

# Exploring the importance of lifestyle characteristics for developing interventions to increase fruit and vegetable consumption



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# Background



- Diets high in fruit and vegetable consumption are associated with a lower risk for:
  - ✦ Several different types of cancers
  - ✦ Several chronic diseases and conditions (e.g., diabetes, cardiovascular disease)
  
- Changing eating behavior involves lifestyle adjustment

*U.S. Department of Health and Human Services (2005)*

# Study Overview



- Purpose:
  - To examine whether fruit and vegetable consumption rates differed among adults classified into different lifestyle groups
    - Also looked to see whether lifestyle interacted with ethnicity
  
- Rationale:
  - Using lifestyle variables to segment an audience might work well for lifestyle-based behavior (e.g., physical activity, nutrition)

# Research Design



- Research Design
  - Quantitative, cross-sectional survey (English and Spanish)
  - Telephone
  - Mid February to end of April 2006
  - Multiple MSAs across the country
  - Adults ages 18-74
  
  - N = 1,588

<b>Location</b>	<b>Percent (%)</b>
Miami, FL	2.65
Los Angeles, CA	4.35
Johnstown, PA	5.23
St. Louis, MO	6.39
Rochester, NY	6.93
Indianapolis, IN	7.12
Philadelphia, PA	7.18
Albuquerque, NM	8.38
Cincinnati, OH	8.76
San Francisco, CA	9.07
Spokane, WA	9.07
Provo, UT	10.14
Laredo/Mission, TX	14.20

# Survey Design



- Fruit and vegetable consumption was measured by six items from the BRFSS
  - *How often do you drink fruit juices?*
  - *Not counting juice, how often do you eat fruit?*
  - *How often do you eat green salad?*
  - *How often do you eat potatoes not including french fries?*
  - *How often do you eat carrots?*
  - *Not counting carrots, potatoes, or salad, how many servings of vegetables do you usually eat?*
- Race/ethnicity measured by one item
- Lifestyle was measured using a 35-item consumer marketing scale developed by Stanford Research Institute Consulting's Business Intelligence group (SRIC-BI)
  - VALS™

