Footprints:
Engaging Youth to be Physically Active in Nature through Photovoice

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Physical activity is good for us!!!

- Has physical and psychological benefits (Warburton et al., 2006; O’Connor, Raglin, & Martinsen, 2000; O’Neal, Dunn, & Martinsen, 2000)

- Less than 50% of adolescents in Canada (CFLRI, 2005) and internationally (Stone, McKenzie, Welk, & Booth, 1998) are active enough to derive health benefits.

- Physical activity levels tend to decline with age (Stone et al., 1998)
Background: Environment

- **Biophilia hypothesis**: hard-wired human need to affiliate with natural environments, just as with people

- An unhealthy natural environment or absence of nature is related to lower levels of health and well-being
  
  Respiratory illness (Premaratna et al., 2002)
  
  Mental illness (Pretty Griffin, & Sellens, 2004)

- Natural environment settings can have positive effects on well-being
  
  Reduced mental fatigue (Maller et al., 2005)
  
  Increased overall health (De Vries et al., 2003)
Youth today may be less exposed to the natural environment than previous generations due to:

1. **School/institutionalization** (Rivkin, 1997)
2. **Urbanization** (Tzoulas et al., 2007)
3. **New technology** (Shields, 2006)

They are aware, but express frustration with environmental issues and lack a sense of agency (Hicks & Holden, 2007)
Purposes

1. Understand personal and environmental health issues as seen by youth

2. Use Photovoice projects/discussion as tools for health education and awareness

3. Represent youth ideas to policy makers to initiate action
Research Questions

1. What are youths’ perspectives and experiences of physical activity in the natural environment?
2. What strategies do youth recommend for engaging with nature as a way to be active?
3. How do participants’ Photovoice projects on health and nature, including subsequent discussion of these projects, influence their conscientization of health in relation to nature?
Design & Participants

- Case study using purposive criterion sampling (Patton, 2002) and social marketing concepts (Kotler et al., 2002)
- Participants: Eight (plus one) 17-to-18-year-olds enrolled in an elective sustainability eco-education course and their teacher
- Recruitment via:
  1. Invitation letter passed out by contacts in youth environmental organizations and members of a local conference steering committee
  2. Recruitment information and link to study letter of invitation were posted on the conference registration website
“A behaviour change strategy that involves the “use of marketing principles and techniques to influence a target audience to voluntarily accept, reject, modify, or abandon a behaviour for the benefit of individuals, groups, or society as a whole” (Kotler et al., 2002).

Marketing: shared language does not equal shared bottom line

1. Consumer behaviour is the bottom line
2. Programs must be cost-effective
3. All strategies begin with the customer
4. Interventions involve the 4 P’s: product, price, place, and promotion
5. Market research is essential to developing, pretesting, and evaluating intervention programs
6. Markets are carefully segmented
7. Competition is always recognized
Data Collection

- Audio recording and field notes from orientation session
- Demographic information forms and International Physical Activity Questionnaires (IPAQ) short form
- Photovoice Projects and captions
Data Collection

- Semi-structured Photovoice discussion group with project participants
  - Questions framed by social marketing concepts
- Comments recorded during presentation preparation session
- Audio recording and field notes taken during presentation to school board
Methodology: Photovoice

“Photovoice is a process by which people can identify, represent, and enhance their community through a specific photographic technique. It entrusts cameras to the hands of people to enable them to act as recorders, and potential catalysts for social action and change, in their own communities.”

–Wang & Burris, 1997, p.369
Photovoice

Three main goals:

1. To enable people to record and reflect community assets/issues

2. To promote critical dialogue and knowledge about important community issues through discussion of photographs

3. To reach policymakers
Photovoice Procedures

Piloting: prompts were piloted with three youth not participating in the study to ensure comprehensibility (Thomas et al., 2005).

Problem definition (Orientation Session):
conceptualize problem/provide background information; brainstorm definition of terms (physical activity, engaging with nature, health, (healthy) environment)
Photovoice Procedures

Photovoice training (Orientation Session): Digital camera photography and computer download procedures; ethical issues, participant consent forms (and consent to be in photos); Photovoice project information (purpose/background/instructions).

