

# Validating Check-All and Forced-Choice Question Formats in a Campground Survey

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Brian W. Dyck, Science Policy and Economics Division

Stuart Walsh, BC Parks

BC Ministry of Environment

# Outline

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Background

Methodological issue

Policy issue

Experimental design

Key findings

Implications





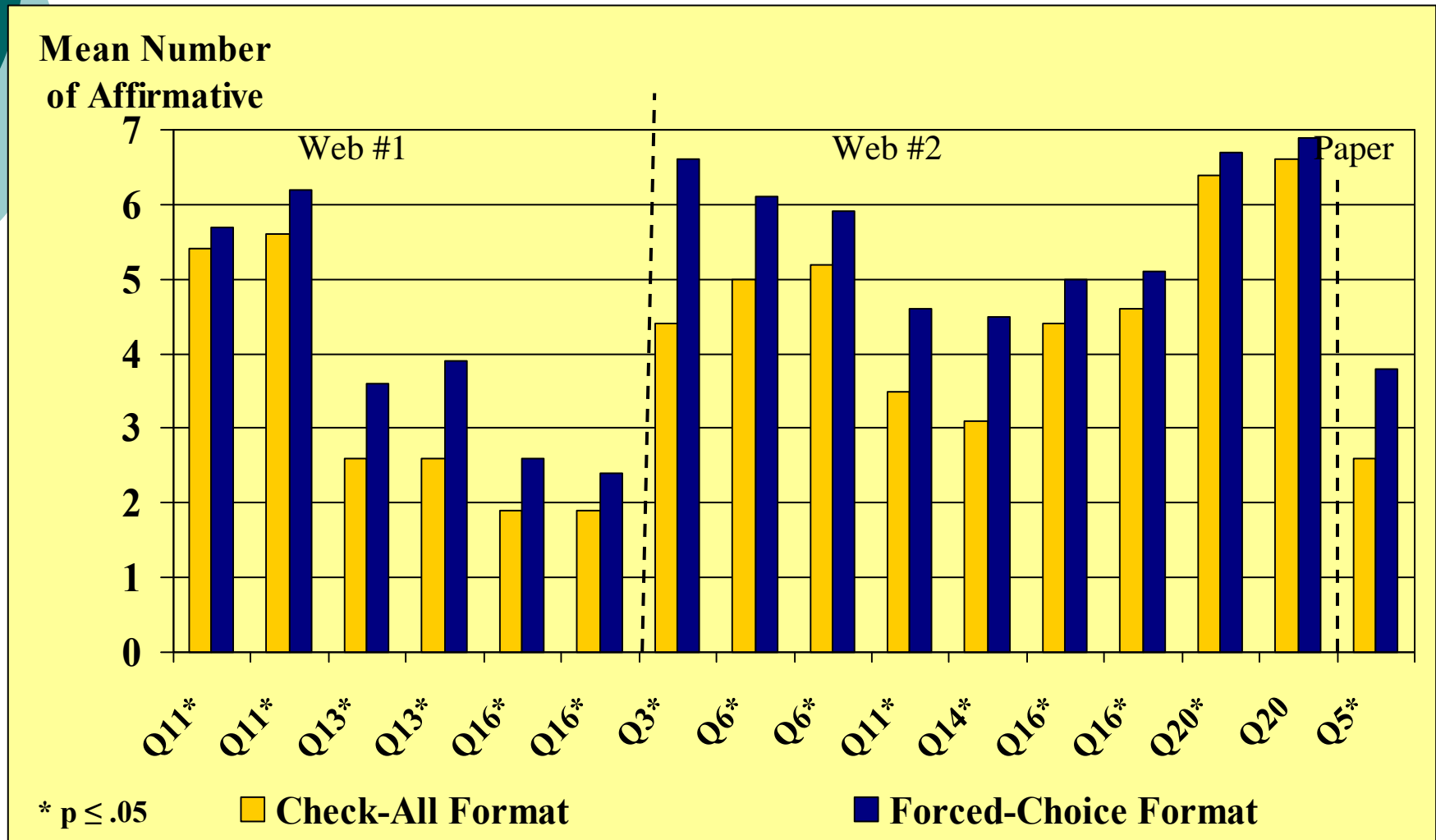
# Background – methodological issue

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- Two common wording formats - check-all-that apply and forced-choice (i.e. yes/no)
- Assumption that respondents will answer two formats similarly (i.e. functionally equivalent)
- Recent experimental studies (only four published papers) – have consistently demonstrated higher mean number of affirmative answers for forced-choice than check-all-that apply

