



Response Option Order Effects in Cross-Cultural Context

An Experimental Investigation

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Yongwei Yang
yongwei@google.com



Rich Timpone
Rich.Timpone@ipsos.com



Mario Callegaro
callegaro@google.com



Marni Hirschorn
Marni.Hirschorn@ipsos.com



Vlad Achimescu
nomoteticus@google.com



Maribeth Natchez
Maribeth.Natchez@ipsos.com

Background

In survey research we sometimes observe ...

Seemingly conflicting answers

Conflicting answers on the same topic within the same survey

Open-ended answer in opposite sentiment

Glowingly positive open-ended evaluations of a subject immediately after providing low ratings

Is the culprit due to using the scale differently?

Specifically, our study focuses on how response option orders affect the ratings:

Which design may better elicit true attitude?

Response option order effect

Response option order effect occurs when *different orders of rating scale response options lead to different distribution or functioning of survey questions.*

Response option order may be described based on the location of the positive end of the rating scale (i.e., positive-end positioning). Hence it may manifest differently depending on the orientation of the scale --

Scale Orientation	Response Option Orders Described based on Positive-end Positioning
Vertical	Positive-on-top vs. Positive-at-bottom
Horizontal	Positive-on-left vs. Positive-on-right

Theoretical interpretations

Possible interpretations of the effects ...

- Primacy effect due to satisficing
- Primacy effect due to anchor-and-adjust
- Interpretation heuristics

Theoretical interpretations of the effects

Primacy effect due to satisficing

- Krosnick & Alwin (1987), p. 203: *“Instead of seeking optimal solutions to problems, people usually seek solutions that are simply satisfactory or acceptable in order to minimize psychological costs. ... The claim that primacy effects are more common when the list of alternatives is long is consistent with the accumulated body of evidence on response-order effects”*
- While Krosnick & Alwin (1987) was discussing the ordering of a long list of statements used as answer choices, it is nevertheless cited by others as possible explanations for answer scale response option order effects (Chan, 1991; Ferrall-Nunge & Cooper, 2011; Garbansky, Schaeffer, & Dykema, 2019; Mavletova, 2013; etc.)

Theoretical interpretations of the effects

Primacy effect due to anchor-and-adjust

- Yan & Keusch (2015) (and citing Tversky & Kahneman (1974)), p. 147-148:
 - *"The basic idea is that people make numerical estimates when under uncertainty by **anchoring on an initial value (e.g., the start of a rating scale)** and then adjusting to that anchor until a plausible estimate is reached. Because the adjustments made to the anchor are more often incomplete and insufficient, the final estimate is usually biased toward the anchor."*
 - *"... rating scales are expected to be subject to primacy effects ... because respondents are assumed **to consider the scale points sequentially and satisficing respondents are attracted to the first plausible option** that he/she comes across due to memory limitation, decreasing motivation, and/or fatigue ..."*

Theoretical interpretations of the effects

Interpretation heuristics

- Tourangeau, Couper, & Conrad (2004, 2013), also Chan (1991)
- A couple relevant heuristics:
 - Left and top mean first
 - Up means good

But,

let's think about some “cultural” or language aspects ...

Cultural or language factors may complicate the ...

“primacy effect due to satisficing” interpretation

- The easiest to access or most “attractive” choice in the satisficing process may vary due to “cultural” factors such as reading/writing conventions.

Cultural or language factors may complicate the ...

“primacy effect due to anchor-and-adjust” interpretation

- What’s the “start” on a rating scale may be viewed differently due to cultural-specific reading/writing conventions

Cultural or language factors may complicate the ...

“interpretive heuristic” interpretation

- “Heuristics” can differ due to cultural-specific reading/writing conventions
- Within-culture variations further complicates -- people may be exposed multiple conventions because they may ...
 - Use multiple languages
 - Use different conventions in the same language (e.g., in Japan)
 - Learn about a different convention for some tasks (e.g., math*)
 - Experience a different convention other wise (e.g., reading online)
 - Any of the above can make someone less susceptible to the impact of a single interpretation heuristics
 - And because a culture comprises of people with varying linguist background and experience, “cultura”-level comparisons can be more complicated or misleading

* Elementary school math example in [Japanese](#) and [Hebrew](#).

There's also a broader debate in the field of Linguistics

Do structures of language impact how one sees the world?

Neo-Whorfianism	Yes	Ex. Chen 2013- language affects economic behavior
Universalism	No	Ex. McWhorter 2014- many effects are spurious or substantively unimportant

Cross national experiment of language differences led to perception differences of length vs. volume

Casasanto 2010 - languages that use size vs. volume metaphors of time evaluate progressions via line length or filling a box differently

Further complications ...

The effect may also vary across two intertwining factors:
survey topic and respondent motivation

State of the existing research

Limited volume

From the 1960s to the 2010s, only a small body of survey or psychological measurement literature looked specifically at response option order effects in rating scales

Inconsistent findings

The presence and extent of the effect have been found inconsistent in this literature, prompting various explanations of the effect.

Mostly mono-cultural

All but a very few (e.g., Ferrall-Nunge & Couper, 2011) were conducted in mono-cultural fashion.

