Development and Testing of a Community Stakeholder Park Audit Tool

Andrew T. Kaczynski, Kansas State University
Sonja A. Wilhelm Stanis, University of Missouri
Gina M. Besenyi, Kansas State University

Active Living Research Eighth Annual Conference
February 24, 2011
Background: Parks and Physical Activity Research

• Parks are important **behavior settings** for physical activity (Bedimo-Rung et al., 2005)

• **Greater proximity to park space** is associated with increased physical activity among adults & youth (e.g., Giles-Corti et al., 2005; Kaczynski & Henderson, 2007; Roemmich et al., 2006)

• Systematic observation protocols and user surveys have been used to document that approximately **40-90% of park users are active during their visits** (e.g., Cohen et al., 2007; Floyd et al., 2008; Wilhelm Stanis et al., 2009)

• **Park features & other characteristics** may be just as important as proximity in encouraging neighborhood & park-based physical activity (e.g., Cohen et al., 2006; Kaczynski et al., 2008)

• Park availability & park features and quality are generally **worse in low income and/ or high-minority areas** (e.g., Crawford et al., 2008; Estabrooks et al., 2003; Moore et al., 2008)
Measuring the Built Environment

Accurate measurement of environmental influences on active living is critical and has advanced considerably (Brownson et al., 2009; Sallis et al., 2009)

Primary methods include:

• Perceptions of residents

• Geographic databases

• Direct observation (audits)
  • Best for capturing micro-scale features not included in geographic databases (e.g., specific features, quality ratings, etc.)
  • More time-intensive
  • Useful for engaging residents in the research process
  • Can be tested for reliability
Park Audit Tools

To date, at least five park audit tools have been developed by various groups:

- **Bedimo-Rung Assessment Tool** - Direct Observation (BRAT-DO)
- **Environmental Assessment of Public Recreation Spaces (EAPRS)**
- **Physical Activity Resource Assessment (PARA)**
- **Public Open Space Audit Tool (POST)**
- **Safe, Healthy, and Attractive Public Environments (SHAPE)**
Summary of Existing Park Audit Tools

- Several park audit tools previously developed – each has its own strengths and weaknesses
- Varying lengths and coverage of important dimensions
- Most glaring limitation is the lack of development and testing of existing tools with diverse community stakeholders

<table>
<thead>
<tr>
<th>Audit Tool</th>
<th>Use Setting</th>
<th>Length</th>
<th>Park Quality</th>
<th>Youth-Oriented</th>
<th>Developed with stakeholders</th>
<th>Tested with stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAT-DO</td>
<td>Parks</td>
<td>16 pages, 181 items</td>
<td>Yes</td>
<td>No</td>
<td>Some</td>
<td>No</td>
</tr>
<tr>
<td>EAPRS</td>
<td>Parks</td>
<td>47 pages, 646 items</td>
<td>Yes</td>
<td>Somewhat</td>
<td>Some</td>
<td>No</td>
</tr>
<tr>
<td>PARA</td>
<td>Varied resources</td>
<td>1 page, 49 items</td>
<td>Limited</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>POST</td>
<td>Parks, ovals</td>
<td>2.5 pages, 88 items</td>
<td>Limited</td>
<td>No</td>
<td>Some</td>
<td>No</td>
</tr>
<tr>
<td>SHAPE</td>
<td>Parks</td>
<td>1 page, 20 items</td>
<td>Yes</td>
<td>No</td>
<td>Some</td>
<td>No</td>
</tr>
</tbody>
</table>
Need for a Community Stakeholder Park Audit Tool

• Developing activity-friendly neighborhoods, including better parks, requires:
  • an accurate understanding of the current state of resources, and
  • the involvement and support of multiple constituencies

• “Simplified observational measures of parks … can be created from existing measures. Creating practical measures for community groups should be a goal for researchers” (Brownson et al., 2009, p. 120)

• “The incorporation of reliable observational measures into health advocacy efforts should be encouraged to provide an evidence base for advocacy” (p. 120)

• Environmental justice: *fair treatment* and *meaningful involvement* of all people in decisions and actions about their health (Taylor et al., 2006)
Study Purpose & Aims

**Purpose:** To develop a tool that will enable diverse stakeholders to quickly and reliably audit community parks for their potential to promote youth physical activity.

