Analyzing Contextual Elements Impacting the Physical Activity Levels of Trail Users on a Two-Mile Rail/Trail Conversion by Direct Observation

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Community Background

- In 2002, the Mary Black Foundation in Spartanburg, SC identified *Active Living* as 1 of its 2 grant making priorities (over $5M allocated to date).

- Among substantial investments were funds to support a 2-mile rail-trail conversion.
  - Serves as a key connector between downtown business district and more rural parts of county
  - Dissects 2 adjacent residential neighborhoods differing in income, education, and race profiles.

Hub City Connector:

MBF Rail-Trail Segment

Background & Purpose

- The majority of trail user data does not consider the environmental context (e.g., seasonality, temperature, physical activity intensity).

- The purpose of this study was to analyze the potential link between contextual elements and the activity patterns of trail users on a two-mile rail/trail segment via direct observation.

Methods

- The System for Observing Play and Recreation in Communities (SOPARC)[a]
  - Can be implemented in diverse community and trail settings
  - Proven valid and reliable for gathering data on:
    - user demographics (e.g., age, sex, race)
    - environmental features (e.g., temperature, weather, equipment)
    - user features (e.g., type of activity)
    - physical activity level (e.g., sedentary, walking, very active)

[a]McKenzie et al. System for observing play and recreation in communities (SOPARC): reliability and feasibility measures. *Journal of Physical Activity and Health.* 2006;3:S208-S222.

SOPARC Protocol

- In an unobtrusive manner, observations made by trained college students
- Quarterly, observations made 4x/day (7:30am, 12:30pm, 3:30pm, 6:00pm) for 7 consecutive days
- At each time frame, observations conducted at 6 rail-trail segment access points
- Air temperature and weather conditions noted at each time frame