EXAMPLE: Recent research on scale orientation for self-rated health (SRH) - Desktop respondents

Would you say your health in general is excellent, very good, good, fair, or poor?

	Garbarski, Schaeffer & Dykema (2015)	Garbarski, Schaeffer & Dykema (2016)	Garbarski, Schaeffer & Dykema (2019)
Scale orientation	Vertical	Vertical	Vertical and Horizontal
Scale manipulation	Positive to Negative and Negative to Positive		
Online sample and sample size	U.S. KnowledgePanel (≅1,300 per cond.)	U.S. KnowledgePanel (≅ 670 in study 1 & ≅ 240 study 2 per cond.)	U.S. Amazon Mturk (≅ 450 per condition)
Results	Higher mean (healthier respondents) when response scale ordered from Excellent to Poor*		

* Note: Here, "ordered from Excellent to Poor" means "Excellent" (i.e., the positive end of the scale) is presented at the Top or Left.

Research Questions & Design

Research Questions

- RQ1. Are there response option order effects? That is, do response distributions differ depending on positive-end positioning?
- RQ2. (If RQ1 is “yes”) Does the effect resemble a primacy effect?
- RQ3. Do scale presentations that contradict reading/writing conventions burden or confuse respondents more?

The cross-cultural extension to different reading/writing conventions

US | **Israel (Hebrew)** | **Japan (Japanese)**

Design

Respondents were randomly assigned to one of four conditions:

- Vertical orientation, Positive-on-top
- Vertical orientation, Positive-at-bottom
- Horizontal orientation, Positive-on-left
- Horizontal orientation, Positive-on-right

Within each condition unipolar & bipolar block scales were shown

The order of presentation of unipolar & bipolar items was counterbalanced (counterbalanced)

250 per condition; 1,000 per country; Online panel respondents; Desktop only

Three countries: US, Israel (IL), Japan (JP)

- IL respondents were screened for Hebrew being the primary language

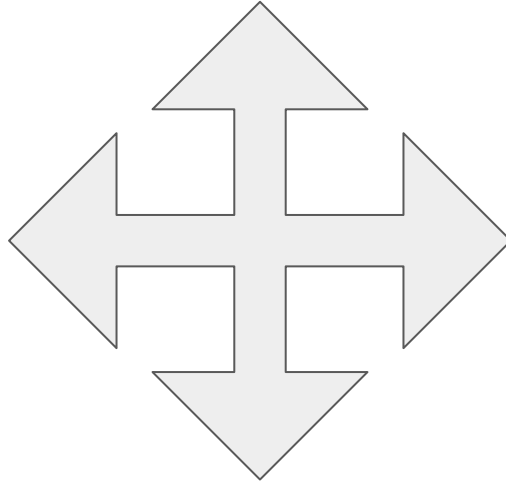
Scale format: 5-, 7-, and 11-point scales, bipolar and unipolar, various scale constructs

Survey topics: personal health and well-being, social and economic topics, personal financial situation, consumer attitude

Design

Countries were specifically selected to provide variance across the language reading/writing conventions:

- US: Horizontal - Left to Right
- IL: Horizontal - Right to Left
- JP: Vertical - Top Down



IMPORTANT

The comparison of vertical vs. horizontal orientations is NOT an objective of the study.

Instead, we investigate the response option order effect WITHIN each type of orientation.

Screenshots examples of scale questions in English

Vertical orientation, Positive on Top

Respondent Serial: 361, Current question: Q2

How healthy or unhealthy do you feel physically?

Very healthy
Somewhat healthy
Neither healthy nor unhealthy
Somewhat unhealthy
Very unhealthy

[Previous](#) [Next](#)

Horizontal orientation, Positive on Left

Respondent Serial: 362, Current question: Q2

How healthy or unhealthy do you feel physically?

Very healthy	Somewhat healthy	Neither healthy nor unhealthy	Somewhat unhealthy	Very unhealthy
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[Previous](#) [Next](#)

Vertical orientation, Positive at Bottom

Respondent Serial: 364, Current question: Q2

How healthy or unhealthy do you feel physically?

Very unhealthy
Somewhat unhealthy
Neither healthy nor unhealthy
Somewhat healthy
Very healthy

[Previous](#) [Next](#)

Horizontal orientation, Positive on Right

Respondent Serial: 360, Current question: Q2

How healthy or unhealthy do you feel physically?

Very unhealthy	Somewhat unhealthy	Neither healthy nor unhealthy	Somewhat healthy	Very healthy
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[Previous](#) [Next](#)

Screenshots examples of scale questions in Hebrew

Vertical orientation, Positive on Top

Respondent Serial: 373. Current question: Q2

באיזו מידה אתה חש בריא, או לא בריא, מבחינה פיזית?

בריא מאוד
בריא במידה מסוימת
לא בריא ולא לא בריא
לא בריא במידה מסוימת
מאוד לא בריא

Vertical orientation, Positive at Bottom

Respondent Serial: 374. Current question: Q2

באיזו מידה אתה חש בריא, או לא בריא, מבחינה פיזית?

