CSRC Collaborative Safety Research Center TOYOTA

The Distracted Walking Dojo

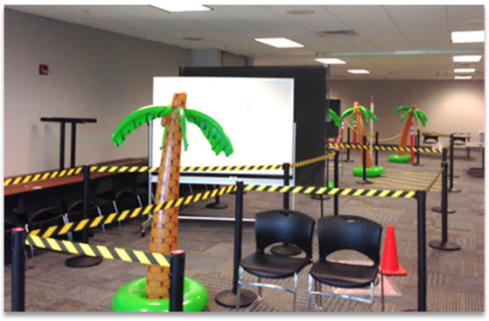
The Toyota Technical Center needed to create a more tangible safety message.

- To accomplish this, a fun and informative walking obstacle course was created to demonstrate the degradation in performance due to trying to combine texting and walking.

Dojo is a Japanese term which literally means *"place of the way"*. The term typically refers to a formal training place.

So, the obstacle course quickly was known as the Walking Dojo.

Dojo went from this to that



See a YouTube video at:
https://www.youtube.com/watch?v=wsB4Yafrcm8

- CSRC was asked to help with the distraction task and evaluation. Iin turn CSRC reached out to collaborative partners MIT AgeLab and University of Toronto.

MIT AGELAB n-back task app

The MIT n-back task

An emerging internationally accepted method for inducing graded cognitive workload for scaling comparisons of other tasks

- Series of 10 single digit numbers (0-9) presented in random order aurally at 2.25 sec intervals
- Subject instructed to respond with nth digit back (1-back used for Dojo
- Across levels
  - Auditory demands constant
  - Vocal demands "relatively" constant

Stimulus	6 9 1 7 0 8 4
0-back Response	6 9 1 7 0 8 4
1-back Response	- 6 9 1 7 0 8
2-back Response	- - 6 9 1 7 0

(Mehler, Reimer, Dusek & Coughlin, 2011)

Download the **android** application from

Mechanical & Industrial Engineering UNIVERSITY OF TORONTO

U of Toronto SDDQ

The Susceptibility to Driver Distraction Questionnaire (SDDQ) investigates voluntary and involuntary factors associated with driver distraction.
Modified for Distracted Walking.

Download SDDQ from

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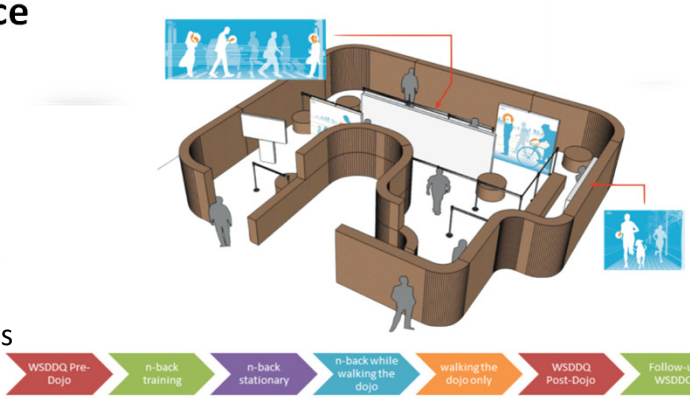
Dojo evaluation at 2015 Lifesavers Conference