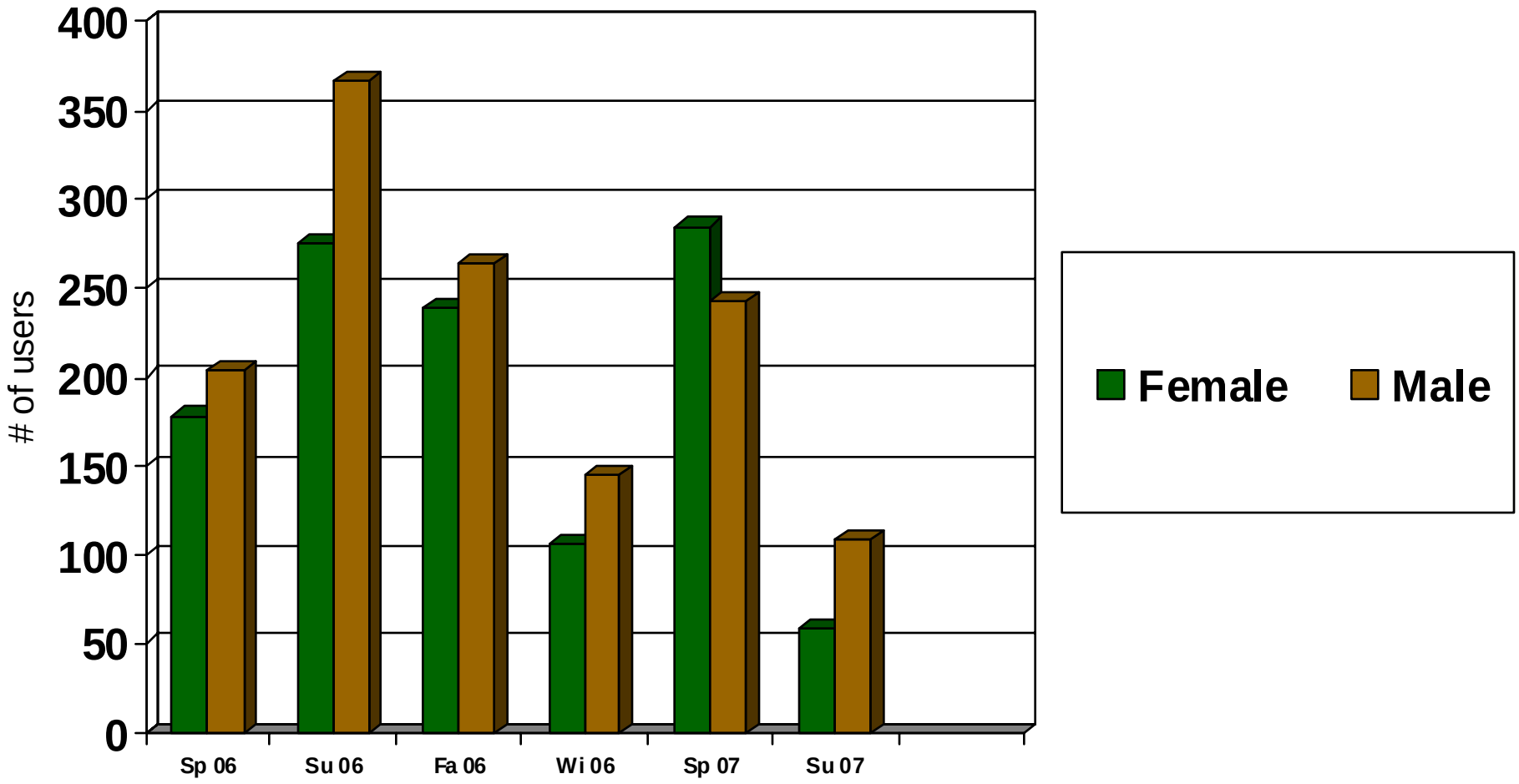
Results of Direct Observation

During 16 months following construction of the rail-trail segment (May 2006–July 2007):

- 2,535 users were observed (avg. 60/day)[#]:
  - 57% walking, 41% very active, 2% sedentary
  - 54% male, 46% female
  - More males were observed in very active activity
    - 55% of males vs. 23% of females did vigorous intensity PA
    - 74% of females vs. 43% of males were observed walking

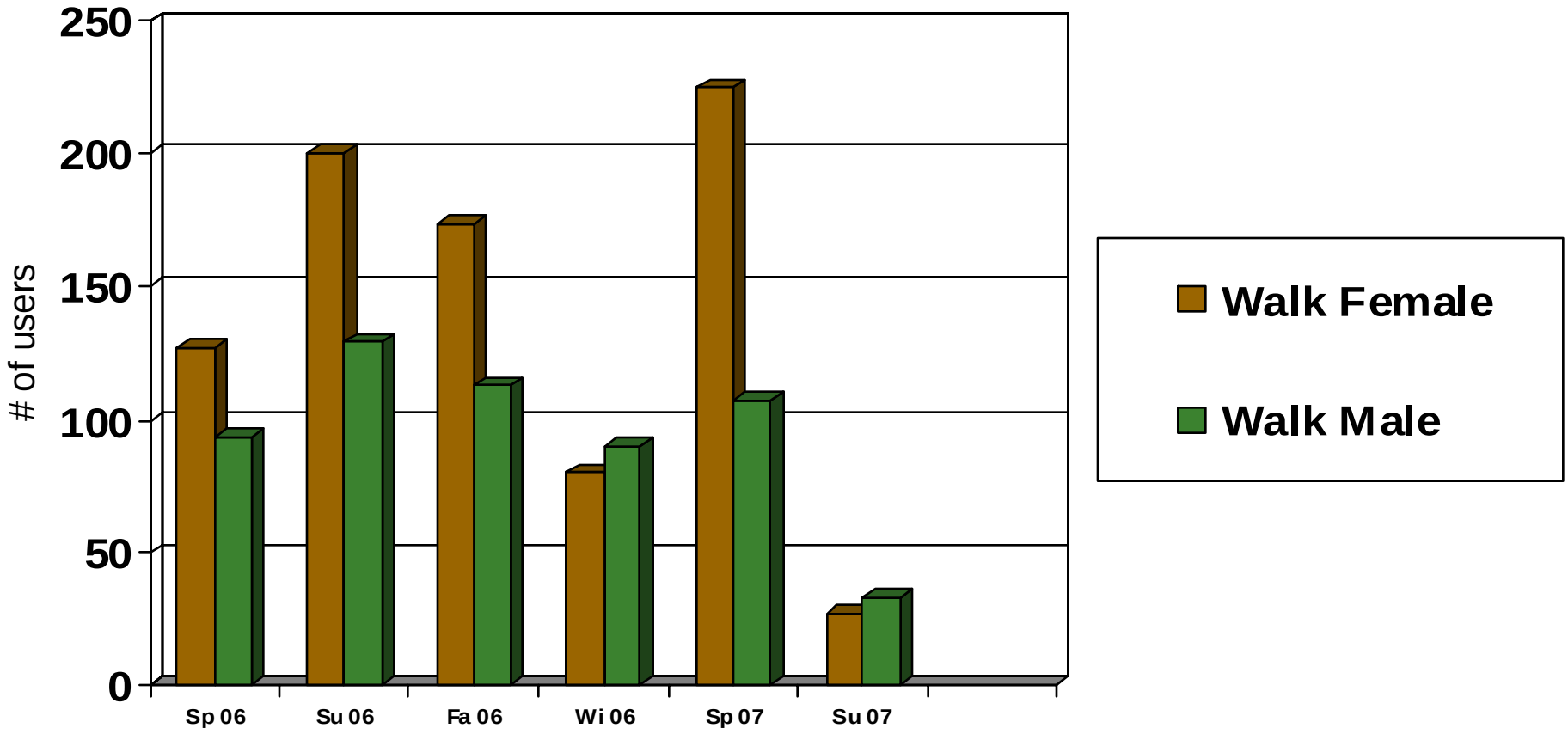
[#]equates to ~22,000 users in 12 months

