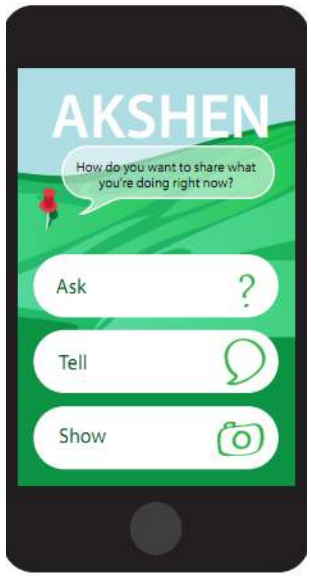
ARL

Knowledge for the Future

Applications

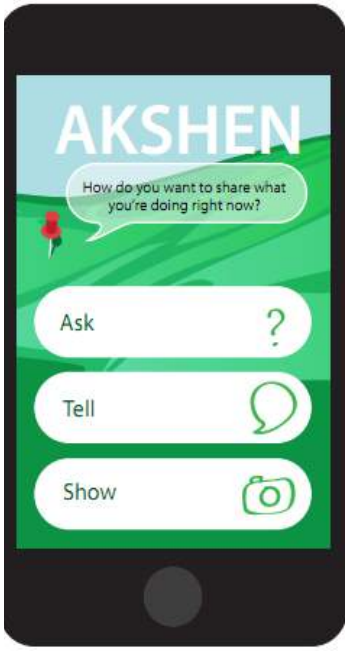
1. *GeoKnect*: GPS-based mapping

2. *GeoSnap*: camera-based that allows to share & find photos & stories near the user



GeoSnap & Project Website

Smart Phone Application created by UA *Stealth Health Project*



Project Website

Daily Text Messages

- Delivered one message per day afterschool hours
- PE teacher told a message per day
- 40 total messages were sent
  - Carrots were originally purple in color.
  - Vegetables and fruits have zero fat and lots of fiber, making them a good go-to snack!
  - Physical activity can improve your mood and decrease stress, while burning calories.

4 Activities

- Nutrition & physical activity-based activities
  - Treasure Hunt
  - Mapping
  - Earth Drawing
  - Tag
- Delivered during 50-minutes PE class
- Divided into 4 teams at the beginning of *i-Challenge!* program
  - Teams (Experiment): Blue, Yellow, Green, Red
  - Teams (Control): Bamboo, Egyptian, Pima, Upland

Activity 1:Treasure Hunt

When you get thirsty, you should drink this?

Hint:

The legend says that Juan Ponce de Leon died in search of the Fountain of Youth in the state of Florida. His statue is in Old San Juan, Puerto Rico. He became the first Governor of Puerto Rico.

Activity 2: Mapping

- Students mapped their favorite places in school.

GeoKnect Main Map Screen

Activity 2- Mapping – Control group

Activity 3: Earth Drawing

- Draw images on a ground.
- Vitamin Version – Vitamins A, C, D, and E.
- **Fact sheet - "Vitamin C** is found in fresh vegetables and fruits, such as oranges, watermelons, broccoli, kiwi, tomatoes, green peppers, and strawberries. This vitamin, also known as ascorbic acid, serves as an antioxidant that improves iron absorption and resistance to infection, playing a significant role in protecting the body against viruses and colds and boosting immune system function."

Earth Drawing

Activity 4: Tag

- **Tag**: relay race concept where nutrition & physical activity messages represented the baton. ~20 minutes, moderate to vigorous activity

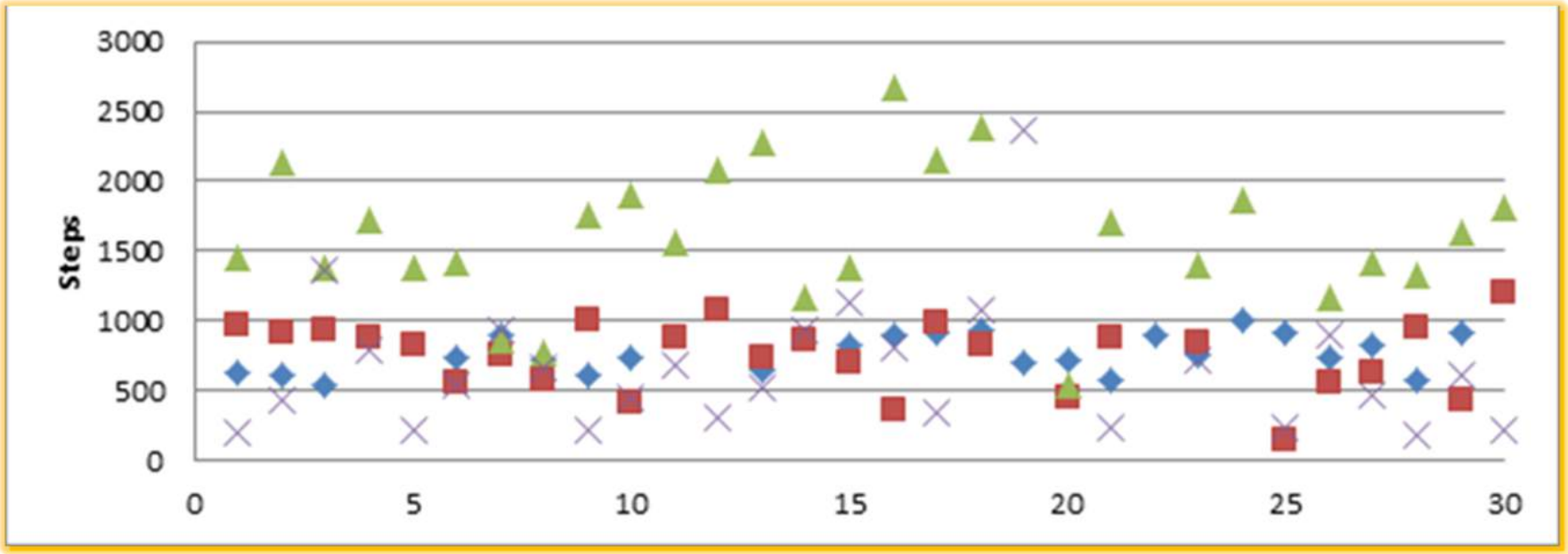
Activity	Average Steps Walked
Treasure Hunt	763
Mapping	754
Earth Drawing	1,603
Tag	648

