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Research Objectives & Methodology
Background to the research

StepJockey aims to do for the physical world what nutrition labels have done for food. By labeling stairs, walkways and other parts of the physical environment for ‘calorie burn’ it aims to seamlessly prompt and encourage exercise.

The system has 2 behaviour change mechanisms:
• Posters displaying calorie counts which are designed to sub-consciously prompt stair climbing in passers by
• Smart tracking technology which allows more active users to scan the posters with mobile applications and track and compare their performance with others

This piece of research was designed to measure the impact the posters and smart tracking technology have on behaviour when deployed in the real world.
Research objectives

• Measure the impact of the posters on stair climbing

• Measure the impact of smart tracking on stair climbing

• Measure the impact of incentivising those with smart cards

• Understand why they have the effect they do and among whom, stratified by age, gender, SEG, BMI and physical activity level

• Understand whether any compensatory behaviour occurred as a result of the interventions
Methodology Overview

Poster Trial
3 buildings
2 weeks baseline
4 weeks intervention
261,062 journeys

Recording stairs and lift journeys

Holistic Evaluation Programme

Smart Card Trial
50 people
2 sub-groups, 1 incentivised
2 weeks

Recording all stair journeys

People counters

Smart card readers

Questi-
onnaire

Among 370 in buildings (100+ per building)

Focus groups

Focus groups

To all participants

2 focus groups among building workers:
influenced & not

2 focus groups among trialists: incentivised & not

Poster Trial
3 buildings
2 weeks baseline
4 weeks intervention
261,062 journeys
Methodology detail

**Poster Trial**

- 3 buildings – County Hall & Farnham House (Hertfordshire), Elizabeth House (London)
- Baseline Period – 22\textsuperscript{nd} Oct – 2\textsuperscript{nd} Nov 2012 (2 weeks)
- Intervention Period – 6\textsuperscript{th} Nov – 30\textsuperscript{th} Nov 2012 (4 weeks)
- Questionnaire – 10 minutes, monitored self-completion, W/C 3\textsuperscript{rd} Dec 2012
- Focus groups – 13\textsuperscript{th} Dec 2012

**Smart Card Trial**

- 1 building – Elizabeth House
- 2 companies participating (ETDE & Bouygues)
- 3\textsuperscript{rd} Dec – 14\textsuperscript{th} Dec 2012
- 50 people – all given initial briefing on stair climbing benefits and smart cards
- 20 - incentivised with £50 Amazon vouchers (1 for week 1 winner, 1 for week 2 winner and 1 for overall best performance)
- 30 – no cash incentive
- All journeys recorded over 2 weeks and performance updates [team and individual] sent daily to all participants via email
- Questionnaire, 10 minutes, online self-completion, W/C 17\textsuperscript{th} Dec 2012
- Focus groups – 17\textsuperscript{th} & 18\textsuperscript{th} Dec 2012
A wide variety of messages were used in the posters.
Headline Results
Headline Results

- The presence of the posters resulted in significant increases in stair usage across all 3 buildings \( (p < 0.0001; n = 261,062) \)
  - The highest uplift being +16% increase
- The upward journeys are more influenced than downward
  - The highest uplift being +29% for up journeys
- 92% of new stair climbers report habit has become engrained
- Those most influenced by the intervention were:
  - Overweight (BMI > 25)
  - Infrequent takers of physical activity (< 2 x per week)
  - Women
  - 25-35 year olds
- Smart cards increased stair usage 5 fold over baseline (unincentivised) and 8 fold (incentivised)
Impact of the Posters
The Context: Baseline Period

Large and robust number of journeys recorded in all buildings (n=85,663 baseline). Note: Normal stair use recorded at 87% at County Hall.
Significant increase in stair use in all buildings

Greatest impact on upward journeys. Suggests opportunity for emphasising benefits of downward travel (n=261,062)

% Change in stair use (avg over 4 weeks)

Base: Total recorded journeys [County Hall 70,432, Elizabeth House 126,151, Farnham House, 64,479]
29% of people across the 3 building were influenced by the posters. Almost all say they will continue this behaviour.

**Total Behaviour Change (% saying used the stairs more)**

- **County Hall**: 16%
- **Farnham House**: 31%
- **Elizabeth House**: 40%

**How this will change in the future (% agree)**

- **Will go back to taking the alternative in a while**: 1%
- **Will take the stairs more and more**: 37%
- **Will continue taking stairs to same degree**: 55%

Q5. Do you think the posters made you change the amount you used the stairs? 
Base: CH 126, FH 122, EH 122

Q14. Do you think you will continue to take the stairs to this degree? 
Base: 108
Behaviour change most likely in women, 25-34 year olds, infrequent exercisers and the overweight

Suggesting it could be a good way to influence the more reluctant

% Influenced by sub group

Q5. Do you think the posters made you change the amount you used the stairs?
Base 374, 170,203, 28, 97, 98, 100, 50, 75 133
164, 154 101 46
Calories and health equally important as the simple, directive message

Messages that Influenced (% agree)