**Specific aims:**

1. To **review and evaluate existing park audit tools** for their suitability for i) use by diverse community stakeholders, and ii) understanding park characteristics that may encourage youth physical activity.

2. To **develop a revised, user-friendly tool** with lay terminology that can facilitate involvement in research by community stakeholders and that captures park characteristics that are likely associated with youth physical activity.

3. To **test the reliability of the new tool** when used by diverse community stakeholders to audit parks.

4. To **engage stakeholders** in a process of thinking about the role of parks in community-level physical activity participation and how parks may be better designed to enhance youth physical activity in particular.

5. To **document the process** of tool development and engagement by community stakeholders around parks, the results of this process, and to **disseminate lessons learned** to facilitate better process in the future and in other communities.
Study Stages and Timeline

- **Stage 1**
  - April-May 2010: Review of existing instruments

- **Stage 2**
  - June 2010: Planning workshop with community stakeholders

- **Stage 3**
  - July-August 2010: Development of park audit tool

- **Stage 4**
  - September 2010: Training workshop with community stakeholders

- **Stage 5**
  - September-October 2010: Testing of park audit tool

- **Stage 6**
  - January 2011: Evaluation workshop with community stakeholders

- **Stage 7**
  - February-October 2011: Dissemination of park audit tool
Project Participants

- In total, 34 unique community stakeholders participated in the three workshops representing diverse organizations from around the KC metro area:
  - Academia
  - Community Park Users and Non-Users
  - Municipal Legislators
  - Parks and Recreation Department
  - Parks and Recreation Board
  - Public Health
  - Other City Departments
  - Other Government Agencies
  - Private Sector Organizations
  - Youth Agencies
  - High School Students

- Stakeholders received a $20 gift card at the conclusion of each workshop
Workshop 1 - Developing a Revised Park Audit Tool

- Pre-Workshop:
  - Review of domains/items within existing park and neighborhood audit tools

- Workshop 1 - Roundtable discussions with stakeholders
  - What is important to consider regarding an audit tool focusing on park-based physical activity?
  - What is important to consider regarding an audit tool focusing on youth activities in parks?
  - What is important to consider regarding a user-friendly audit tool?
  - Evaluation of strengths and weaknesses of existing park tools

- Post-Workshop:
  - Three key informant interviews with researchers familiar with parks and physical activity and/or the use of audit tools with community members
  - Data from all steps transcribed and analyzed by multiple coders
Development and Testing of the Community Park Audit Tool

Community Park Audit Tool (CPAT)

- 6 pages

- 4 sections:
  - Park Information
  - Access and Surrounding Neighborhood
  - Park Activity Areas
  - Park Quality and Safety

- Concerned with presence/absence and ‘useability’ and ‘condition’ of most park elements

- Mostly yes/no responses, but also some items with three options, as well as checklists and spaces for comments

- Instructions contained within tool or items themselves

- Guidebook available with additional details and definitions
Workshop 2 - Audit Tool Training

- Reviewed the CPAT elements in detail at a second half-day workshop
- Practiced in a local park for 30 minutes
- Discussed confusion/ideas for revisions
- Tool modified and sent out again for final feedback before testing stage
Study Setting

- Kansas City, Missouri
- Diverse population:
  - 18% children
  - 61% White, 31% Black
  - 7% Hispanic
  - Median income: $39,230
- 318 square miles
- 219 total parks
Audit Tool Testing

- Selected 66 parks that varied on numerous dimensions:
  - North, central, or south district
  - Available facilities (e.g., playground)
  - 2009 maintenance rating
  - Median income of park’s census tract
  - Percentage minority within census tract

- Pairs of stakeholders randomly assigned to each other and to 3-12 parks each
  - Auditors paid $20/hr

- Park audits conducted independently during September-October 2010

- Pairs of audits completed for 59 parks
  - 1.1 to 193.2 acres
  - 10-65 minutes per audit (mean=32 min)
Data Analysis

- Examined the inter-rater reliability of each item as long as at least three pairs of ratings were available (Saelens et al., 2006)

- Two statistics used to assess inter-rater reliability:
  
  - Kappa
    - more sophisticated (accounts for chance agreement between raters)
    - inappropriate when item has little variability
    - good if 0.60 or better (Landis & Koch, 1977)

  - Percent agreement
    - less sophisticated
    - more appropriate when item has little variability
    - good if 70% or better (Boarnet et al., 2006)
Development and Testing of the Community Park Audit Tool

