The Influence of Outdoor Education on High School Physical Education Students

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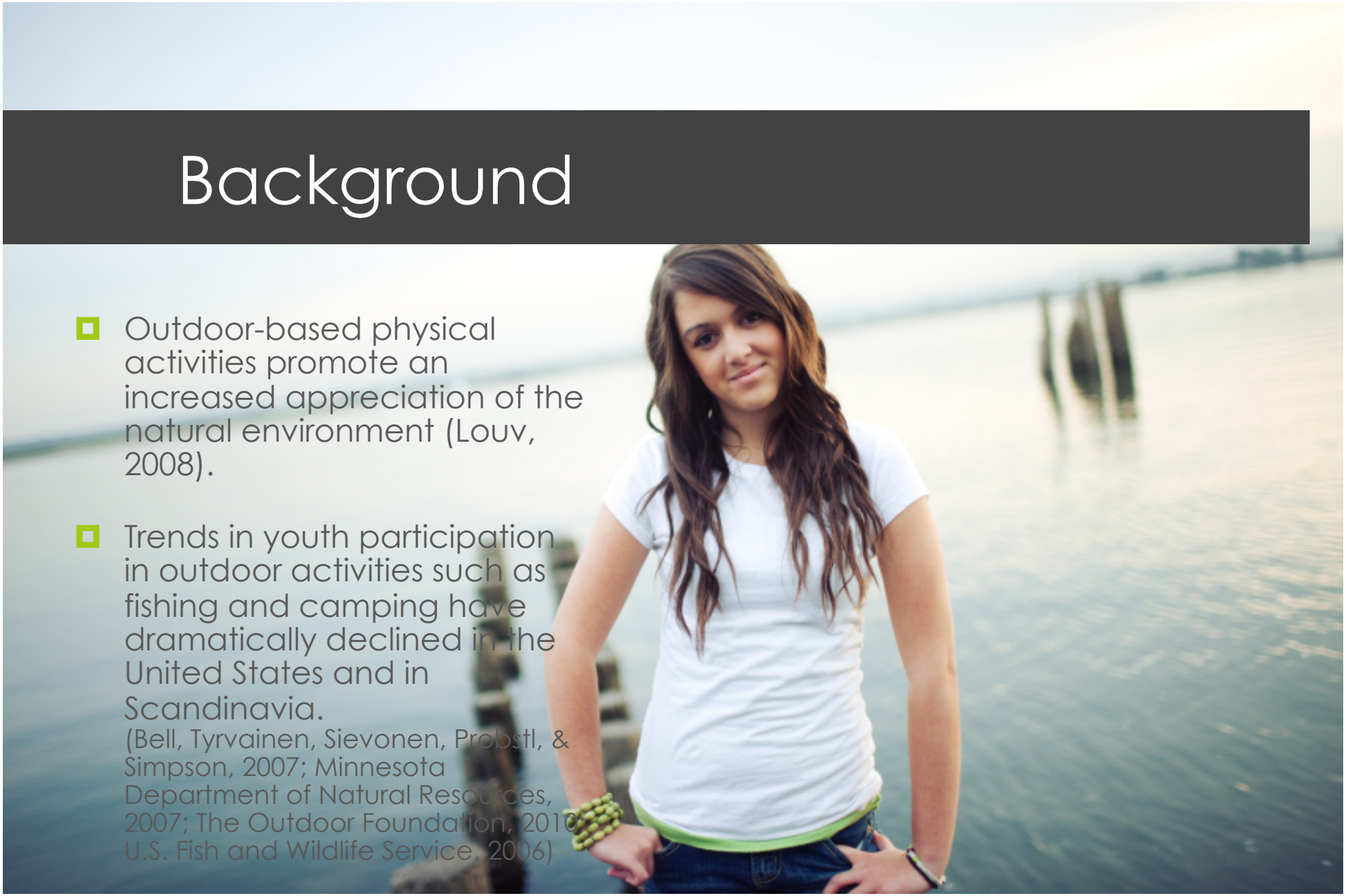
Background