- Nett: Calories: 48%
- Nett: Health: 42%
- Take the Stairs: 43%
- Keeps your heart healthy: 36%
- Calorie counts info: 31%
- Tones your body: 20%
- Burns more calories than jogging: 20%
- Reduces the risk of stroke: 16%
- The signs on the steps themselves saying how many calories I’d burnt off: 16%
- Info about the stairs themselves: 12%

Q8. And what messages or info on the posters or signs (if any) were most motivating to you?
Base: 108

Just 'take the stairs' it’s all you need isn’t it? A simple reminder to make you feel guilty (female influenced)

Toned bums? Yeah that’s a great one, I can see the girls liking that one (female uninfluenced)

The health ones work best for me (female & male uninfluenced)
Main obstacle to change is perceived speed and convenience of the lift/escalator

Reasons for not using stairs (% agree)

- Take stairs all the time anyway: 44%
- The lift/escalator is quicker: 23%
- The lift/escalator is more convenient: 11%
- I often have things to carry: 11%
- Habit, I never take the stairs up: 8%
- I’m too lazy: 7%
- Habit, I just didn’t even think of using the stairs: 6%
- It’s easier to get to the lift/escalator than the stairs: 5%
- Other people I go up and down with use lift/escalator: 4%
- The lift/escalator’s more sociable: 2%
- The stairs are too tiring: 2%
- The stairs aren’t very welcoming: 2%

Q15. Why didn’t you take the stairs more than usual?
Base: 266

Those with BMI rating of “obese” are much more likely to agree with all the barriers.
Intervention sparked further physical activity. No evidence of negative compensatory activity.

Impact on exercise and eating (% agree)

- Go to the gym more: 3%
- Do more things to generally keep active: 8%
- Walk more than I used to: 21%
- Take stairs more elsewhere: 30%
- Exercised same amount: 67%
- Exercised more than I normally would: 16%
- Eaten less than normal: 5%
- Eaten same amount: 76%
- Eaten more than normal: 3%

In particular, the “obese” are more likely to take stairs elsewhere (45%) NB – low base.

Q11,11,12,13.
Base: 108
Impact of the Smart Cards
Incentivised smart cards lead to a calorie burn of over 200 Kcal per person per week

Of the 50 recruited, 48 climbed stairs

Stair Journeys & Calorie Burn among Smart Card Groups

<table>
<thead>
<tr>
<th></th>
<th>Smart Card &amp; Incentive</th>
<th>Smart Card Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stair journeys per person per week</td>
<td>39</td>
<td>27</td>
</tr>
<tr>
<td>Calories burnt per person per day</td>
<td>43</td>
<td>26</td>
</tr>
<tr>
<td>Calories burnt per person week</td>
<td>217</td>
<td>131</td>
</tr>
</tbody>
</table>

Smart Card readers
Base: 30 smart card only, 18 smart card & incentive
Smart card users recorded an extra 4.4 journeys on the stairs per day. Incentivised users recorded 6.8

<table>
<thead>
<tr>
<th></th>
<th>Avg no. of journeys on stairs per day baseline</th>
<th>No. of stair journeys per day among sub groups</th>
<th>Additional journeys per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Card Only</td>
<td>0.97</td>
<td>5.4</td>
<td>4.43</td>
</tr>
<tr>
<td>Smart Card &amp; Incentive</td>
<td>0.97</td>
<td>7.8</td>
<td>6.83</td>
</tr>
</tbody>
</table>

* Assumes sub groups shared baseline average for whole building

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I found I’d go up a couple of floors to go to the toilet instead of the nearest one (smartcard non-incentivised, female)

At lunchtime I’d go up and down the stairs a few times to clock up some journeys (smartcard - incentivised, female)
80% of smart card users changed their stair climbing habits – twice the norm in the same building

This was very similar across the incentivised and non incentivised groups

Total Behaviour change (% saying used the stairs a lot or little more)

- County Hall: 16%
- Farnham House: 31%
- Elizabeth House: 40%
- Smart Card Group*: 80%

Q5. Do you think the posters made you change the amount you used the stairs?
Base: CH 126, FH 122, EH 122, smart card 35 * NB Low Base

* NB Low Base
Competition was a major driver of behaviour change in the smart card groups.

**Influences on behaviour change (no. agree)**

- **Good for health**: 16
- **Competition**: 15
- **The posters made me think again**: 12
- **I want to tone up**: 11
- **I want to be fitter**: 11
- **The posters made me just feel a bit guilty**: 9
- **Weight loss**: 8
- **It was fun**: 8
- **Others were doing it**: 7
- **Did it and realised it was easy**: 6

*What is it that triggered you to change your behaviour?*

- **Base:** 35

- *I got competitive with myself* (smartcard non-incentivised, female)
- *It was time I did some exercise* (smartcard incentivised, female)
- *I could feel my legs toning up* (smartcard incentivised, female)
- *In no time I started to physically feel good* (smartcard incentivised, female)
- *Seeing those posters definitely made me feel guilty* (smartcard incentivised, female)
**Smart card users reported physical health improvements**