Results

- Reliability of 10 items could not be assessed due to less than three pairs of ratings

- Vast majority of the items had acceptable kappas and/or percent agreement

<table>
<thead>
<tr>
<th>Kappa Value</th>
<th># of items</th>
<th># of items in row with % agreement &gt; 70%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available/applicable</td>
<td>56</td>
<td>55</td>
</tr>
<tr>
<td>0.60 or above</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>0.40-0.59</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Less than 0.40</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

- Less reliable items were related to subjective or temporally-variable park attributes such as noise, shade, and lighting

- Some items retained given their theoretical significance for park-based PA

- Based on feedback from stakeholders, modifications are being made to clarify questions within the tool and instructions within the guidebook
  - e.g., bike lane vs. bike route
Workshop #3 - Debriefing and Dissemination

Stakeholders provided feedback and input on:

1) Their experience using the CPAT to audit parks around Kansas City

2) How best to disseminate the CPAT for future use

3) How to improve the process of developing and using the CPAT in other communities

Suggestions will be incorporated into modifications to the CPAT and guidebook, as well as future dissemination and training activities.
Future Research and Use of the CPAT

- Reliability and feasibility among diverse groups (e.g., youth) in different areas

- Short and long-term impacts of using such a tool and engaging in such a process on citizens’ knowledge, attitudes, and advocacy

- Research on the relationship between park environments and neighborhood and park-based physical activity
  - Kansas City Neighborhood and Park Study
Lessons Learned from Working with Diverse Community Stakeholders

- People bring a wide range of knowledge and attitudes about the built environment to the process.

- Considerable time investment necessary to organize 30+ busy individuals
  - Ensure you have excellent staff, frequent communication, strong partners.

- Impact of the tool development process on the community extends well beyond the development of a tool (for both stakeholders and you!)
  - Valuable connections with other key individuals/organizations
  - Interest in and momentum for advocacy
  - Increased awareness of how the built environment influences health

- 86% of stakeholders reported their perceptions of the importance of both the built environment and parks for promoting physical activity had improved ‘moderately’ or ‘a lot’ over the course of the project.
Summary

• Parks are important resources for physical activity, but they differ dramatically with respect to their facilities, amenities, quality, and neighborhood context.

• The Community Park Audit Tool provides diverse constituencies with a user-friendly yet content valid and reliable means of assessing the characteristics of local parks.

• Such actions may lead to not only increased awareness of the state of local resources, but also greater environmental justice and improved community health.
Acknowledgements

• Robert Wood Johnson Foundation Active Living Research program

• Kansas City, Missouri Parks and Recreation Department
  • Mark McHenry (Co-I), Director
  • Steve Lampone, Deputy Director

• Dr. Christine Hoehner, Washington University in St. Louis

• Dr. Andrew Mowen, Pennsylvania State University

• Dr. Brian Saelens, University of Washington

• Katy Vaughan, Department of Kinesiology, Kansas State University

• Over 30 Kansas City community stakeholders
Development and Testing of the Community Park Audit Tool

Kansas City Parks and Physical Activity Project:
www.ksu.edu/kines/kansas-city-parks-and-physical-activity-project.html

Andrew Kaczynski, Ph.D.
Assistant Professor
Dept of Kinesiology
Kansas State University
(785) 532-0709
atkaczyn@ksu.edu

Sonja Wilhelm Stanis, Ph.D.
Assistant Professor
Dept of Parks,
Recreation & Tourism
University of Missouri
(573) 882-9524
sonjaws@missouri.edu

Gina Besenyi, B.S.
MPH Candidate
Dept of Kinesiology
Kansas State University
(785) 532-3484
gmb3774@ksu.edu
Process-Related Outcomes Among Stakeholders

• **Networking and community building**

  - “The process encourages and fosters a sense of togetherness, team building and community”

  - “[The CPAT] provides a nice vehicle for engaging grassroots citizens and constituents in a reasonably manageable process by which to assess parks and what they offer”

• **Awareness and knowledge**

  - “I personally have gained greater awareness of and appreciation for the range and types of variation in parks available”

• **Planning and advocacy support**

  - “The CPAT can be a valuable resource for many organizations, specifically for me – a community collaborative working to prevent childhood obesity. This tool can help us inform families of places to be active, could help us identify areas of need related to physical activity, help guide our planning process, and help provide information to support advocacy efforts”