

Salud America!

Pilot Investigator Project Results

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Project Title

Integrating Dance Dance Revolution (DDR) to Promote Urban Latino School Children's Physical Health and Academic Achievement: Project GAME



Study Aims

- To examine the impact of DDR-based exercise on students' daily physical activity levels, health-related physical fitness, and academic performance
- To explore children's experiences with DDR-based exercise program



Participants

- 268 upper elementary school children in 2009; age: 9-12 years; 73% from Latino immigrant families
- Setting: Rose Park Elementary School, Salt Lake City, UT; The highest obesity rate (40%) in the state



Research Design

- A crossover repeated measures design; recess
- Baseline data: August-September 2009
- The participants were assigned to one of two groups: (a) intervention group: 4th graders (three 30 min. exercise program/week); and (b) comparison group (no structured exercise at school).
- Multiple assessments over 2 years



Instrumentation

- 1-week daily physical activity levels: SPARK checklist
- Health-related physical fitness: FITNESSGRAM
- Grades in reading and math: the Utah Criterion-referenced Test
- Students' perceptions: in-depth interviews

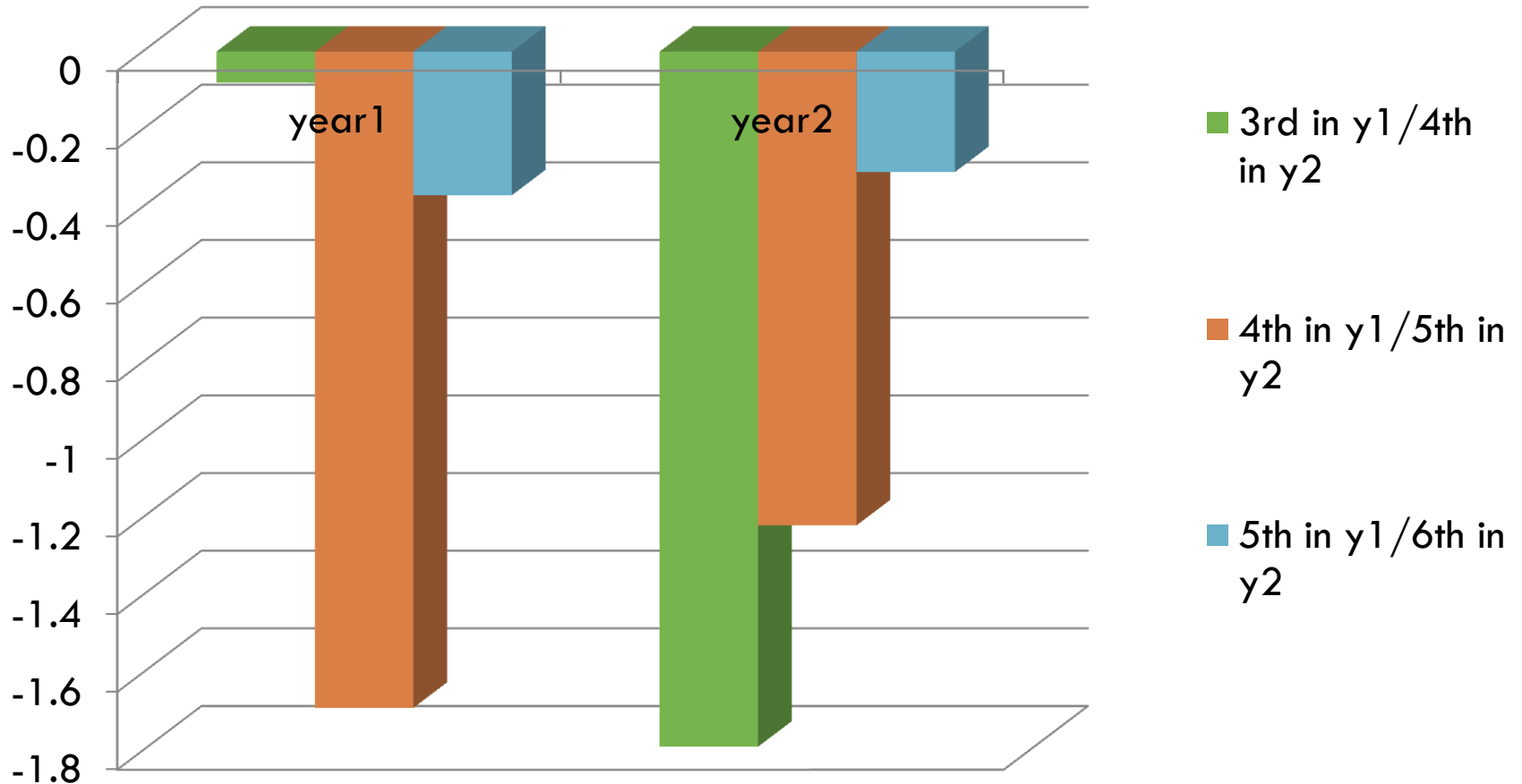


Data Analyses

- 1. ANCOVA (1 mile run)
- 2. Logistic regression analyses (BMI)
- 3. A one way ANOVA (Math; Reading)
- 4. Atlas.ti