# One study – 15 out of 16 comparisons were significantly higher for forced-choice format

(Smith, Dillman, Christian, Stern, 2006)





# Background – methodological issue

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- Two explanations for difference in two formats
  - Check-all – weak satisficing (only read a few response options and move to next question)
  - Forced-choice – greater depth of processing (respondent read and select an answer to each question)
  
- Some suggest greater accuracy for force-choice format, but no studies with **external validation**

# Background – policy issue

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## Large park system

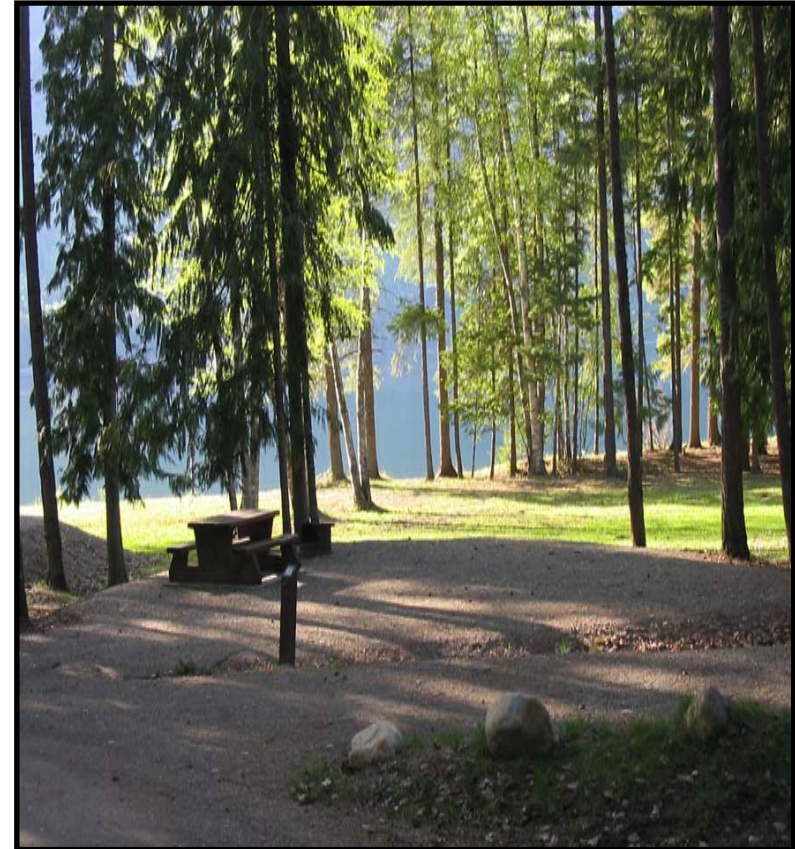
- ~ 11,000 campsites; > 2 million recorded visit

## Policy decision

- Changing style of campsite – electrical hook-ups for R.V (~\$10,000 per campsite)

## Key data source/question

- Annual satisfaction survey since 1985 – are results from camping shelter question (check-all) accurate?



# Experimental design

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Manipulated two experimental questions

Q.5 – type of camping shelter used (included external measure)

Q.9 – types of information sources used

Objectives

1. Compare two question formats (check-all vs forced choice) to external validation measure
2. Examine effect of long list on difference between two formats
3. Examine effect of chunking (two columns vs one column)



# Methodology

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- Conducted in three campgrounds during summer of 2006 (Sasquatch, Mabel Lake, Lac La Hache)
- Five versions of questionnaires and distributed in alternating basis (V1, V2, V4, V5, V1...)
- External validation of camping shelter used – done by observation when questionnaire distributed at the time the fee collected at the campsite
- Only one contact - response rate ranged from 50% to 75%; n = 131 to 199

# Experiment 1 research question – which format is closer to external validation?

## Version 1 - Check-all-that apply

Q.5 Which of the following camping shelters did you use during your stay in this campground? (Please circle number of **all** that apply)

- 1 TENT
- 2 TRAVEL TRAILER/5<sup>TH</sup> WHEEL
- 3 TENT TRAILER
- 4 MOTORHOME
- 5 TRUCK CAMPER
- 6 VAN
- 7 OTHER (Specify)\_\_\_\_\_

## Version 2 - Forced-choice

Q.5 For each of the following camping shelters, please tell us if you did (yes) or did not (no) use each one during your stay in this campground? (Please circle number of your answer for **each** item)