# Survey Design

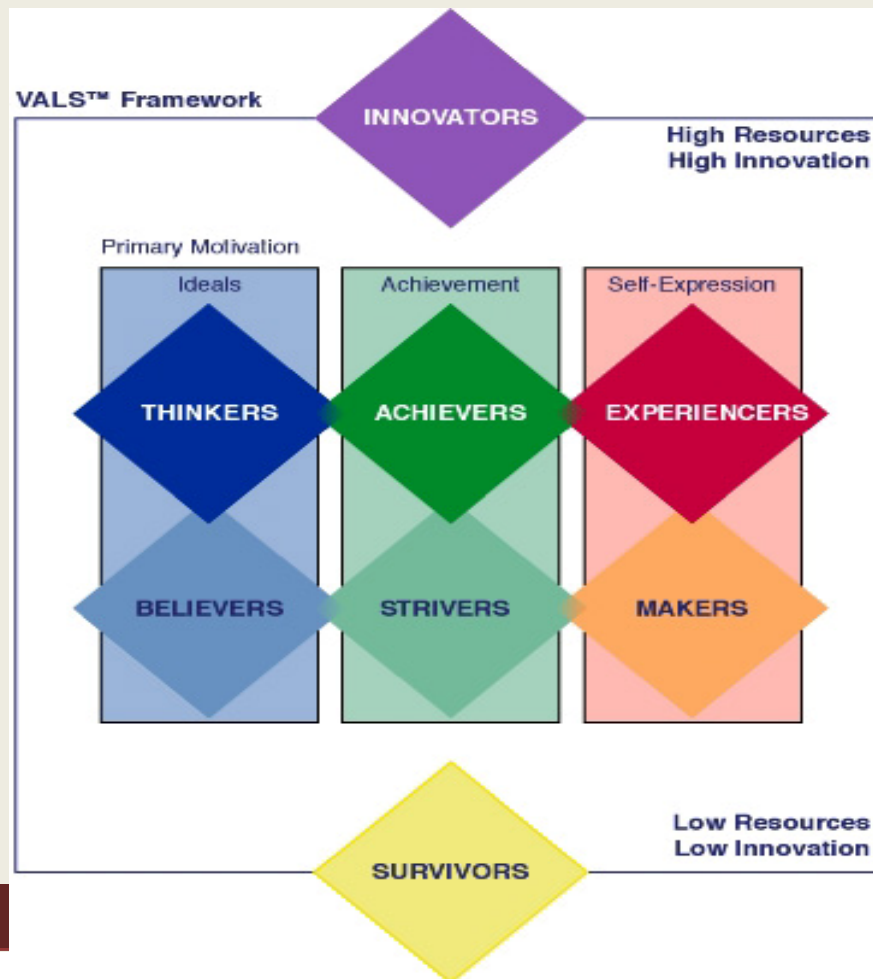


- VALS™
  - Widely used in private sector
  - Asks 5 demographic questions
    - ✦ age, income, marital status, gender, educational attainment
  - Asks a battery of 35 general lifestyle questions
    - ✦ Questions were not necessarily health related
      - e.g., “*I am often interested in theories*” or “*I would rather make something than buy it*”
  - Classifies respondents into a group of people that lead similar lifestyles
    - ✦ 8 lifestyle groups in total

# Survey Design



- VALS: [www.sric-bi.com/VALS/types.shtml](http://www.sric-bi.com/VALS/types.shtml)



# Analyses



- Interested in whether fruit and vegetable consumption differed by racial/ethnic groups and/or by lifestyle
- 2 x 2 factorial ANOVA
  - ✦ Predictors = race/ethnicity and lifestyle group
  - ✦ Outcome = self-reported fruit & vegetable consumption



# ANOVA Results



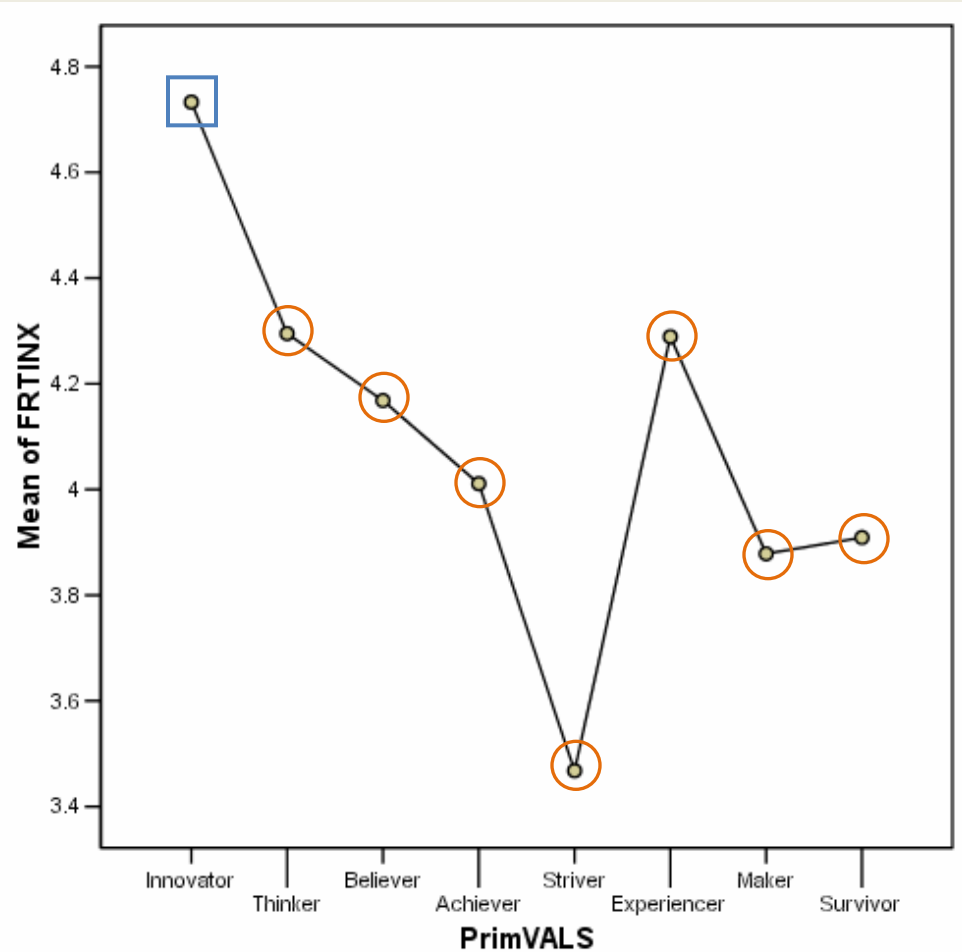
- Significant main effect for lifestyle group
  - ✦  $F = 2.653$   $df(7, 1524)$ ,  $p = .010$
- No interaction between race/ethnicity and lifestyle group
  - ✦  $F = 1.126$   $df(22, 1524)$ ,  $p = .310$
- No main effect for race/ethnicity
  - ✦  $F = 1.363$   $df(5, 1524)$ ,  $p = .236$