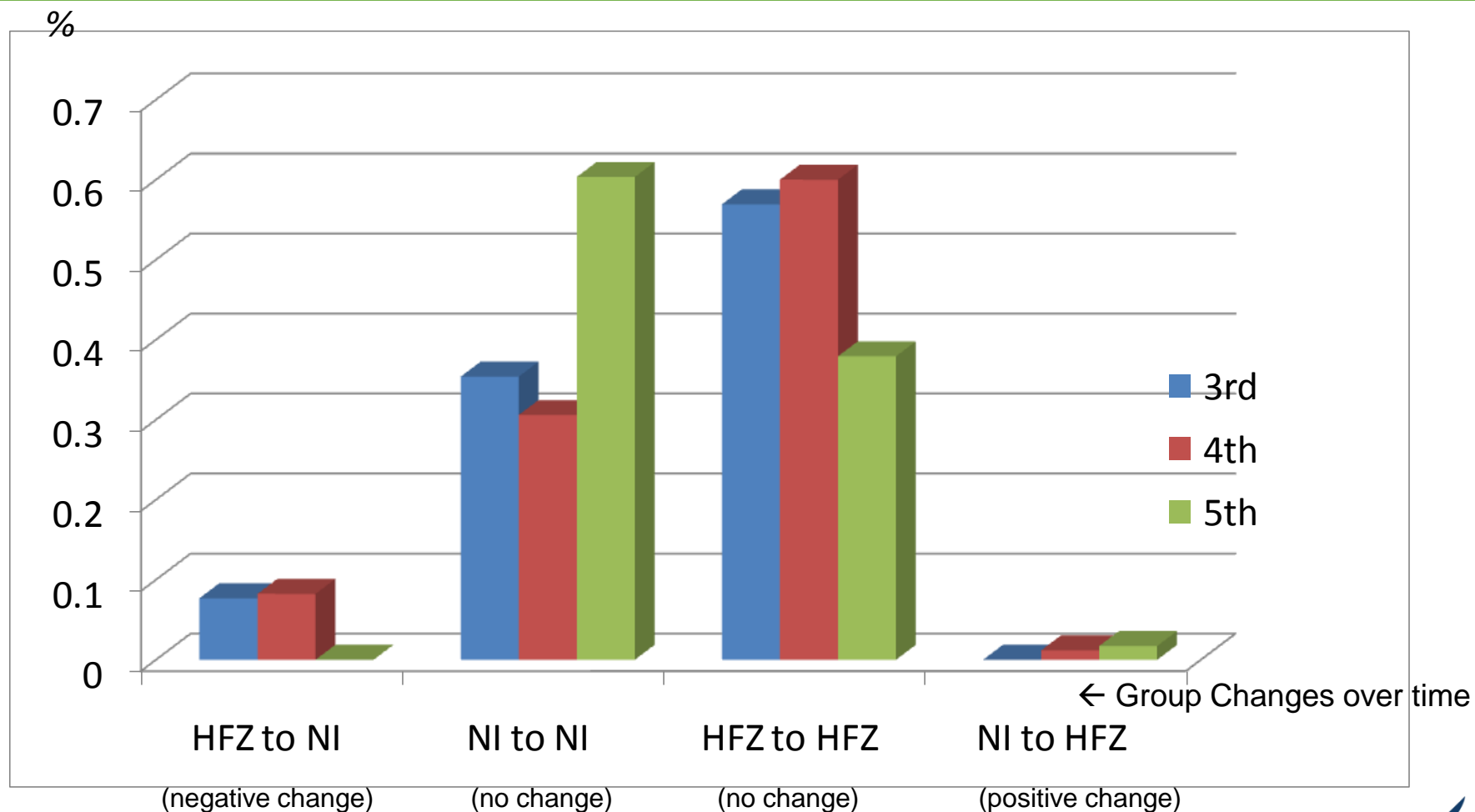


1 Mile Run time (gain scores)