- Question prompts:
  1. How do you and your peers engage with nature through physical activity?
  2. How does this affect your health and the health of the environment?
  3. What youth oriented strategies best support improving the health of your peers and the planet?
Photovoice Procedures

Representing/ Developing Stories (Photovoice Projects/Discussion Session): Take pictures; facilitate group discussion; engage in critical reflection and dialogue; select photographs for discussion; context and storytelling; codify issues, themes, and theories.
Photovoice Procedures

Creating Captions/ Reflection: Participants were instructed to select their ‘best’ picture and write a caption; displayed on PowerPoint; explain photos and captions to the group; group comments and discusses

Create captions considering the following questions:

- What were you looking to illustrate when you took the picture? What is happening in this situation?
- What do you want people to know about this situation?
- What does this have to do with health or the environment?
- What circumstances have created this situation? Why does this happen?
- What can be done about this situation? Who has the power to do something?
Photovoice Procedures

Generate Social Action: Recruit policy makers as the audience to learn Photovoice findings; prepare photos and captions for presentation; disseminate findings to policy makers, donors, media, researchers, and others who may be mobilized to create change.
You have completed a Photovoice assignment!

You took pictures considering:

1. How do you and your peers engage with nature through physical activity?
2. How does this affect your health and the health of the environment?
3. What [youth-oriented] strategies best support improving the health of your peers and the planet?

Choose one and write a caption considering:

- What were you looking to illustrate when you took the picture? What is happening in this situation?
- What do you want people to know about this situation?
- What does this have to do with health or the environment?
- What circumstances have created this situation? Why does this happen?
- What can be done about this situation? Who has the power to do something?

Discuss your ideas in a small group
I took a picture of a bear in my backyard. It was a baby bear. I think... the bear actually ended up getting shot by the forestry people at the park by my house, which is pretty bad. But just because it wouldn’t leave us alone, like, it was everywhere in town. It was pretty bad for us to do because it was just a little bear. - Eagle
My friend and I got physically active to get to that beautiful place moving our muscles getting out there and breathing the fresh air. It helps my body and mind by making me focused on what I was doing at that time. Then when we got to that place we became still, soaking up the environment. It made me feel calm and relaxed and took me back to a simpler time… This put us in touch with nature. This kind of experience also motivates people to act on behalf of nature.

- Hawk
Data Analysis

- Data from audio-recorded sessions were transcribed, read and re-read to analyze data for themes.
- Used principles of grounded theory methodology (Strauss & Corbin, 1990)
  - Open coding, axial coding, selective coding
- Drew on social marketing concepts as an orientational framework (Patton, 1990)
  - Product, price, place, promotion, public/ purchaser, competition (Lovelock & Weinberg, 1989)
### Results: Demographics & PA

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Project Complete</th>
<th>Sex</th>
<th>Age</th>
<th>Physical Activity Level</th>
<th>Why did you take this course?</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3: Grizzly</td>
<td>Yes</td>
<td>M</td>
<td>18</td>
<td>7942*</td>
<td>To get more in tune with nature, to get out of a dull classroom, meet new people, learn better leadership skills.</td>
</tr>
<tr>
<td>P8: Beaver</td>
<td>No</td>
<td>M</td>
<td>18</td>
<td>6291*</td>
<td>I took this course to get out of the classroom and try something different.</td>
</tr>
<tr>
<td>P6: Hawk</td>
<td>Yes</td>
<td>F</td>
<td>17</td>
<td>6666*</td>
<td>My brother was on it previously and I saw how much he changed (in good ways). I also wanted this, too. It’s a really good opportunity and I like the outdoors.</td>
</tr>
<tr>
<td>P4: Maple</td>
<td>Yes</td>
<td>M</td>
<td>18</td>
<td>8996*</td>
<td>Just to get outdoors more often.</td>
</tr>
<tr>
<td>P2: Cougar</td>
<td>Yes</td>
<td>M</td>
<td>18</td>
<td>6120*</td>
<td>Leadership training, certificates, physical activity, to get out of the standard ‘classroom’ model of education.</td>
</tr>
<tr>
<td>P9: Shark</td>
<td>Yes</td>
<td>M</td>
<td>17</td>
<td>13332*</td>
<td>To raise awareness for me and [about] the environment and have a life changing experience.</td>
</tr>
<tr>
<td>P7: Snow Leopard</td>
<td>Yes</td>
<td>M</td>
<td>17</td>
<td>4616*</td>
<td>I took this course because I did not like sitting in the classroom. I like the outdoors. I wanted to gain experience and knowledge about the outdoors.</td>
</tr>
<tr>
<td>P10: Eagle</td>
<td>Yes</td>
<td>M</td>
<td>17</td>
<td>4080**</td>
<td>I enjoy nature and have tons of fun hiking, boating, and learning about the environment.</td>
</tr>
<tr>
<td>P5: Owl</td>
<td>Yes</td>
<td>M</td>
<td>17</td>
<td>5436*</td>
<td>I took this course because I like the outdoors and it leads to many career opportunities in the future.</td>
</tr>
</tbody>
</table>