Gender Characteristics of Users Across Seasonal Observation Periods



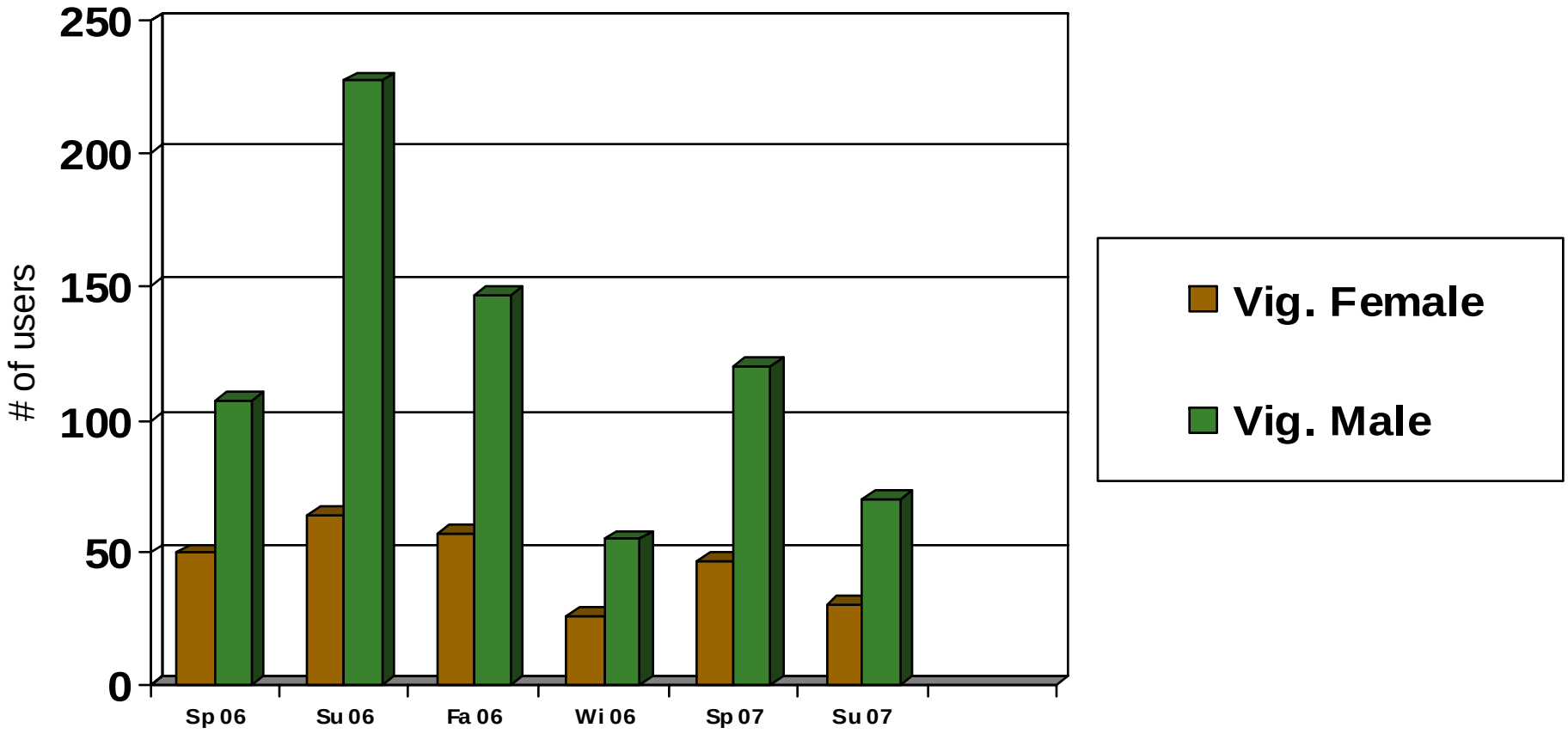
- A significant seasonality*gender interaction effect was found (F = 2.920; p = .033)