מאוד לא בריא
לא בריא במידה מסוימת
לא בריא ולא לא בריא
בריא במידה מסוימת
בריא מאוד

Horizontal orientation, Positive on Right (Read right to left)

Respondent Serial: 371. Current question: Q2

באיזו מידה אתה חש בריא, או לא בריא, מבחינה פיזית?

מאוד לא בריא	לא בריא במידה מסוימת	לא בריא ולא לא בריא	בריא במידה מסוימת	בריא מאוד
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Horizontal orientation, Positive on Left

Respondent Serial: 372. Current question: Q2

באיזו מידה אתה חש בריא, או לא בריא, מבחינה פיזית?

בריא מאוד	בריא במידה מסוימת	לא בריא ולא לא בריא	לא בריא במידה מסוימת	מאוד לא בריא
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Screenshots examples of scale questions in Japanese

Vertical orientation, Positive on Top

Respondent Serial: 368, Current question: Q2

身体的にどの程度健康または不健康だと感じますか？

とても健康
いくらか健康
健康でも不健康でもない
いくらか不健康
とても不健康

前へ 次へ

Horizontal orientation, Positive on Left

Respondent Serial: 366, Current question: Q2

身体的にどの程度健康または不健康だと感じますか？

とても健康	いくらか健康	健康でも不健康でもない	いくらか不健康	とても不健康
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前へ 次へ

Vertical orientation, Positive at Bottom

Respondent Serial: 359, Current question: Q2

身体的にどの程度健康または不健康だと感じますか？

とても不健康
いくらか不健康
健康でも不健康でもない
いくらか健康
とても健康

前へ 次へ

Horizontal orientation, Positive on Right

Respondent Serial: 367, Current question: Q2

身体的にどの程度健康または不健康だと感じますか？

とても不健康	いくらか不健康	健康でも不健康でもない	いくらか健康	とても健康
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前へ 次へ

Key Findings

Key Findings: RQ1

Are there response option order effects? That is, do response distributions differ depending on positive-end positioning?

Response option order effect is operationalized as scale mean differences:

- Vertical orientation: Positive-on-top minus Positive-at-bottom
 - Positive mean differences indicate the “positive-on-top” condition had higher scale means
- Horizontal orientation: Positive-on-left minus Positive-on-right
 - Positive mean differences indicate the “positive-on-left” condition had higher scale means

We also fitted linear mixed models to estimate the average effect across survey questions. A total of 12 models were fitted for the combinations of three countries, two orientations, and two scale formats (5-pt bipolar and 7-pt bipolar).

Vertical orientation:

Did we see response option order effect?

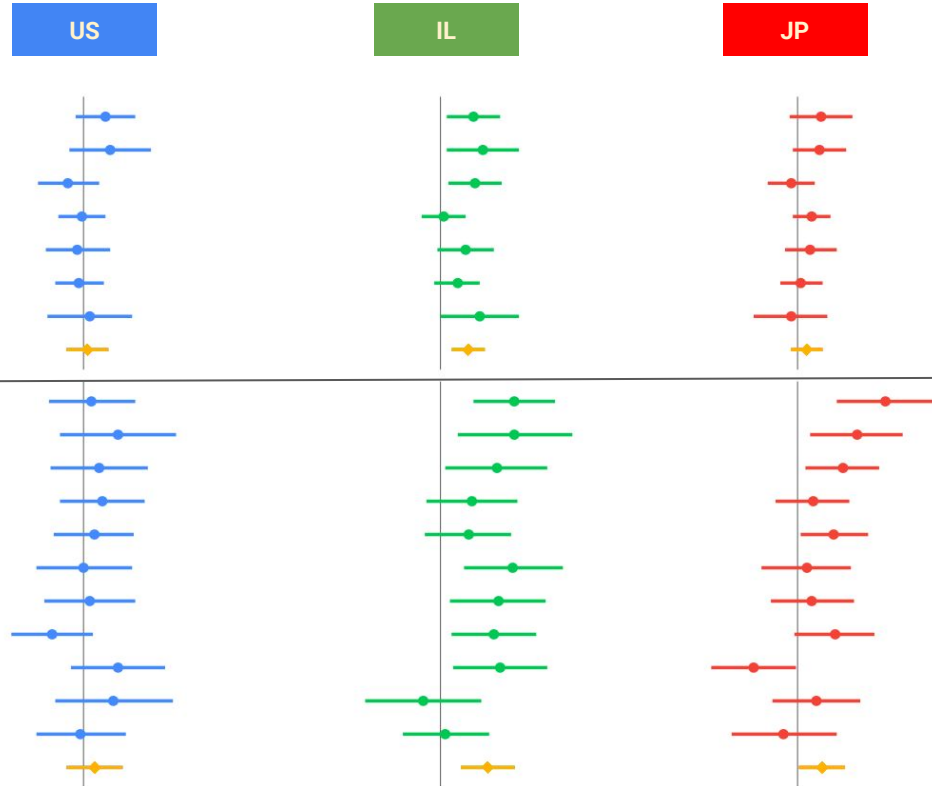
Yes, AND in the expected direction

- Consistent with previous literature, we find position-on-top design directionally tends to have higher mean ratings
- The average effects were statistically significant in Israel

See next slide for a visualization of the effects

Mean Diff. | Vertical Orientation: Positive-on-top minus Positive-at-bottom

Positive-on-top tends to have higher means.