* Units measured in MET- minutes per week.
** Units measured in MET-minutes per week, excluding walk data which were unavailable.
1. Physical Activity in Nature Offers the Freedom to be ‘Natural’.

Four main values are freedom, excitement, calming/relaxing, and creativity:

“Really, being out in nature really encourages creativity. Because I mean, I don’t know, playing things like capture the flag or whatever. You’re playing in a certain area yeah, but other than that, anything goes. You can climb things, you can hide yourself different ways, different places. And it encourages you to try new things.” (Cougar)

“We’ve all been through where you get the worksheets and all that kind of stuff. Now, we’ve been put in a setting where it’s our own responsibilities and our own learning abilities… we learn by ourselves. I mean, sure we have our leaders that help us out. But I mean we teach ourselves in a way.” (Snow Leopard)
2. Friendly Competition

- Competition: activities that the participants sometimes chose in lieu of physical activity in nature; what the youth saw as alternatives.

- Many ‘competing’ activities involved either being physically active in other contexts (e.g., basketball) or relaxing outdoors (e.g., camping, boating).
3. The Price is Right

- The “cost or sacrifice exchanged for the promised benefits” (Grier & Bryant, p.323)
- Costs? (e.g., time, fear/discomfort, financial costs)

“I feel like I’ve gained amazing skills through this course. Like when I go outdoors I feel like at home. I don’t know, I’ve never really liked being in a classroom setting and when I get to experience the outdoors in the outdoors, it’s awesome.” (Snow Leopard)

“Well it affects all of our health, get some fresh air, get exercise, learn about the environment. By learning about the environment, you can appreciate it more, respect it. The more we get out there the more you love it and you want to protect it. That’s why we kind of have these groups and all that. We want to save the planet.” (Beaver)
4. When Nature is Rated ‘R’: Lack of Safety, Accessibility, and Social Support as Barriers to Participation

Five main barriers/facilitators:

1. Knowledge/experience to facilitate comfort in nature.
2. Accessibility to nature and certain activity settings.
3. Safety concerns (their own and those of authority figures, particularly in the school setting) and externally imposed restrictions imposed.
4. Time for some people, though not for this group.
5. Social support of family and peers.
Strategies for Engagement

Theme 8. Test the Waters: The Role of Challenge in Health

Theme 7. Growing Awareness: Consciousness of Human-Environment Interactions

Theme 6. Get Your Hands Dirty: The Importance of Experiential Learning

Theme 5. Recreation → Reduce, Reuse, Recycle: Time in Nature Encourages Environmental Values
I was looking to illustrate that we have these magnificent displays of nature in our own backyard. What is happening is that we all stopped because...the waterfall caught all...

...of our eyes and we all needed to get a picture of this magnificent artwork in nature... I think people should actually experience the outdoors as we did, so they will see what is there and care about it like I do. This affects my health because water is essential to humans and life. The environment depends on water to survive and fuel the earth. I’d like to teach more people about areas like this because we will need to protect these areas in the future since water sources are depleting. The issue in this picture is that we should not waste water and reuse water so we can continue to have it. (Snow Leopard)
6. Get your Hands Dirty: The Importance of Experiential Learning

...and ready to learn about something that they have explored but do not fully understand. One problem that teachers face every day is the challenge to engage their pupils, to focus a class’ combined attention span on a topic that the students have never seen, heard, felt, or smelled. Learning is augmented through physical contact with an object or element, and people are much more willing to learn about something that interests them. Creating interest by encouraging personal experience is the first step to involved learning. (Cougar)