Gender Differences in Walking Patterns by Seasonal Observation Periods

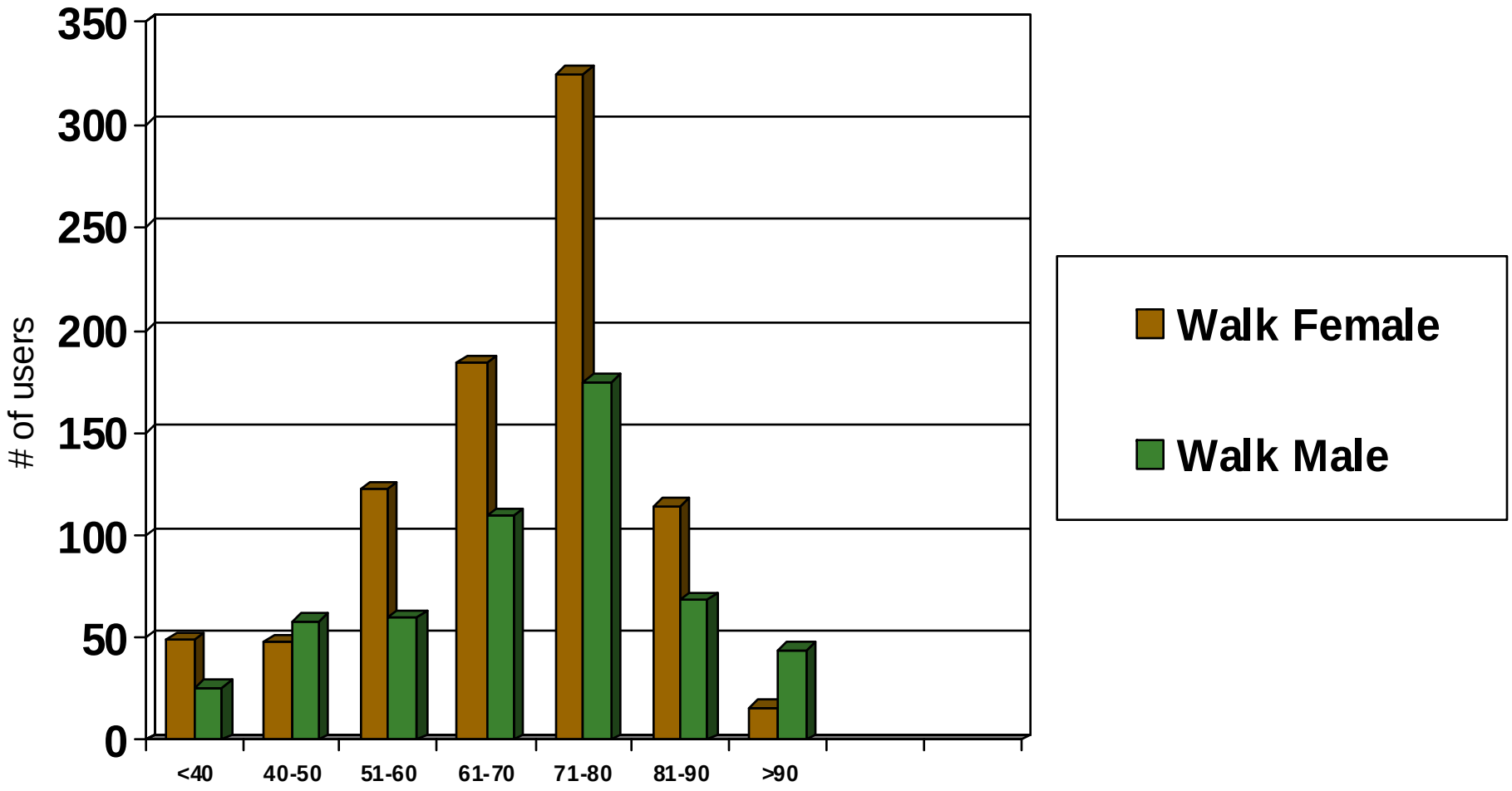


- Significant gender differences in PA intensity were observed ($F = 147.37$; $p < .01$).