# Post Hoc Comparison Results



- Innovators

- Consumed significantly more F&Vs than any other group
- VALS characteristics:
  - ✦ Successful, sophisticated, take-charge
  - ✦ High self-esteem
  - ✦ Most receptive to new ideas and technologies
  - ✦ Very active consumers
  - ✦ Buy upscale, niche products and services

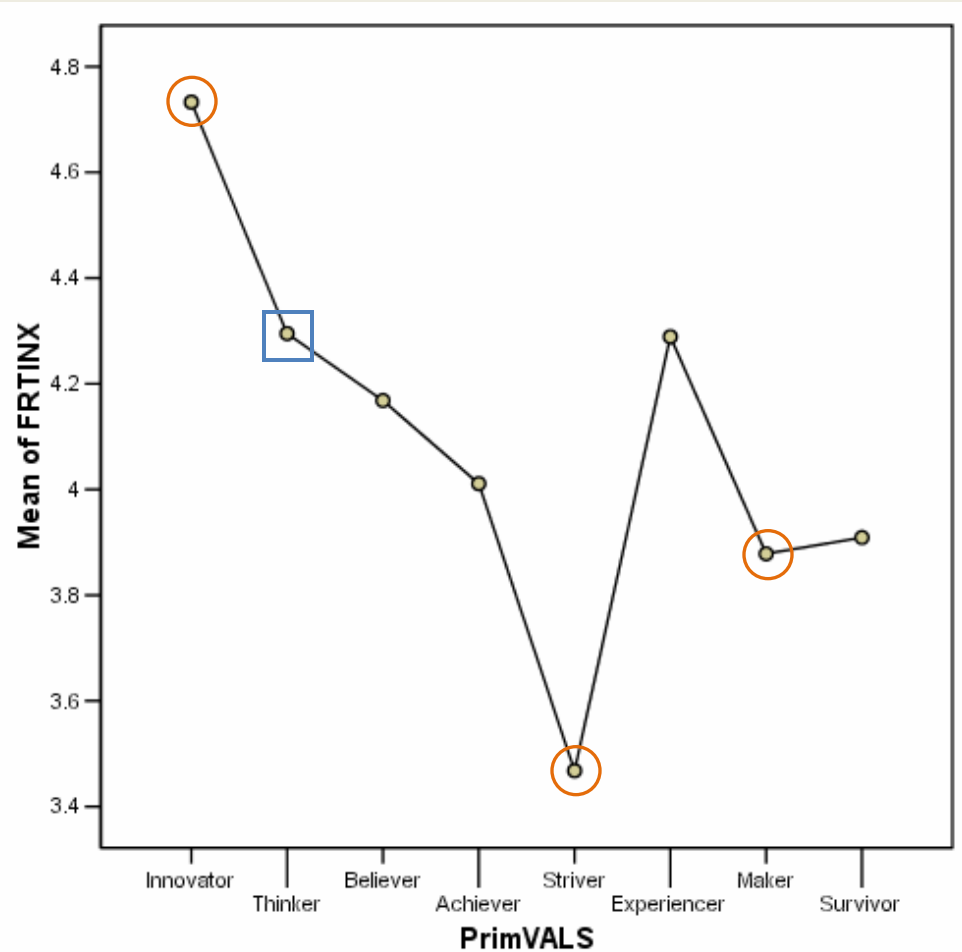


# Post Hoc Comparison Results



- Thinkers

- Consumed significantly more F&Vs than Strivers and Makers, but less than Innovators
- VALS characteristics:
  - ✦ Motivated by ideals
  - ✦ Mature, satisfied, comfortable
  - ✦ Value order, knowledge, and responsibility
  - ✦ Well-educated
  - ✦ Seek information for decision-making