- Outdoor-based physical activities promote an increased appreciation of the natural environment (Louv, 2008).
- Trends in youth participation in outdoor activities such as fishing and camping have dramatically declined in the United States and in Scandinavia.
  (Bell, Tyrvainen, Sievonen, Probstl, & Simpson, 2007; Minnesota Department of Natural Resources, 2007; The Outdoor Foundation, 2010; U.S. Fish and Wildlife Service, 2006)

Background

- Minnesota behind in outdoor ed within PE programs. Neighboring Wisconsin is ahead.
- In an effort to integrate outdoor education into Minnesota PE curricula:
  - "*Outdoor Education Working Group* on the teaching of outdoor education in grades 7-12" was established by the Minnesota state legislature.
  - Purpose: to determine what outdoor education curricula to deliver and how to implement it (Minnesota Statutes, Section 3.197, Chapter 368, Article 2, Sec. 80. 2008).

Definition

"Outdoor Education is experiential, provides a context for learning academics, and includes activities done predominately outdoors. It develops outdoor skills and an understanding of the outdoors, a natural resources stewardship ethic, a foundation for life-long learning and emotional and physical well-being." (Bronson et al., 2009, p. 10).

Supporting Theory and Literature

- Outdoor education should be included in PE courses under the life-skills development goal (MN DOE, 2009;NASPE, 2009; NCATE, 2008)
- Exercise and active lifestyles contribute to overall health (Minnesota Health Care, 2007).
- Outdoor-based physical activities promote greater life-long physical activity, reduced obesity, and associated health problems (Dunton, Whalen, Jamner, and Floro. 2007).

Problem: Only 46 of 162 (28%) collegiate pre-service PE programs provide OE training.

(Lou, Jewel, Davies, McLaughlin, and & Workman. 2002)

Theory and Literature

- Physical activity among adolescents occurs with friends, outdoors, and at school (Dunten, Whalen, Jammer, and Floro. 2007).
- Setting matters (outdoor v. indoor).
- Perceived enjoyment matters (Heart & Eifert, 1995).
- Social Cognitive Constructs: Self-efficacy & Attitude

- Meaning: *Adolescent participants may be able to develop more positive attitudes and increased self-efficacy in performing outdoor activities, and thus seek experiences with outdoor physical activities.*

Research Questions

- What outdoor education activities are most practical in a high school setting?
- What level of proficiency can be expected of the teacher?
- What outcomes can be expected of the students including evaluating the: What impact of will participation in the outdoor-based PE program have on participants' health using physical measures and affective constructs?
- What logistical preparations must be made to implement outdoor education into a high school physical education curricula?

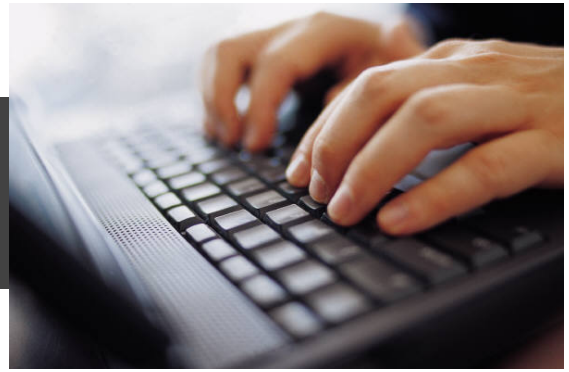
Methods

- Selected a school district that was small in size and willing to participate
  - Chose 2 grade 10 PE classes – Year-long activities x 2
  - 49 min. class period @ 40 students/class
    - (common in Minnesota = 30-50)
- Two-week units taught by PE & OE majors
- Administered 16-item self-efficacy and attitude instrument pre-test/post-test (N=166); $\alpha = .9$

Activities

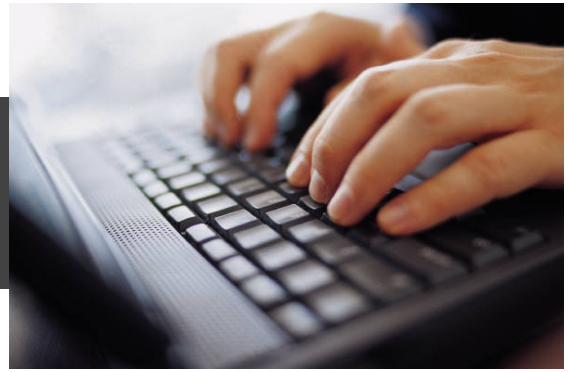
- navigation (map & compass)
- fishing skills (fly angling)
- cross-country skiing
- snowshoeing
- canoeing
- general outdoor skills (camping)