Notes:

- Vertical lines correspond to zero
- Dot indicates difference in means. Whiskers indicate the 95% confidence intervals.
- Dots to the right of the lines indicate positive-on-top has higher means. Dots on the right side indicate positive-at-bottom has higher means.
- Average effects are estimated from linear mixed models.

Horizontal orientation:

Did we see response option order effect?

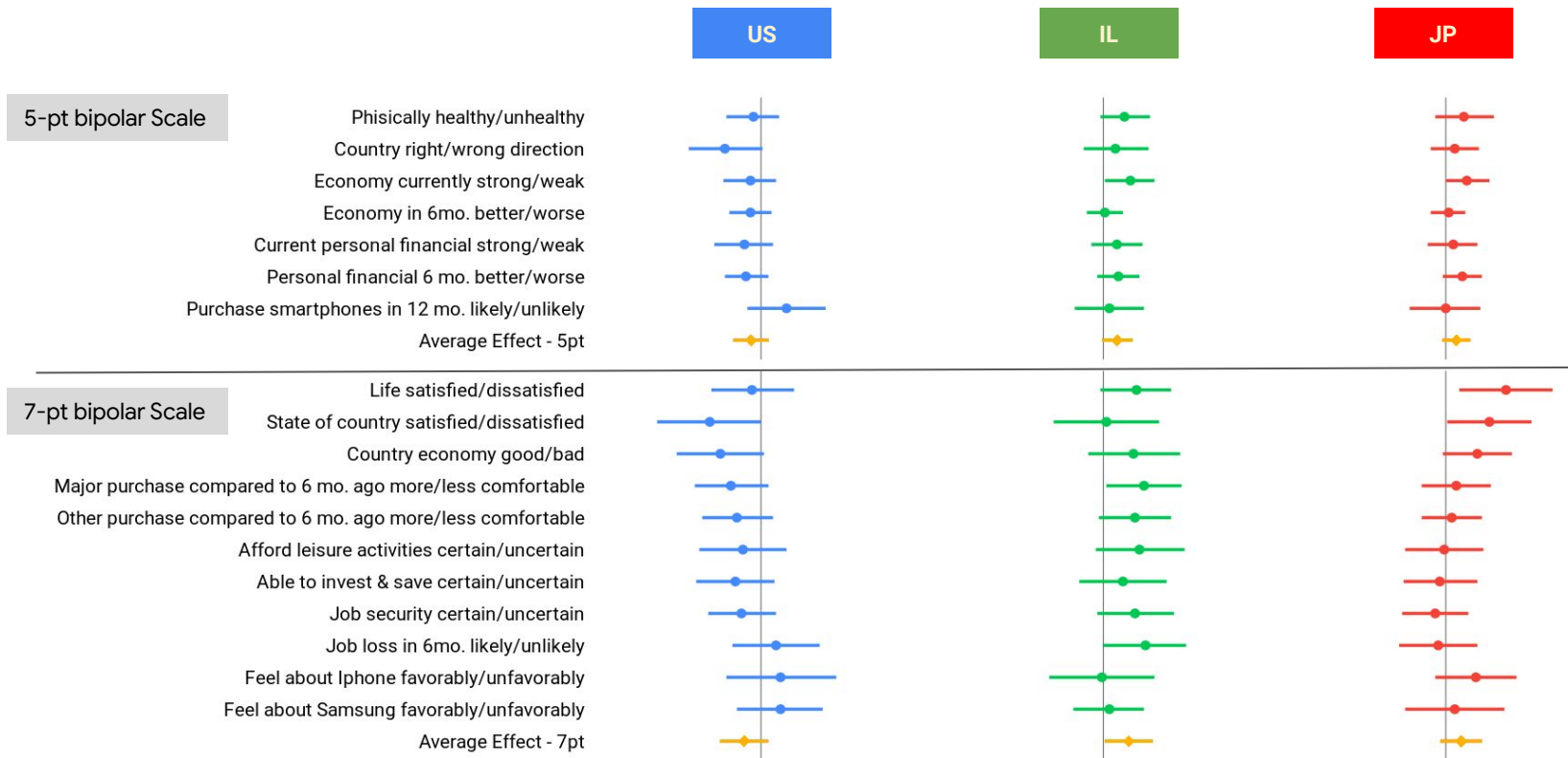
Yes, BUT in the “unexpected” direction

- In the US (left-to-right reading/writing), positive-on-right tended to have higher means
- In Israel (right-to-left reading/writing), positive-on-left tended to have higher means
- In Japan (top-down-then-right-to-left reading/writing), positive-on-left tended to have higher means
- Average effects were only statistically significant in Israel with 7-pt scales
- See next slide for a visualization of the effects

- BUT, should this really be “unexpected”
 - Literature suggests a “left-is-first” heuristic, it doesn’t necessarily mean “left” is “high” or “more”
 - What indicates “high” or “more” might be the end position determined by the *flow* of reading/writing:
 - Reading/writing flows left-to-right may establish a heuristic that “right is high or more”
 - Reading/writing flows right-to-left may establish a heuristic that “left is high or more”
 - This seems to be what our data is showing

Mean Diff. | Horizontal Orientation: Positive-on-left *minus* Positive-on-right

Higher means tend to be found at the end position determined by the *flow* of a language's reading/writing convention.