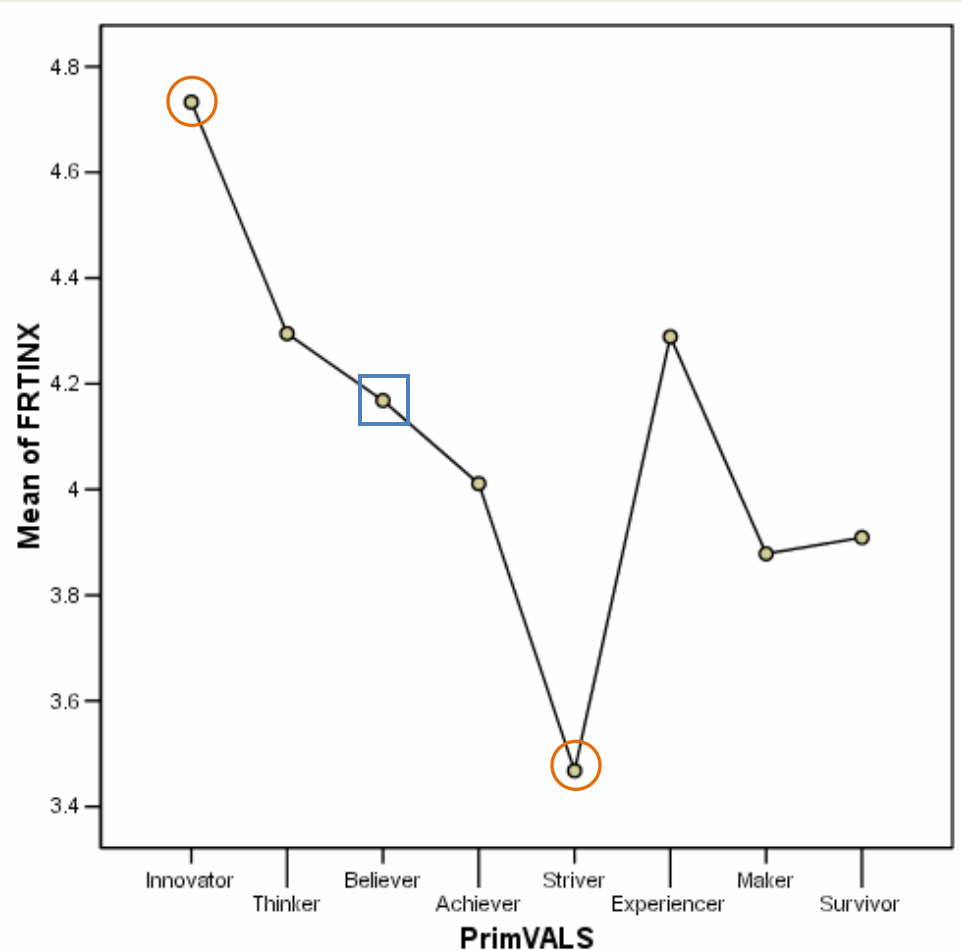


# Post Hoc Comparison Results



- Believers

- Consumed significantly more F&Vs than Strivers, but significantly less than Innovators
- VALS characteristics:
  - ✦ Motivated by ideals, like Thinkers
  - ✦ Conservative, conventional, moral
  - ✦ Concrete, traditional beliefs in family, religion, community, and the nation
  - ✦ Established routines