- **22 said they had started taking the stairs in other places**
- **6 exercised more, 1 less, others the same**
- **1 ate more, 1 ate less, others the same**

![Bar chart showing physical health improvements](chart)

**Effect Witnessed (no, stating each change)**

- Felt Healthier: 18
- Physical Improvement: 18
- More Energetic: 14
- More Toned: 13
- Less tired exercising: 13
- Less out of Breath: 12
- More Awake: 11
- Better Frame of Mind: 11
- Lost Weight: 2

*What effects have you noticed? Base: Those seeing an effect 39*
Summary of Results
Headline Results

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  - Overweight (BMI > 25)
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  - Women
  - 25-35 year olds
- Smart cards increased stair usage 5 fold over baseline (unincentivised) and 8 fold (incentivised)
Taking the results and forecasting calorie burn forward

<table>
<thead>
<tr>
<th>Building</th>
<th>extra stair journeys per day</th>
<th>per week</th>
<th>per month</th>
<th>per year</th>
<th>Calorie equivalent per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>County Hall</td>
<td>49</td>
<td>244</td>
<td>1225</td>
<td>10780</td>
<td>75,891</td>
</tr>
<tr>
<td>Elizabeth House</td>
<td>114</td>
<td>569</td>
<td>2850</td>
<td>25080</td>
<td>144,461</td>
</tr>
<tr>
<td>Farnham House</td>
<td>80</td>
<td>400</td>
<td>2000</td>
<td>17600</td>
<td>61,952</td>
</tr>
<tr>
<td>SC Trial only</td>
<td>6350</td>
<td>31,750</td>
<td>158,750</td>
<td>1,397,000</td>
<td>4,023,360</td>
</tr>
<tr>
<td>SC Trial Incentive</td>
<td>9173</td>
<td>45,865</td>
<td>229,325</td>
<td>2,018,060</td>
<td>5,812,012</td>
</tr>
</tbody>
</table>

* We have assumed a company of 1200 took part i.e. the same number of employees as in Elizabeth House
** We have assumed of the 1200, 1176 would take part (i.e. same drop out rate as in the smart card test)
Smart card users could see benefits beyond their health

1. An opportunity for companies to show they care and are interested in health and well-being of staff

2. An opportunity for creation of teams to form bonds where they may be beneficial (people who don’t work together or work together but don’t empathise etc)

3. An opportunity to create corporate feelgood by achieving something together (donation to charity from company/night out on the company etc)

It gives a real feeling that everyone is in together. We should get wristbands to identify teams (smartcard incentivised, female)

Companies could give a day off or anything couldn’t they? I mean it’s an opportunity for them to encourage the workplace to be healthier and they benefit long term (smartcard incentivised, female)
Thoughts on improvements from smart card users

**Give more advice & challenge**
- Give us *advice* on how most effectively to do it – holding in tummy etc. (smartcard non-incentivised female)
- *Tell people* you burn more the bigger you are to incentivise those out of shape (smartcard non-incentivised)
- Get people to *set targets* of what they would like to achieve so they have something to work towards. And the number of steps you need to take to get there. (smartcard incentivised, female)

**Make it broader & more encompassing**
- *Send feedback* in the morning (smartcard non-incentivised, male)
- It would be good if we could measure us going up and down the *corridor* too as that’s miles! (smartcard

**Make it easier**
- *Touch in and out* system to make it easy for us (smartcard)
- Maybe *connect it* to our entrance ID card so we don’t have to carry 2 cards? (smartcard incentivised, female)

**Make it more worthwhile**
- *Give a reward* such as a voucher to spend, or a small gift (smartcard non-incentivised)
Overall observations on human behaviour

• **Salience & Message**
  - Signs in places designed to disrupt daily routines can cut-through. By deploying signs next to lifts, inside lifts, on stair walls and runners led to 95% of people in a building noticing them.
  - A simple direct message (almost order) works to affect a change, the health benefit is simply used as the rational (to themselves & others) to justify the action

• **Incentives worked**
  - While in focus groups people say the incentive is not important, but in real life it sparked greater behaviour change (increasing daily stair use from 5.4 journeys to 7.8)

• **The Herd Effect was evident**
  - 22% believed their stair climbing influenced others and 16% believed they had been influenced by others.

• **Defaults & Habits set in after 4 weeks**
  - In the case of stair climbing, behaviour change over the course of 4 weeks may well be sufficient time to change habits. 92% believed they would continue stair climbing

• **Challenge & Commitment help to stick to the change**
  - Upward journeys were more affected, the competition was a strong driver of behaviour change and people wanted to set themselves targets to track themselves against.

• **Ego came to the fore and leads to greater behaviour change**
  - Once people had made this small change they had the desire to continue to act positively and consistently – a third of people had started taking the stairs in other places.
Please contact us with any questions

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The logic behind the calorie burn calculation for smart cards

Number of journeys in Elizabeth House baseline = 3794

Elizabeth House has 1200 workers. This equates on average to 3.16 journeys per person per day

31% of Elizabeth House journeys were on the stairs pre poster trial.

Therefore, on average each person did 0.97 journeys on the stairs per day