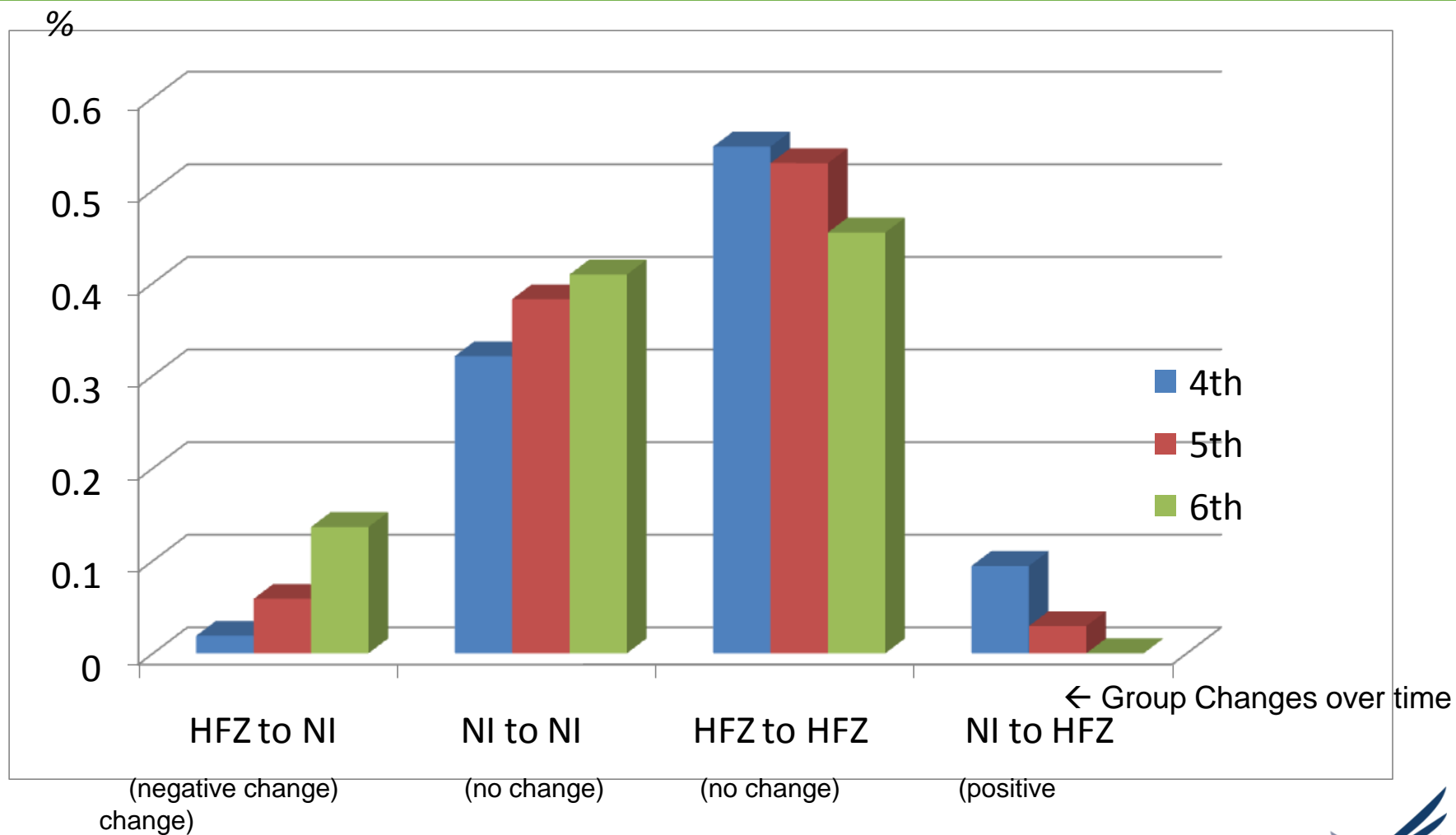
F(year1)=7.56, P<.01, N=208; F(year2)=1.56, p>.05, N=165