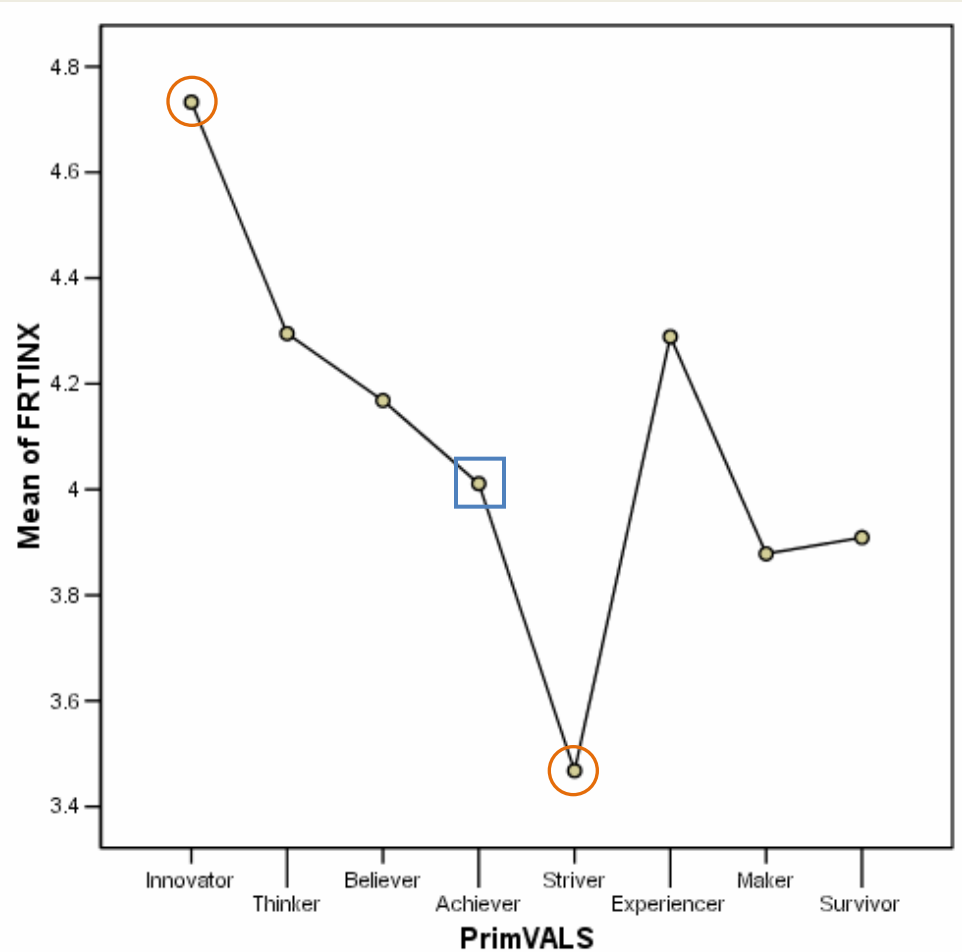


# Post Hoc Comparison Results



- Achievers

- Consumed significantly more F&Vs than Strivers, but significantly less than Innovators
- VALS characteristics:
  - ✦ Desire achievement
  - ✦ Goal-oriented, conventional, predictable
  - ✦ Hold deep commitment to career, family, and religion.
  - ✦ Respect authority and status quo
  - ✦ Value consensus and stability