	YES	NO
<b>CAMPING SHELTERS</b>	▼	▼
A TENT.....	1	2
B TRAVEL TRAILER/5 <sup>TH</sup> WHEEL...	1	2
C TENT TRAILER.....	1	2
D MOTORHOME.....	1	2
E TRUCK CAMPER.....	1	2
F VAN.....	1	2
G OTHER (Specify)_____	1	2

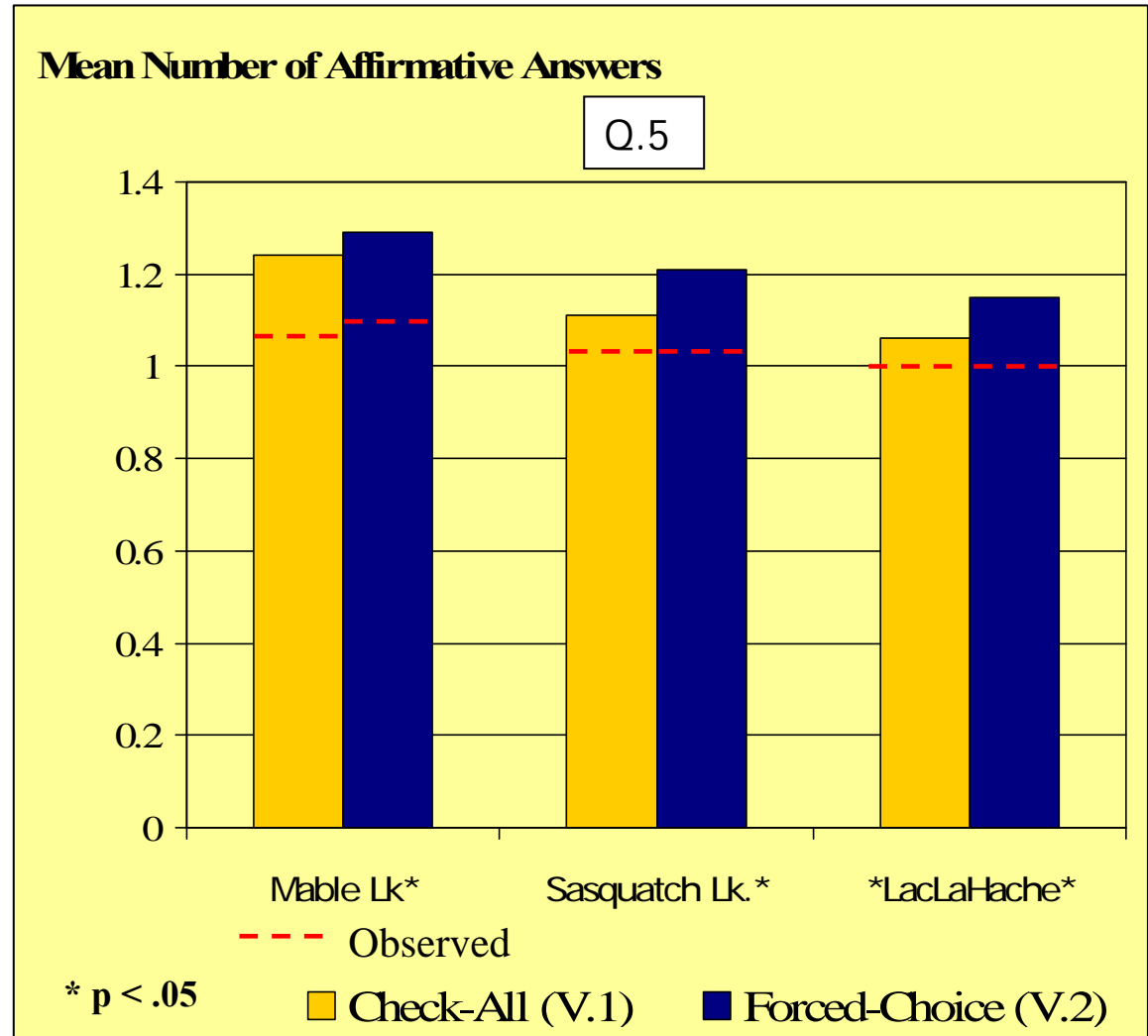
# Experiment 1 – both formats were higher than external validation measure