Gender Differences in Vigorous Activity Patterns by Seasonal Observation Periods

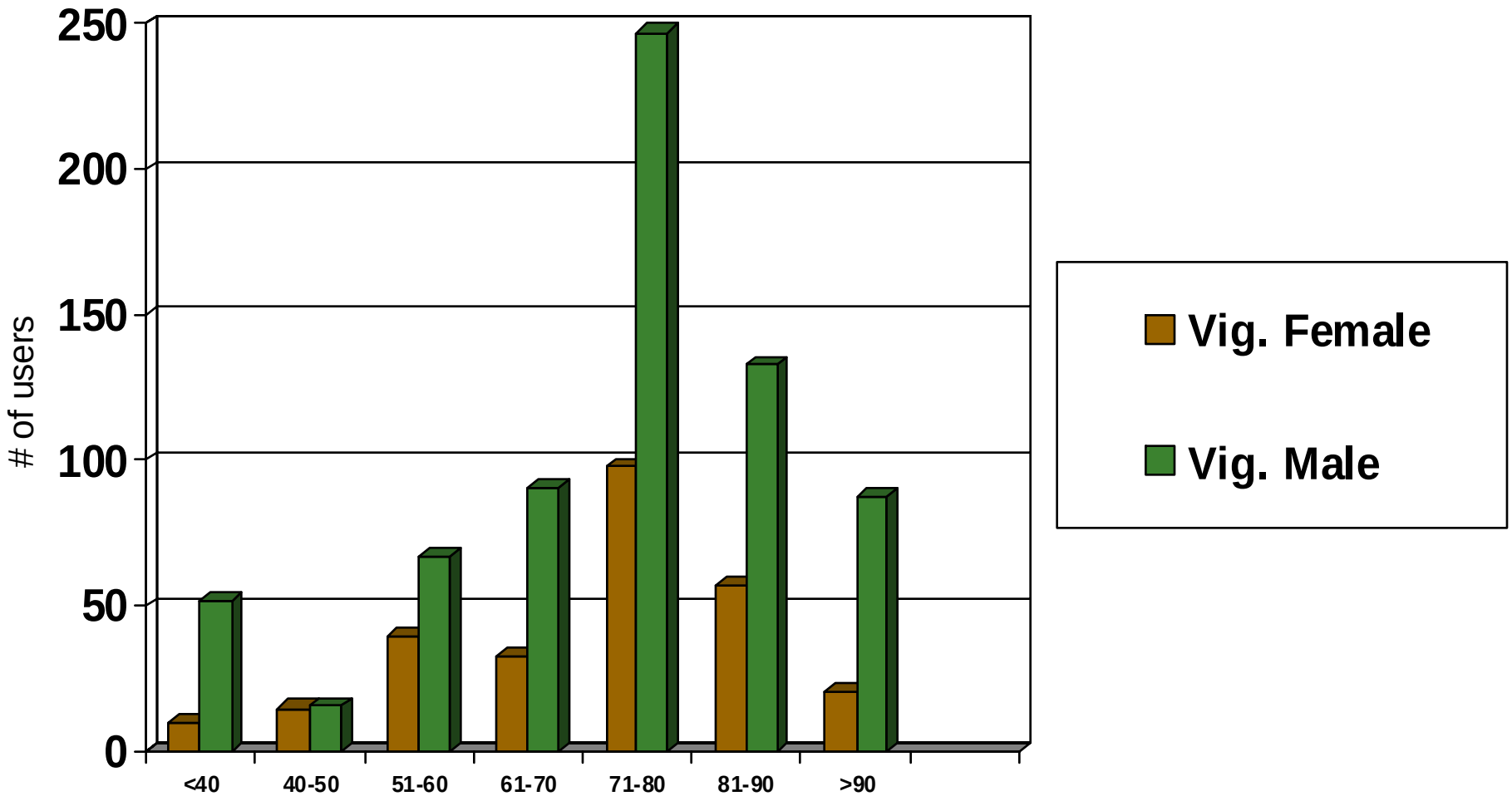


Walking Observations by Temperature



- Temperature changes significantly impacted trail use ($F = 4.65$; $p < .01$).

Vigorous Observations by Temperature



If you build it, will they come? *Yes & No*.

- Males used the rail-trail segment more often than females, and usually performed vigorous exercise.
- Females typically used the rail-trail segment for walking.
- Spring and Summer had the greatest number of users.
- Warmer temperatures yielded more users.

Nearly 32% of all trail users were observed when temperatures were 71-80o F; and over 50% were observed when temperatures were 71-90o F.

Implications for Community Leaders

May want to consider implementing policies, environmental improvements, and/or programs to:

- Promote greater use among:
  - Females
- Partnership with indoor facilities to promote activity during colder months of the year.
- Sustain use of the rail-trail segment during all times of the day and year.