This is an excellent example of the spirit of true learning. Each person in this picture is engaged in their environment, exhausted through their personal experience...
Nature demands that we are in the now. It provides a space in our busy lives to simply exist. It also provides a venue for peak experiences, both of which are imperative to maintaining a positive mental and spiritual state. The students in this picture are on an ocean kayak trip. In a way it seems intuitive that this type of experience can have a ripple effect—indeed, a humble experience like this acts to make the world a better place! I think society is picking up on this. Government seems to be paying attention to the connection between the health of the person and the health of the environment. This is one of the greatest benefits the world receives from having us spend more time outside.
This picture changed my perspective on looking at boats because I realized how much those actually affect the shoreline. Always when we would go and make fires down below, I’d see all these chips, that kind of looked like beavers chewed them off the trees. And I realized that the chips are actually off those [boats]. Like, even on our kayaking trip, there was like a foot of it which is a lot of chips that shouldn’t be there. It actually shows you how far humans’ garbage can actually go. You can actually see the outline of the sawdust on the top [of the boats]…

…They’re trying to just get a few extra buckets in, and then all that, or most of that, falls off on the way up here, so they’re losing like 5% of their load anyway. (Shark)
Maple

I chose this one for showing what kind of stuff people can make out of reusing environmental waste like broken branches or animal bones. You can make knives out of them or make them into tools or axe heads... Instead of making more man-made stuff, we should reuse the environment that’s already dead or dying or stuff that’s just waste. It’s like recycling. It would be a good environmental move and it would be good for people’s health just to get out there in the environment and explore.
8. Test the Waters: The Role of Challenge in Health

“I don’t know, what challenged me mentally was I went under, and I did it perfect the first time, but then the second time I went under and I got stuck. I was stuck under the kayak and I didn’t have any air. And like I got out eventually but... even when I was sleeping I would have dreams of being stuck under a kayak and then it was... the day I had to do it again it was really tough on me. I was like, whoa, this is weird right because I was so ready to do it but then I was like maybe not. But I overcame that. But it just really had me going... Overcoming it made me stronger and I felt... I don’t know, more focused and more relaxed and I believed in myself more that I could actually do this and went through it.” (Snow Leopard)
Steps Towards Action

- Students expressed an increased self-awareness as a result of participating in the course and the project and conscientization more as a result of the course.

- Participation in school board presentation:
  - Felt they made a positive impression on the school board.
  - Members appreciated that the students showed courage by speaking in front of a group.

- Indirect action initiated by participants: an article was published in the local newspaper about the Photovoice project and the presentation the students made to the school board.
It’s a picture of a bunch of flowers that was taken while I was running. I was jogging along a trail at [a] bay and kind of took my camera out and hit the button accidentally and it took a picture. And, I don’t know, I started thinking about how brief moments in nature can be just like that. Like, you take a picture, and it’s really good. I didn’t even notice what was going on. I didn’t notice until after the run, at home the next day, when I was looking through my pictures and then I realized where it was. It made me realize what [nature] is worth.
The Role of Parks and Recreation

Encourage physical activity in nature by:

1. Providing adequate, proximal, and accessible infrastructure, like trails and sports facilities
2. Creating incentives for youth to become more active through parks and recreation
3. Identifying and targeting at-risk groups to understand their preferences and perceived and physical barriers to participating in outdoor recreation (Rosenberger, Bergerson, & Kline, 2009).
The Role of the Education Sector

- Experiential outdoor education in regular school curriculum
  
  Environmental education in Planning 10 curriculum (in BC high schools)?

- Significant life experiences (SLEs): interactive nature experiences frequently reported as integral in the life path of people who are environmentally committed (Chawla, 1999)

- Most trusted sources of environmental information are personal experiences, then schools (Connell et al., 1999)
Considerations

- Obtaining cameras (digital or disposable)
- Finding youth who are interested enough to complete the project and attend each session
- Time commitment (yours and theirs 😊)
Dilemmas in Methods and Interpretation

- Data reflect experiences, ideas, and opinions of this specific population
- Results may not be transferable to adolescents beyond this particular course
- Participants may have been influenced by the perspectives of the researcher
References


References


Questions?

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