BMI Status Changes (Year 1)



Health fitness zone=HFZ; Need improvement =NI

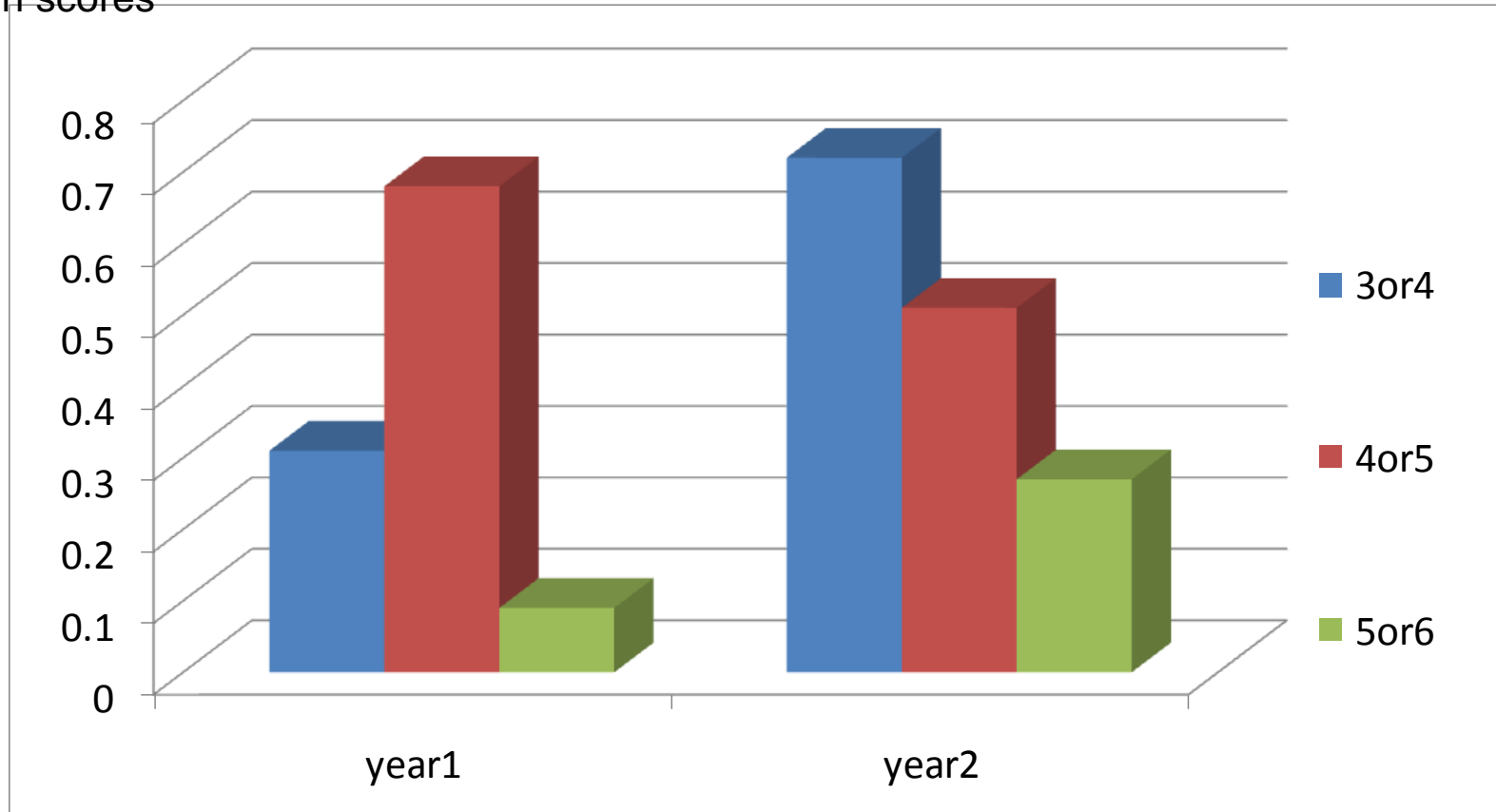
BMI Status Changes (Year 2)