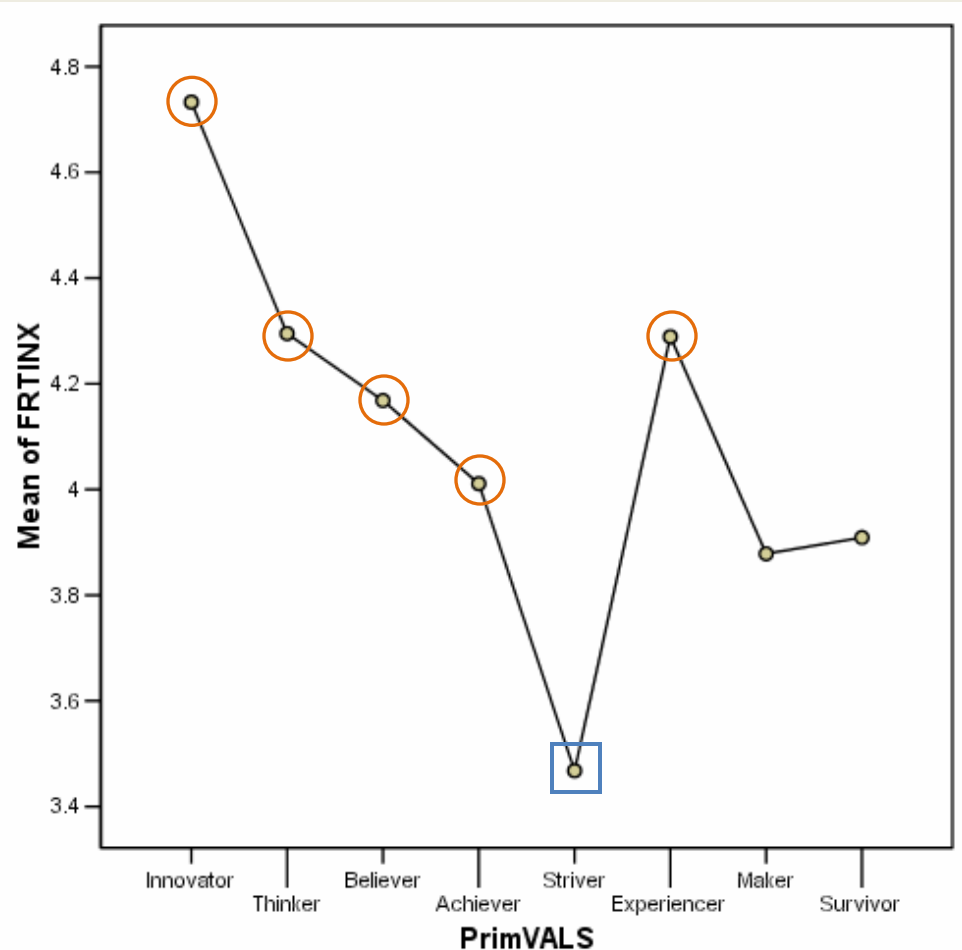


# Post Hoc Comparison Results



- Strivers

- Consumed significantly less F&Vs than all other groups except the Maker and Survivor groups
- VALS characteristics:
  - ✦ Motivated by achievement
  - ✦ Trendy, fun-loving
  - ✦ Want approval of others
  - ✦ Believe that money = success
  - ✦ Don't have enough of money to meet their desires
  - ✦ Buy stylish products that emulate wealthier people

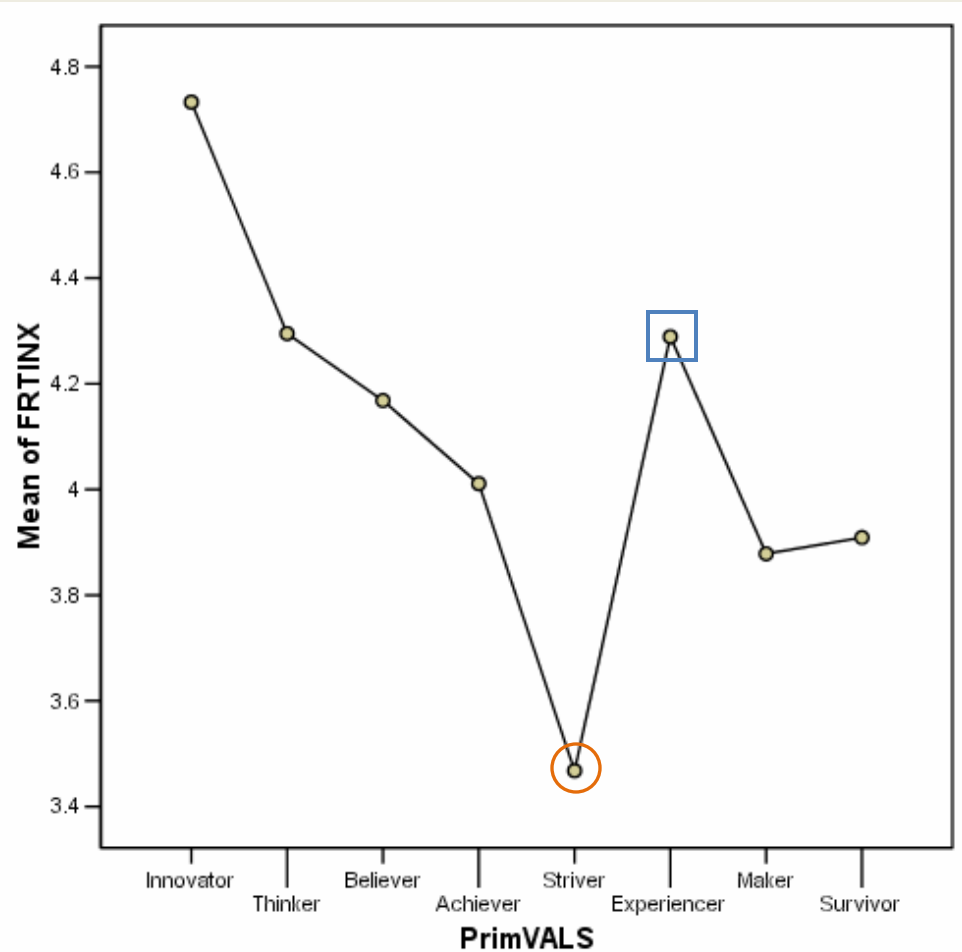


# Post Hoc Comparison Results



- **Experiencers**

- Consumed significantly more F&Vs the Striver group
- VALS characteristics:
  - ✦ Motivated by self-expression
  - ✦ Young, enthusiastic, and impulsive
  - ✦ Seek variety and excitement
  - ✦ Like the new, offbeat, and risky
  - ✦ Involved in exercise, sports, and outdoor recreation



