

Validity, Reliability, and Usability of a Smartphone App to Measure Bicycling Location

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Supplemental Information

Usability Survey

Methods

Approximately two weeks after the first data collection session, participants were emailed a link to a short survey. First, participants were asked if they still had the Strava app installed on their smartphone, and if so, how often they had used it. They were then asked to indicate how strongly they agreed or disagreed with the following statements (5-point Likert scale): (1) I like to use my smartphone to track my bicycling behavior; (2) The Strava app is useful for tracking my bicycling behavior; (3) I would prefer to use a smartphone app to track my bicycling behavior over another type of a device, such as a GPS or accelerometer. They were then asked to identify how they would prefer to have their bicycling tracked by a smartphone app during a research study: automatic tracking, one that they would start and stop themselves like Strava, some other method, or not participate in such a study.

Results

Of the 61 unique participants, 36 (59%) completed the post-ride user survey (Table S1). Ninety-four per cent still had the Strava app installed on their phone, and 53% used the Strava app in the past month to track at least 50% of their rides. The majority of participants agreed or strongly agreed with the statement that the Strava app was useful (83.3%), and 42% agreed or strongly agreed that they would prefer to use a smartphone app to track their bicycling. When asked what method of tracking within an app they would prefer for a research study, automatic tracking, starting and stopping the app, or something else, most participants (64%) preferred to use an app they would start and stop recording themselves.

Limitations

This survey was limited by the response percentage and associated sample size. One explanation of the limited response may be that the length of time between the study and the survey was too long for

participants to be compelled to complete it. Additionally, participants were given compensation at the point of the study visit; the survey was also not tied to further compensation.

Table S1. Post-ride usability survey

Variable	n(%)
Have Strava installed on phone	
Yes	34 (94)
No	2 (5.6)
How often have you used Strava when you went on a bicycle ride in the past month?	
100% of rides	11 (30.6)
75-99% of rides	4 (11.1)
50-74% of rides	3 (8.3)
25-49% of rides	5 (13.9)
1-24% of rides	4 (11.1)
0% of rides	7 (19.4)
No response	2 (5.6)
I like to use my smartphone to track bicycling	
Strongly agree	8 (22.2)
Agree	13 (36.1)
Neutral	9 (25.0)
Disagree	5 (13.9)
Strongly Disagree	1 (2.8)
The Strava app is useful for tracking my bicycling	
Strongly agree	13 (36.1)
Agree	17 (47.2)
Neutral	5 (13.9)
Disagree	0 (0.0)
Strongly Disagree	1 (2.8)
I would prefer to use a smartphone app to track my bicycling behavior over another type of device	
Strongly agree	9 (25.0)
Agree	6 (16.8)
Neutral	10 (27.8)
Disagree	7 (19.4)
Strongly Disagree	4 (11.1)
In a study, would you prefer an app that automatically tracks or one you start and stop	
Automatic tracking	11 (30.6)
Start and stop	23 (63.9)
Some other method	2 (5.6)
Would not participate	0 (0.0)