Notes:

- Vertical lines correspond to zero
- Dot indicates difference in means. Whiskers indicate the 95% confidence intervals.
- Dots to the right of the lines indicate positive-on-left has higher means. Dots on the right side indicate positive-on-right has higher means.
- Average effects are estimated from linear mixed models.

Key Findings: RQ2

(If RQ1 is “yes”) *Does the effect resemble a primacy effect?*

For a response category(ies), primacy effect is operationalized as the % of endorsement when it is in the “prime position” minus when it is in the “opposite to prime” position. We use the “top-2-box” (T2B, or the two most positive choices) of the response scale to illustrate primacy effect. That is:

- Vertical orientation:
 - “Prime position” is the top position for all countries
 - Positive differences in T2B endorsement indicate primacy effect
- Horizontal orientation:
 - “Prime position” is the left position for the US
 - “Prime position” is the right position for Israel and Japan
 - Positive differences in T2B endorsement indicate primacy effect
 - *CAVEAT: We recognize that the discussions of primacy effect depend on how “prime position” is defined and such a definition can be debatable in some countries -- in Japanese texts flows left-to-right in horizontal displays and in both Japanese and Hebrew numerical expressions (and possibly charts) may flow left-to-right*

We also fitted generalized linear mixed models (mixed effect logistic regression) to estimate the average effect across survey questions. A total of 12 models were fitted for the combinations of 3 countries, two orientations, and two scale formats (5-pt bipolar and 7-pt bipolar).

Vertical orientation:

Did we see primacy effect?

Yes, AND in the expected manner

- Placing top-2-box choices at the top (i.e., prime position) lead to higher level of endorsement
- The average effects were statistically significant in Israel

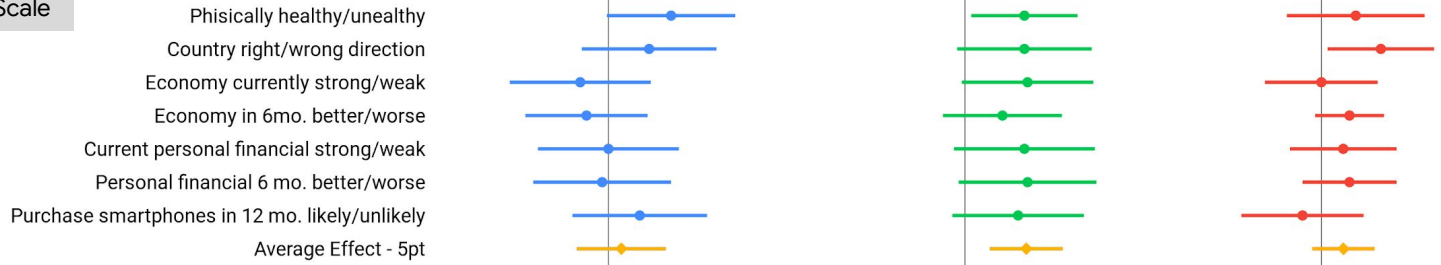
See next slide for a visualization of the effects

Primacy Effect | Vertical Orientation: Diff. in % endorsed the 2 Most Positive points

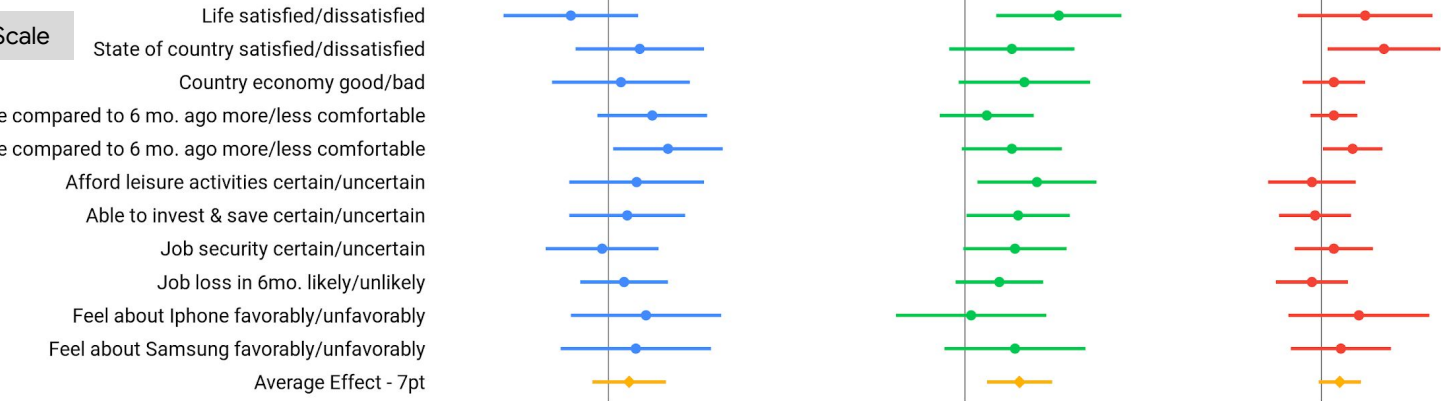
Dots to the right of the vertical lines suggest the presence of primacy effect, where "prime position" is defined as the top end. See [an earlier slide](#) for more details.