## Camping shelter question

1. No significant difference between question format in 2 out of 3 campgrounds

2. In all 3 campgrounds, both check-all and forced-choice were significantly higher than the observed measure.\*

\*Based on randomized incomplete block design



# Experiment 2 question – would fewer response options (or words) reduce differences in formats?

Q.5 Which of the following camping shelters did you use during your stay in this campground? (Please circle number of **all** that apply)

- 1 TENT
- 2 TRAVEL TRAILER/5<sup>TH</sup> WHEEL
- 3 TENT TRAILER
- 4 MOTORHOME
- 5 TRUCK CAMPER
- 6 VAN
- 7 OTHER (Specify)\_\_\_\_\_

10 characters per response option

Q.9 Prior to arriving in this campground, which of the following information sources did you use for this trip? (circle number of **all** apply)

- 1 I DID NOT GET INFORMATION PRIOR TO TRIP
- 2 PREVIOUS VISIT(S) – I HAVE BEEN BEFORE
- 3 ADVICE FROM FRIENDS AND RELATIVES
- 4 ADVICE FROM VISITOR INFORMATION CENTRES DURING TRIP
- 5 BC PARKS WEB SITE
- 6 TOURISM BC WEB SITE (e.g. Hello BC.com)
- 7 "GO CAMPING" BC VISITOR GUIDE
- 8 OTHER (Specify)\_\_\_\_\_

27 characters per response option

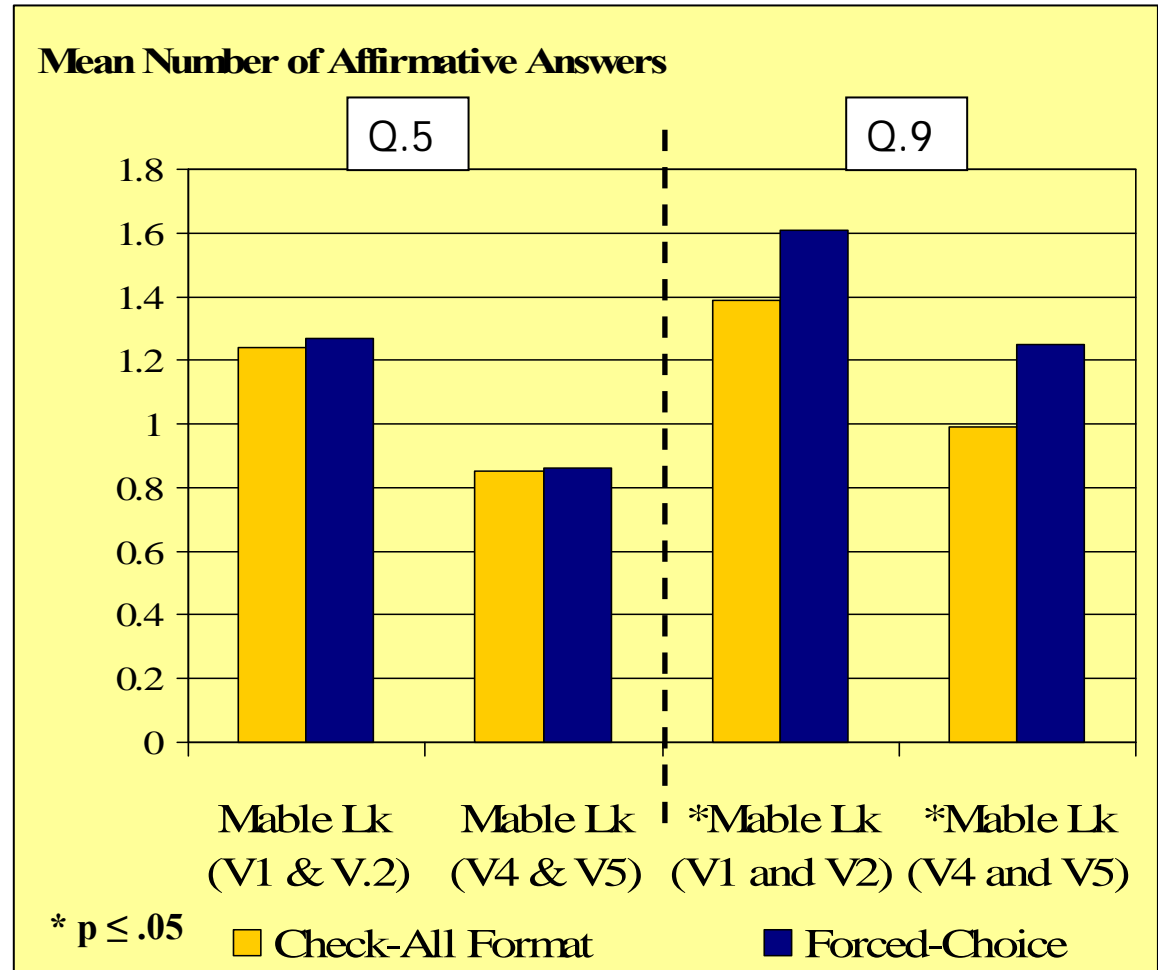
# Experiment 2 – a difference occurred in the longer list, but not in shorter list