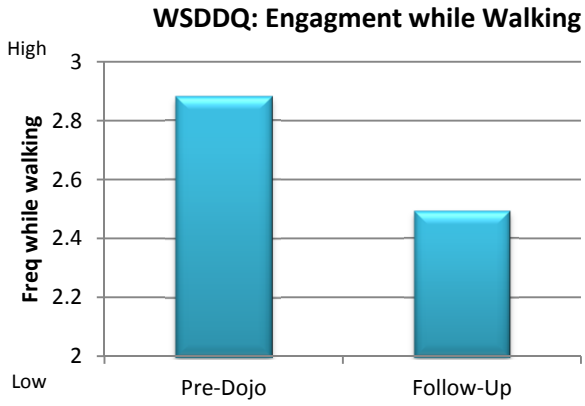


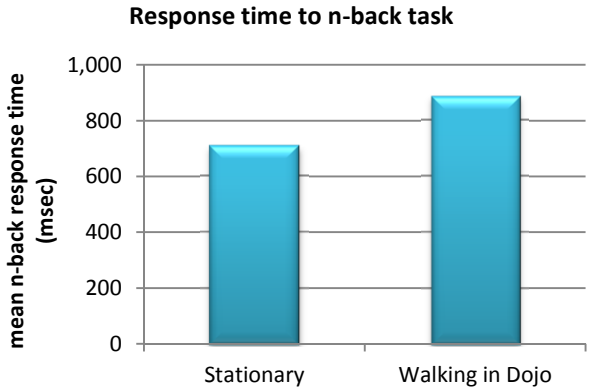
Participants

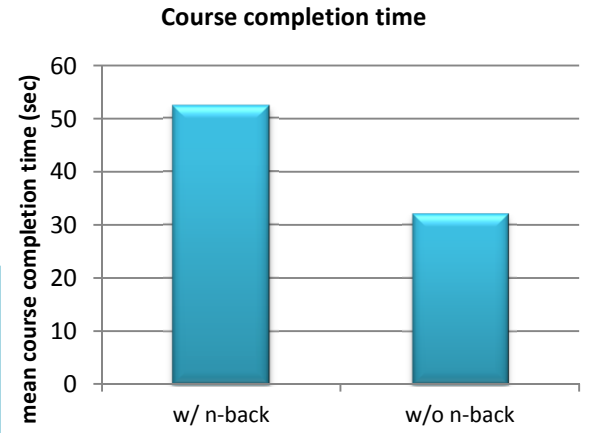
- 68 Lifesavers attendees agreed to participate
- 54% volunteered for a follow up survey in 1 month
- 38% filled out the follow up survey

Results

- The **time to respond to the n-back task increased significantly** while the participants navigated the dojo vs being stationary [right top chart, $p<0.01$].
- The **course completion time in the dojo increased significantly** when the participant simultaneously performed the n-back vs just walking through the dojo (right bottom chart, $p<0.01$).
- Neither the n-back response time nor the course completion time had any significant interactions with gender or age.
- Self-reports of walking while distracted decreased (below chart, $p<0.01$).

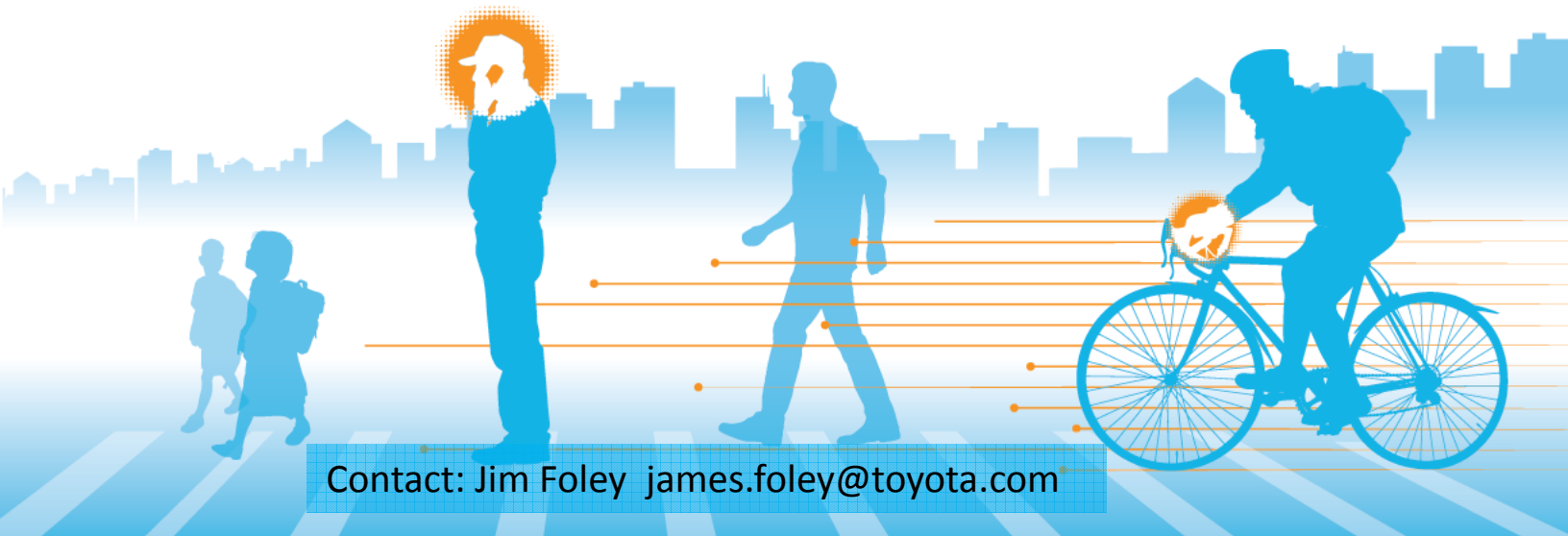






Conclusion:

- The Dojo is effective in demonstrating the penalty of distracted walking
- The Dojo can change negative behaviors



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