US **IL** **JP**

5-pt bipolar Scale



7-pt bipolar Scale



Notes:
 - Vertical lines correspond to zero
 - Dot indicates difference in % endorsed T2B. Whiskers indicate the 95% confidence intervals.
 - Dots to the right of the vertical lines suggest the presence of primacy effect, where "prime position" is defined as the top end. See [an earlier slide](#) for more details.
 - Average effects are estimated from generalized linear mixed models.

Horizontal orientation:

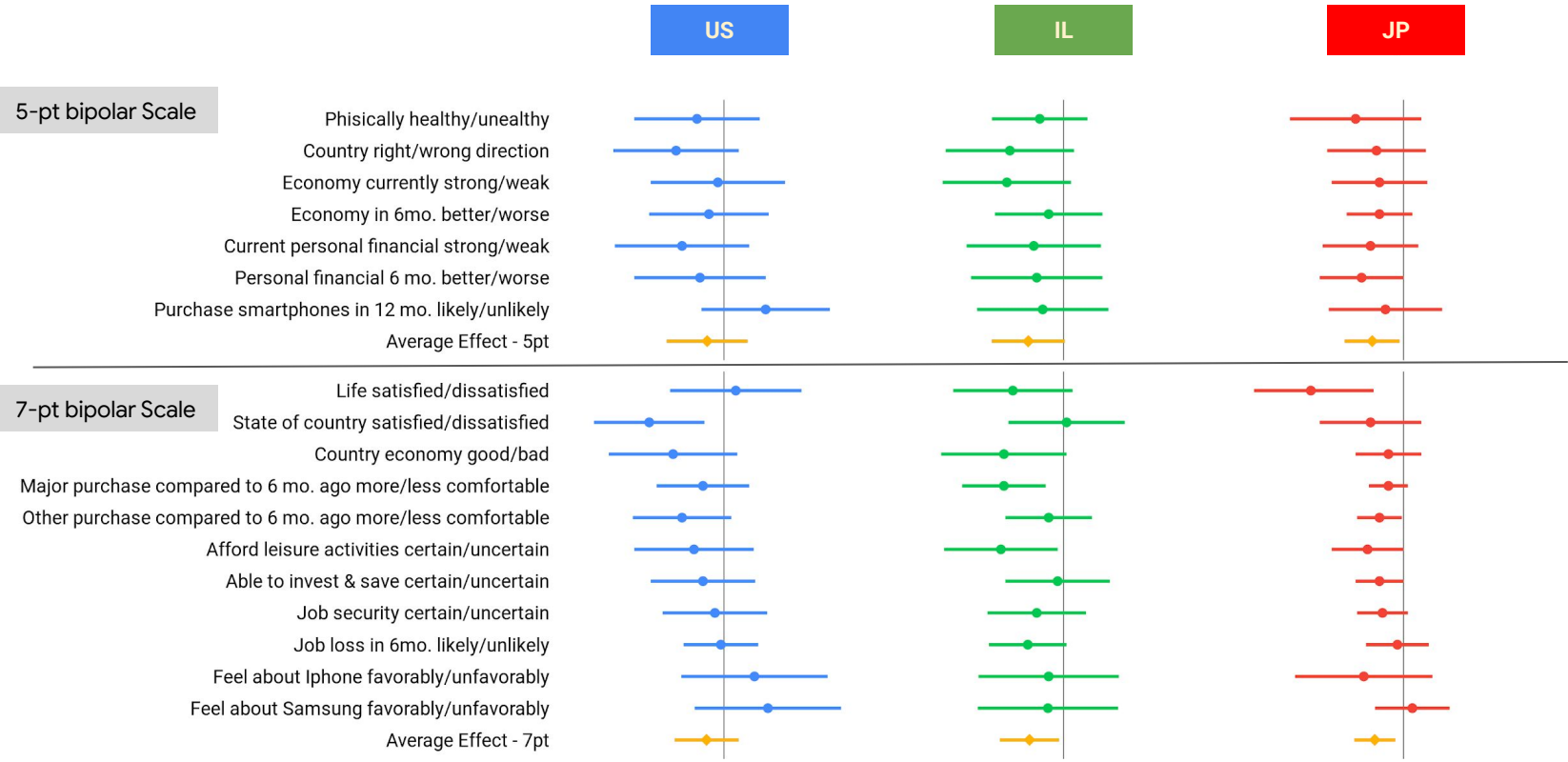
Did we see response option order effect?