## Camping shelter question (Q.5)

No difference - longer list (6 close-ended) vs shorter list (3 close-ended) of response options

## Information sources used (Q.9)

Significant difference – longer list (7 close-ended) vs shorter list (4 close-ended) of response options



# Experiment 3 question – what effect would “chunking” have on check-all format?

Q.5 Which of the following camping shelters did you use during your stay in this campground? (Please circle number of **all** that apply)

one column →

1	TENT
2	TRAVEL TRAILER/5 <sup>TH</sup> WHEEL
3	TENT TRAILER
4	MOTORHOME
5	TRUCK CAMPER
6	VAN
7	OTHER (Specify) _____

two columns →

1	TENT
2	TRAVEL TRAILER/5 <sup>TH</sup> WHEEL
3	TENT TRAILER

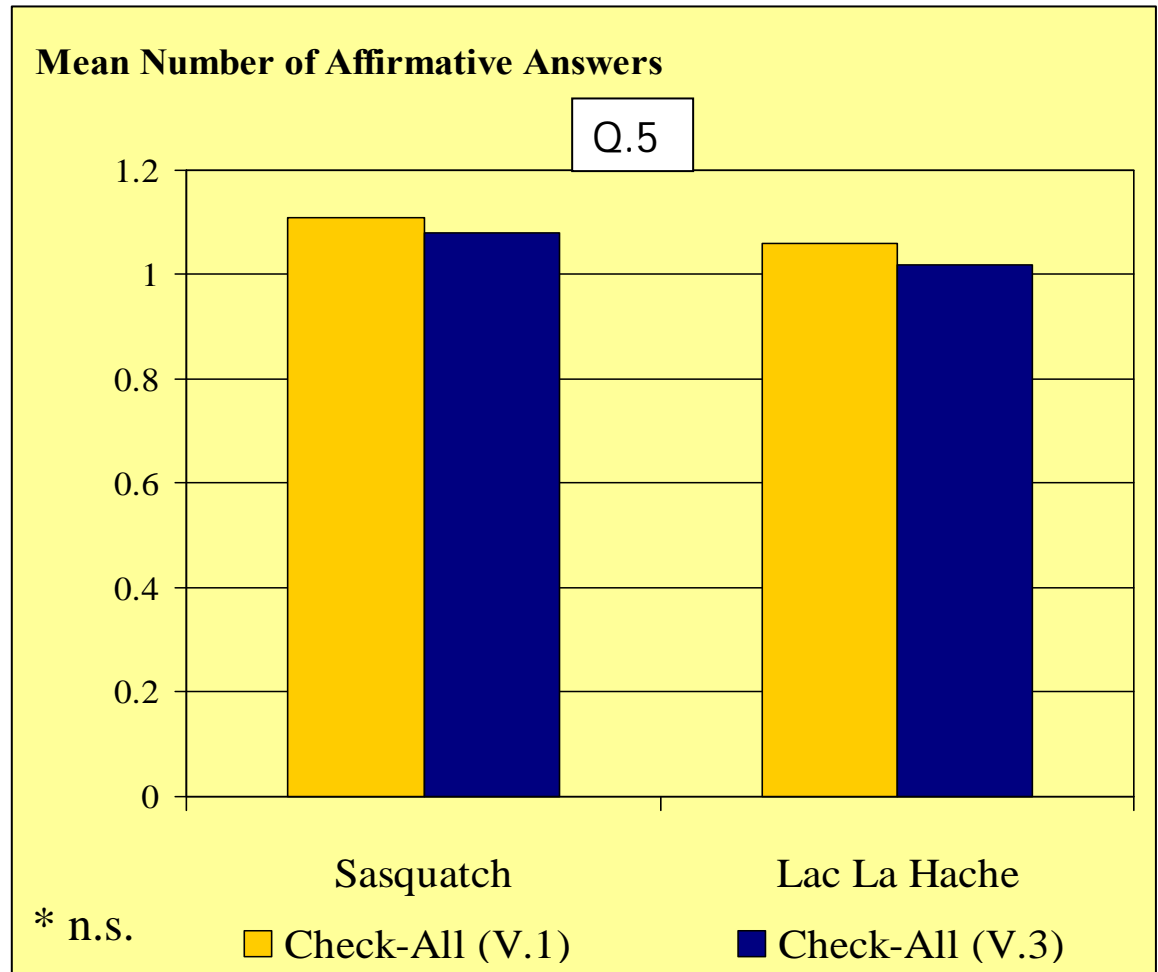
4	MOTORHOME
5	TRUCKCAMPER
6	VAN

7 OTHER (Specify)  
\_\_\_\_\_

# Experiment 3 – no difference found between one column and two columns

## Camping shelter question (Q.5)

No significant difference - one column (Version 1) vs two columns (Version 3)



# Conclusions

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1. Differences between two formats may not occur if check-all is highly salient (attribute) and short (few options and few words)
2. Our external validation was consistently lower than both formats – not clear why?