Results



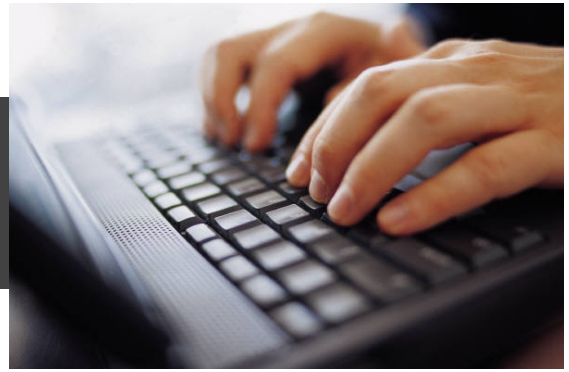
- 85% response rate (n=142)
- 49.4% female
- Paired-sample t-test found significance in fly-fishing (p=.000)
- No other changes from pre-post in other activities as a whole group.

Results



- ANOVA:
  d.v. = gender
- Pre-test:
  Males scored higher in
  - regular outdoor activity (p=.001)
  - enjoying being in nature (p=.038)
  - Higher self-efficacy toward outdoor skills (p=.006)
  - Self efficacy varied between navigation; snowshoeing; and, xc skiing (familiarity factor?)

Results



- ANOVA (Post-test):
- Males and females showed no significant difference
- Females improved in self-efficacy in outdoor skills (yet males still scored higher)
- Overall self-confidence rose between genders from participation in outdoor activities.

Findings

- Self-Efficacy and self-confidence increased overall
- Measuring physiological gain is challenging because of class size, time period, and difficulty of measurement (intrusive or overly simple)
- Physical health needs to be measured over longer time
- Conclusion: Direct experience matters
- Overall, students enjoyed being outdoors and learning new outdoor activities

Findings

- What outdoor education activities are most practical in a high school setting?
  - It depends on the geographic location
  - In this study, snowshoeing was the favored activity
  - XC skiing, fly-fishing, camping, navigation are more difficult in a formal education setting
- What level of proficiency can be expected of the teacher?
  - Teachers need at least moderate proficiency for pedagogy and safety. However, outside instructors can teach and provide equipment.

Findings

- What impact of will participation in the outdoor-based PE program have on participants' health using physical measures and affective constructs?
  - A time-series design needs to be used. Logistics make this difficult to determine in a short time-period.
- What logistical preparations must be made to implement outdoor education into a high school physical education curricula?
  - This was the most challenging aspect. Through time, this can be alleviated.

Logistics

- Need to teach proficiency: College students majoring in PE and OE teamed to teach the outdoor activities.
- Equipment:
  1. **Access** is expensive
  2. Access is difficult if gear needs to be hauled
  3. Equipment **storage and maintenance** at the school is challenging
  4. **Inventory** is difficult to maintain over time
- Cost: Set-up cost, including wages, is ~ $7,000
- Maintenance of program cost is ~ $5,000/yr/school

Limitations

- No training of faculty at high school (no time to do it)
- Why not physiological measures?
  - Length/size of class
  - Intrusiveness of physiological measures
  - 2-week units all using different muscle groups
  - Longitudinal study would be needed to assess physiological shift

Recommendations

- The experience matters more than skill proficiency.
- Experience is situational…based upon:
  - Environment (e.g., wind affecting fly fishing)
  - Equipment (ease of use, access)
  - Demand on skill proficiency (delays joy)
- Use activities that are "equipment easy" such as snowshoeing, which allows participants to experience joy/success sooner.
- Use skills appropriate to your region.
- Short-term interventions have benefits in creating relationship with school. They want OE/PE majors to teach XC skiing at the high school.

Is it worth it?

- YES!
- It needs commitment to collaborate between OE and PE majors
- It needs to be taught at the pre-service level
- The school district needs to be able to shift their paradigm from "traditional sport" to life-long learning that includes outdoor education activities.
- It will cost money to get set up
- Site characteristics can be less critical

Discussion?