Yamax Digi-Walker, SW200 pedometer

Post Survey: Motivation & Fun

Numbers of steps

Activity	% Motivated	% who had Fun	# of Participants
Treasure Hunt	58	85	26
Mapping	46	89	28
Earth Drawing	81	89	27
Tag	74	74	27



Summary

- The Earth Drawing activity motivated the most participants (81%) to be physically active
  - During this activity, on average ~1,600 steps (0.80 miles) were recorded
- Earth Drawing & Mapping activities were fun (>90%)

Walk Across Arizona (WAAZ) program

- **Community-based walking program**
  - Developed as part of university-community partnerships
    - College of Public Health & College of Agriculture & Life Sciences (Cooperative Extension)
  - **Started in 2001**, in response to a community needs assessment done in retirement community of Green Valley, AZ
    - Goal: “Promote healthier lifestyles using social network (sense of community) and team concepts.
  - Goals of the walking program were then to:
    - Encourage individuals to be more physically active
    - Increase satisfaction with one’s community

WAAZ website

http://cals.arizona.edu/walkacrossaz/

Log in miles via website

How to Enter Miles Walked

1. After being logged in, click on "**Track Your Miles**".

2. Click on a day from the calendar on which you want to add miles to.

3. Enter the amount of miles, minutes, **OR** steps you walked on that day. If you did a different activity, please look at the following conversion chart to help **convert your activity to miles**. Press **"Save"**.

Team Standing page

UA Program 2013
Program Details Page

Team Name	Miles Walked This Week	Total Miles Walked
DEM Lifesavers	213.72	4207.31
Caminantes	117.53	3741.56
Library Heat	201.13	3446.09
Extension River Walkers	124.50	3131.68
Library Catwalkers	137.62	2791.79
Risky Walkers	129.06	2591.90
Police Beat Feet	158.63	2567.08
Tomattinis	126.00	2383.05
IT Cat Tracks	98.51	2330.72
Walking Ramblers	96.71	2320.95
LWC Wellness Walkers	182.56	2310.71
SBS Happy Feet	104.40	2075.15
Engineered to Walk	110.47	1974.70
NUTS about Nutrition	64.38	1654.62
Red Polos	15.16	1650.14

Paper version of WAAZ program

WAAZ Steps Sheet

Date	Monday November 28	Tuesday November 29	Wednesday November 30	Thursday December 1	Friday December 2	Saturday December 3	Sunday December 4
Steps							
Date	Monday December 5	Tuesday December 6	Wednesday December 7	Thursday December 8	Friday December 9	Saturday December 10	Sunday December 11
Steps							

WAAZ Steps Sheet

Date	Monday November 28	Tuesday November 29	Wednesday November 30	Thursday December 1	Friday December 2	Saturday December 3	Sunday December 4
Steps							
Date	Monday December 5	Tuesday December 6	Wednesday December 7	Thursday December 8	Friday December 9	Saturday December 10	Sunday December 11
Steps							

Smart phone vs. Paper version

- Did students keep a log of miles walked on a website more days using smart phone during the program period?

Results & Summary

- 80% of experimental group recorded miles, compared with only 58% of control group did.
- For comparing frequency of recording miles between experimental and control groups, the Chi-squared test gave a p-value of 0.10
- Since data were highly skewed, used the Wilcoxon rank-sum test
- The test gave a p-value of 0.1194
  - At $\alpha = 0.05$ significance level, conclude that association is not significant between 2 groups
- No significant association between frequency of recording miles and total distance between experimental and control groups.

Conclusions

- Preliminary data suggests that smart phone-based interventions have the potential to enhance physical activity.
- Lack of significance in tracking physical activity may be due to small sample size, so a larger study might find a significant association.
- Further explore nutrition and physical activities using mobile technologies in different populations and programs may contribute to the reduction of obesity risk.

Post-intervention…

- Christmas Door Decorating Contest at the control school

"Don't eat too much cookies!"

Acknowledgements

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Questions

College of Agriculture and Life Sciences Cooperative Extension

Knowledge for the Future

Academy of Nutrition and Dietetics