  - Timing of observed measure – inclement weather (tent not up), vehicle absent (e.g. member of party went to purchase of groceries), etc.
  - Diligence of operators – training provided, but survey one of many responsibilities
3. The total number of words may contribute to difference between the two formats



# Management implications

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1. The results of the check-all and forced-choice formats for camping shelter is quite consistent. Thus, changing the question may not be needed.
2. Useful to repeat experiments with larger sample sizes in one or two other campgrounds.
3. If conducting cost/benefit analysis of changing some existing campsites to electrification, probably useful to implement sensitivity analysis using validation measure as lower bound.

# Future research

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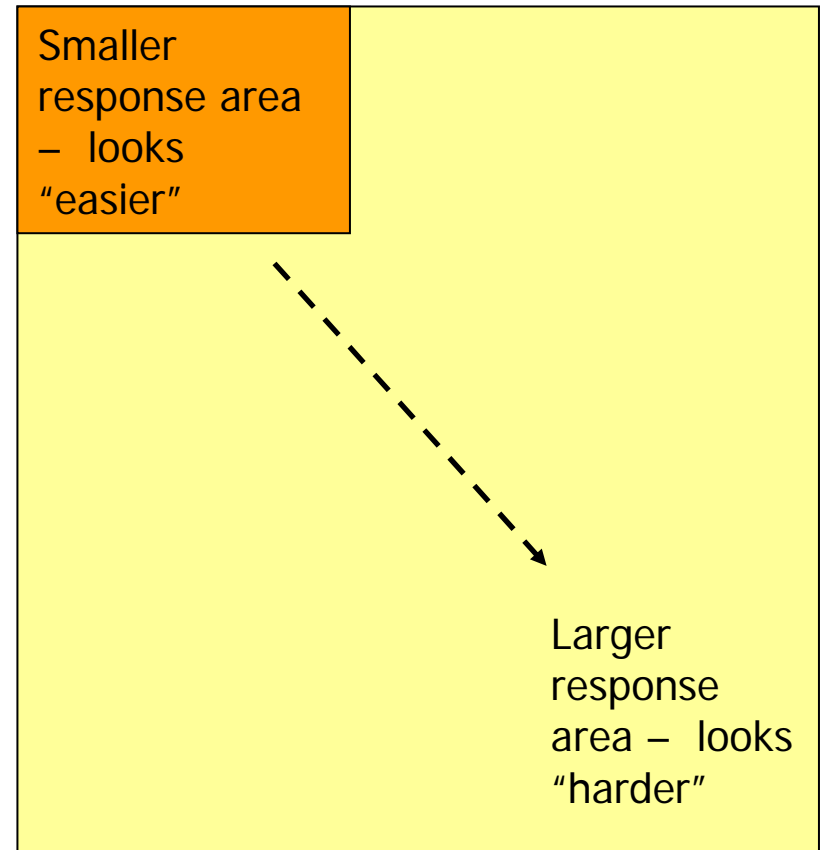
1. Conduct other validation studies (e.g. boating equip.)



# Future research

2. Systematically modify the number of response options to determine when the gap between two formats increases

Does size of response area affect the difference in the formats?



Thanks...

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Email: [Brian.Dyck@gov.bc.ca](mailto:Brian.Dyck@gov.bc.ca)