# Post Hoc Comparison Results

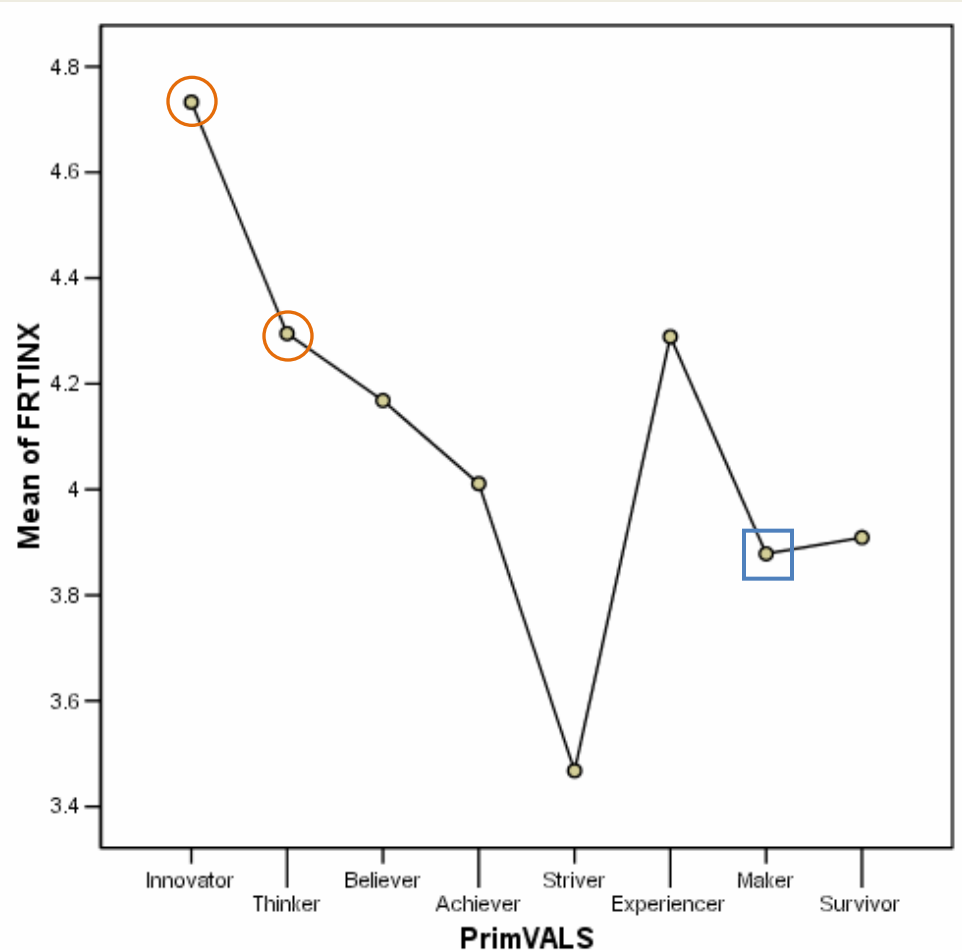


- **Makers**

- Consumed significantly less F&Vs than Innovators and Thinkers

- VALS characteristics:

- ✦ Motivated by self-expression
- ✦ Experience the world by working on it
- ✦ Have skill/energy to complete projects
- ✦ Value self-sufficiency, practicality
- ✦ Live in traditional context of family, practical work, and physical recreation