No, not based on how we define the “prime position”

- In the US (left-to-right reading/writing), placing T2B on the left (prime) lead to lower endorsement
- In Israel (right-to-left reading/writing), placing T2B on the right (prime) lead to lower endorsement
- In Japan (top-down-then-right-to-left reading/writing), placing T2B on the right (prime) lead to lower endorsement
- Average effects were only significant in Japan with 7-pt scales and in Israel with both scale length
- See next slide for a visualization of the effects
- BUT, did we get what is “prime position” wrong?
 - We define “prime” position as the “starting” or “first” position: top with vertical scales, left with horizontal scales in left-to-right countries and right in right-to-left countries
 - But it is possible that with some answer scale constructs, e.g., those about low-vs-high or less-vs-more, the starting or first position might not be associated with “high” or “more” but rather with “low” or “less”

Primacy Effect | Horizontal Orientation: Diff. in % endorsed the 2 Most Positive points

Dots to the right of the vertical lines suggest the presence of primacy effect, where "prime position" is defined as the left end for the US and right end for Israel and Japan. See [an earlier slide](#) for more details.



Notes:
 - Vertical lines correspond to zero
 - Dot indicates difference in % endorsed T2B. Whiskers indicate the 95% confidence intervals.
 - Dots to the right of the lines suggest the presence of primacy effect, where "prime position" is defined as the left end for the US and right end for Israel and Japan. See [an earlier slide](#) for more details.
 - Average effects are estimated from generalized linear mixed models.

Key Findings: RQ3

Do scale presentations that contradict reading/writing conventions burden or confuse respondents more?

Here, we looked at the difference in question-level response time (RT).

- Vertical orientation:
 - Because interpretation heuristics suggest “top means first” and “up means good”, placing the positive side of the scale at the top end would better match people’s mental framework; hence be less cognitively tasking (less time consuming)
- Horizontal orientation:
 - Because interpretation heuristics suggest “left means first” in the US and “right means first” in Israel and Japan, placing the positive side of the scale at the left end in the US and right end in Israel and Japan would better match people’s mental framework; hence be less cognitively tasking (less time consuming)

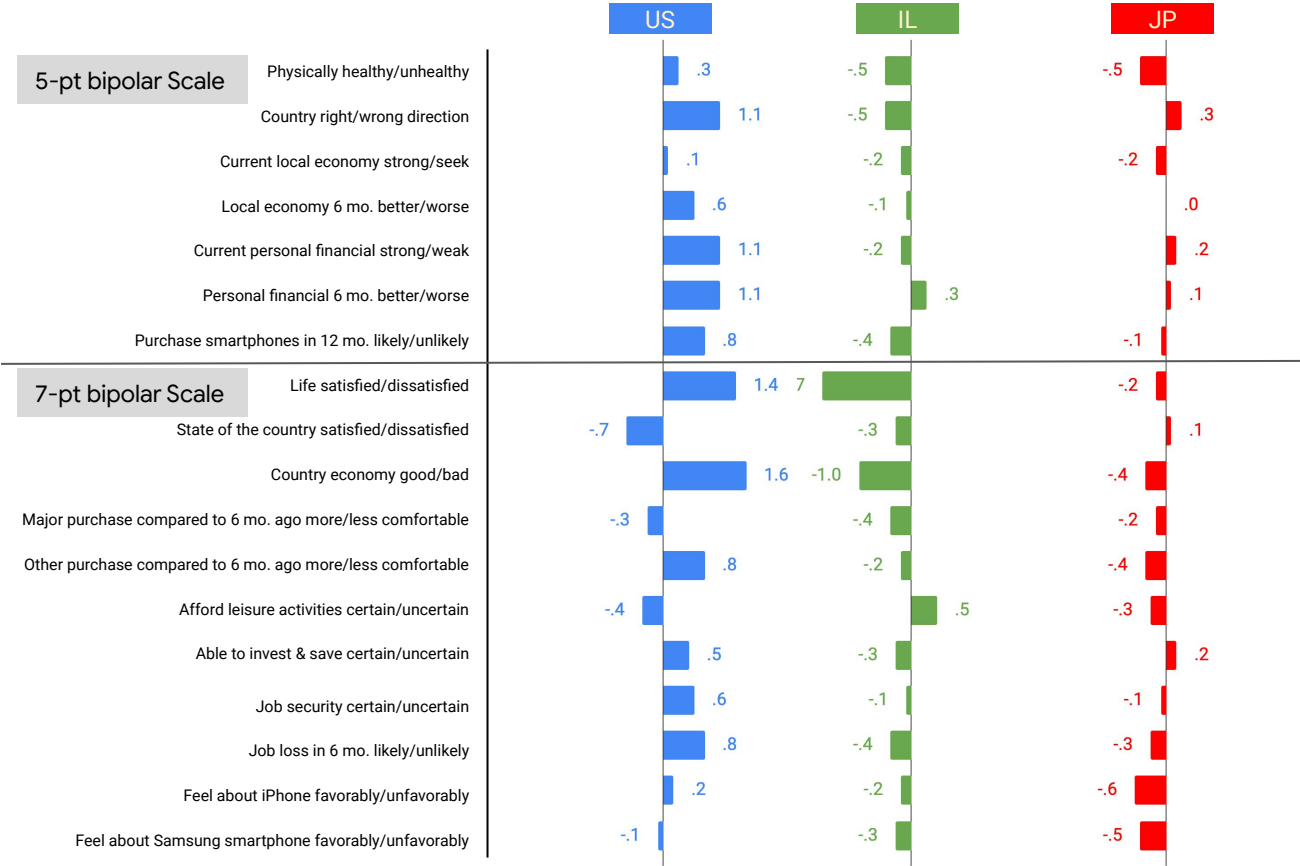
Vertical orientation:

Did we find the increase in cognitive burden as suggested by interpretation heuristics?