Health fitness zone=HFZ; Need improvement =NI

Math Gain Scores

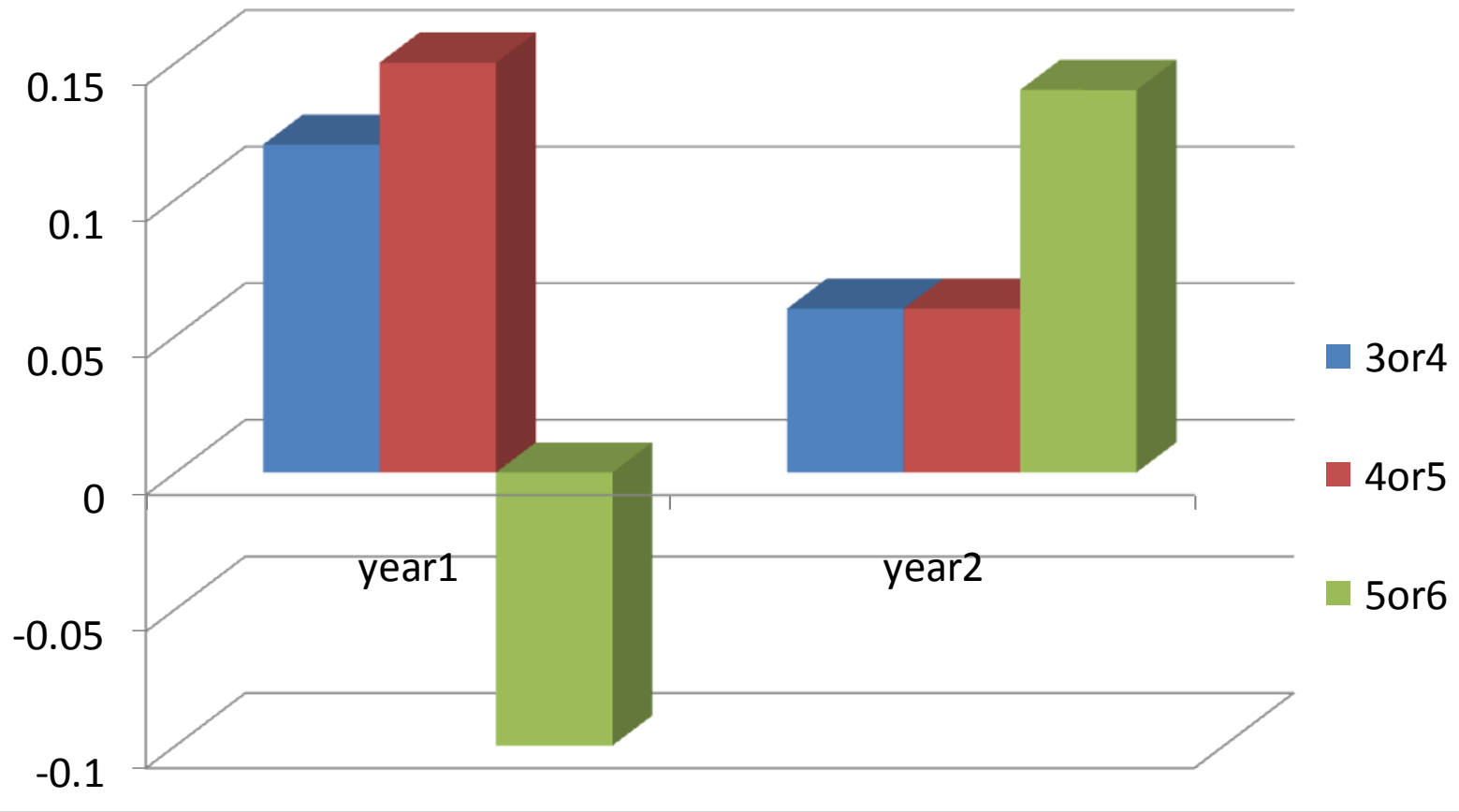
Gain scores



$F(\text{year1})=8.89, p<.01, N=208$ $F(\text{year2})=3.60, p<.05, N=165$

Reading Gain Scores

Gain scores



$F(\text{year1})=3.56, p<.05$

$F(\text{year2})=.20, p>.05$



Qualitative Results

Sample question: “In what ways has participating in the exercise program affected your 1-mile run?”

The responses primarily centered around three themes: (a) run faster (e.g., help me getting faster), (b) gain more energy (e.g., move your feet could make you have more energy like run), and (c) no changes (e.g., the same).