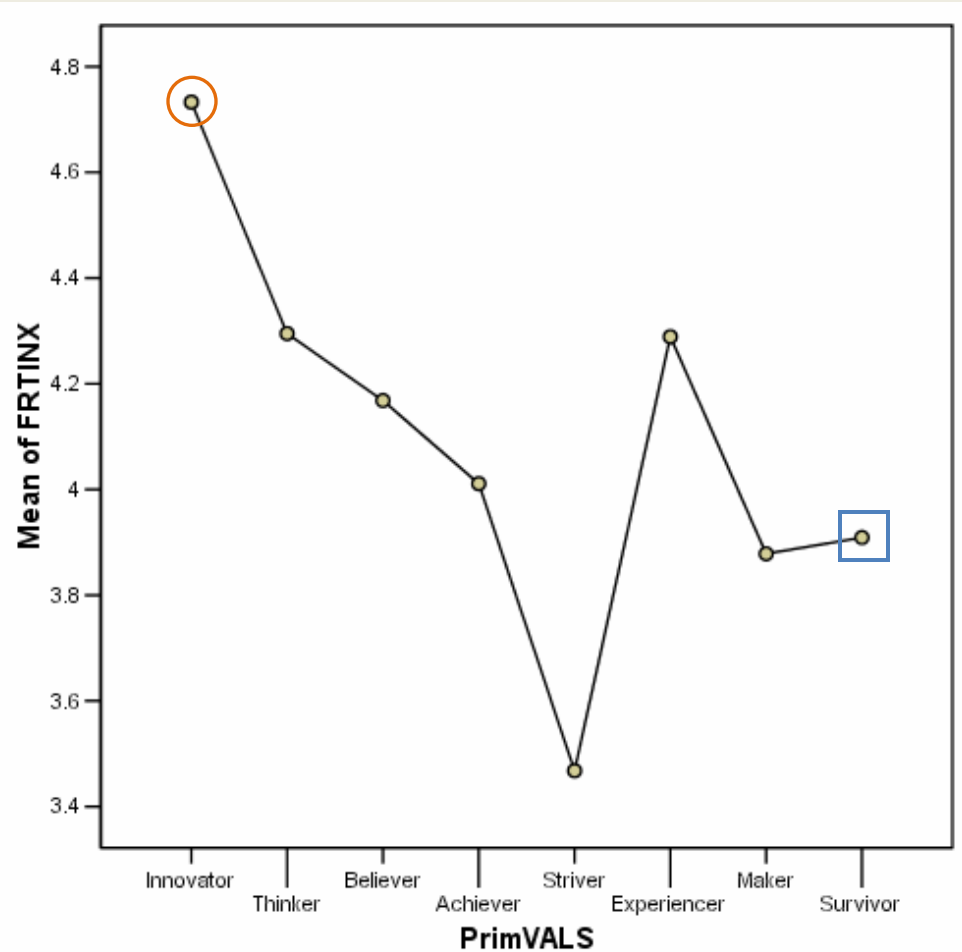


# Post Hoc Comparison Results



- Survivors

- Consumed significantly less F&Vs than Innovators
- VALS characteristics:
  - ✦ Live narrowly focused lives
  - ✦ Have few resources
  - ✦ Believe that the world is changing too quickly
  - ✦ Concerned with safety and security
  - ✦ Focused on meeting needs



# Conclusions



- Significant differences across lifestyle groups suggest:
  - Value of applying a lifestyle-based audience segmentation strategy to interventions that address F&V consumption
  - Private sector marketing tools hold value for public health problems

# Implications



- Take what we know from SRIC-BI and the VALS segment descriptions (segment profiles)
  - ✦ Combine it with what we know about:
    - F&V consumption
    - Theory-based determinants of F&V consumption
  - ✦ Develop initial approach/direction for formative intervention development research using a lifestyle-based audience segmentation approach

# Limitations



1. Cross-sectional in nature
2. Sampling was not a true probability sample
  - ✦ Telephone records sampled from listed numbers in specific MSAs
    - Had to use MSAs with equal distribution of VALS groups to try to get equal number of responses in each group
  - ✦ Some groups had lower response rates than others
3. Used 6-item self-report measure of fruit and vegetable consumption from 2005 BRFSS
  - ✦ Only deemed to have moderate reliability and validity in most population groups
    - Nelson, Holtzman, Bolen, Stanwyck, Mack (2001)

# Future Research



1. Lifestyle-based audience segmentations as an alternative audience segmentation strategy for F&V interventions
  - ✦ Are they better strategies than the traditional demographic or geographic strategies?
  
2. VALS- tailored pilot interventions for fruit and vegetable consumption
  
3. Similar results across VALS groups for other dietary/physical activity behavior

# Questions?



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