Project Policy Implications

- Hawthorne Elementary School; 2010
- Three Texas elementary schools; 2011
- Texas Home school kids; 2011



Project Activity Changes

- A center activity station (e.g., jump rope, aerobic dance)
- DDR for 15 minutes
- Center activities for 15 minutes
- Switch



Project Presentations

- Gao Z, Valdez VE, and Xiang P. “The impact of structured exercise program on urban children’s physical health and academic performance,” at annual meeting of World Congress of Exercise is Medicine, June 2nd, 2011, Denver, CO.
- Gao Z. “Project GAME,” at annual meeting of International Conference on Sport Science (Lifestyle management: A long-term wellness education), July 20th, 2011, Hong Kong (Keynote Speaker).
- Gao Z. “Project GAME: Gaming Approaches for More Exercise,” at annual meeting of The Society of Chinese Scholars on Exercise Physiology and Fitness, July 17th 2011, Kao Hsiung, Taiwan (Keynote Speaker).



Publications

- **Gao, Z.,** Valdez, V.E., & Xiang, P. (2011, May). Impact of structured exercise program on urban children's physical health and academic performance. *Medicine and Science in Sports and Exercise, 43(5), S23.*
- **Gao Z.** “Impact of an interactive video game on urban children’s academic motivation and performance.” *The Journal of Comparative Physical Education and Sport.* In press, 2011.



Grants Submitted/Awarded

- Pilot project related proposals
 - **Gao, Z., & Valdez, V.E. (2009).** *Impact of Physical Activities on Urban Latino Children's Physical Fitness, Self-esteem and Academic Performance.* The University of Utah Interdisciplinary Seed Grant. \$12,000. Funded. (PI).
 - **Gao, Z., Stodden, D., & Feng, D. (2011-2014).** *Impact of Interactive Video Games on Minority Children's Health.* National Institutes of Health PA-10-070 Academic Research Enhancement Award (Parent R15: 1R15HD071514-01). Priority Score: 29. Pending Council Meeting. \$432,200. (PI).
 - **Gao, Z., & Stodden, D. (2011-2014).** *Impact of Interactive Games on Underserved Minority Children's Motor Skills and Fitness.* J. R. Albert Foundation. \$144,655. Not Funded. (PI).

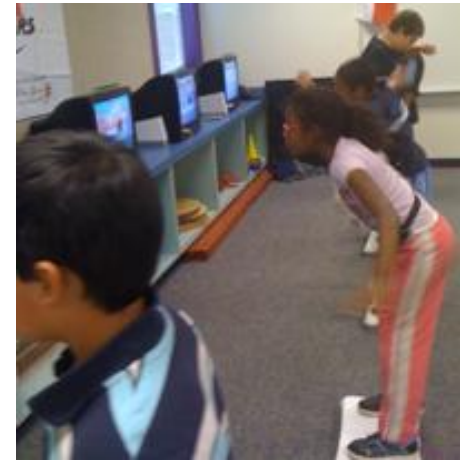
Grants Submitted/Awarded

- Not related proposals
 - **Gao, Z.**, Hannon, J.C., & Newton, M. (2010-2013). *The Impact of Classroom-based Physical Activity (Take 10!) on Underserved Children's Exercise Motivation and Physical Health*. The University of Utah College of Health Research and Creative Grant Competition. \$5,000. Funded. (PI).
 - Esperat, C., Feng, D., Stodden, D., **Gao, Z.**, Cooper, J., Chauncey, K., Boylan, M., McMurry, L., Song, H., Flores, D., Billings, L., & Borrego, J. (2011). United States Department of Agriculture-AFRI Childhood Obesity Prevention 2011. *Transformacion Para Salud: Prevention and Control of Overweight and Obesity among Children in West Texas*. \$2.5M. Pending. (Co-PI)



Career Development

- The RWJF pilot award enabled us to secure a University of Utah Interdisciplinary Seed Grant. The total award is \$12,000, which would not have been possible without the RWJF funding.
- The pilot award helped us to apply for a NIH grant. It is currently pending for council meeting for funding in September 2011.



Future Plans

- Continue analyzing data from pilot study results.
- Prepare two manuscripts for publication (first year findings; and overall findings).
- Apply for NIH new FOA (PA-11-327). Healthy Habits: Timing for Developing Sustainable Healthy Behaviors in Children and Adolescents (R01) .