Not consistently

- In Israel and Japan, the pattern tends to be in the expected direction
 - For a majority of the comparisons, RT was shorter when the positive side of the scale is placed at the top
- In the US, the pattern tends to be the opposite of what is expected
 - For a majority of the comparisons, RT was longer when the positive side of the scale is placed at the top

RT Mean Diff. | Vertical Design: Positive-on-top minus Positive-at-bottom



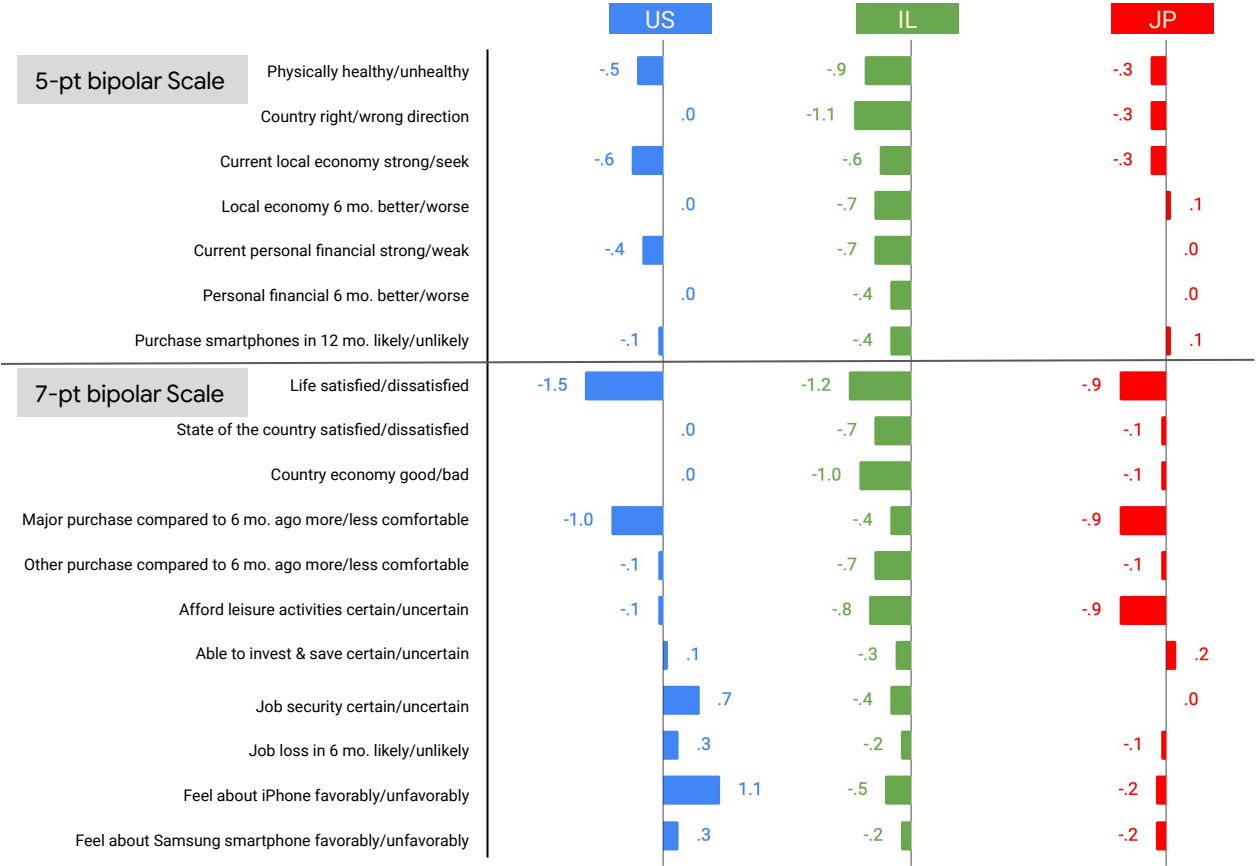
Horizontal orientation:

Did we find the increase in cognitive burden as suggested by interpretation heuristics?

No

- In Israel and Japan, the pattern tends to be the opposite of what is expected
 - For a majority of the comparisons, RT was longer when the positive side of the scale is placed on the right (i.e., the “starting” position of the right-to-left reading/writing convention)
- In the US, the pattern is inconsistent-unclear

RT Mean Diff. | Horizontal Design: Positive-on-left *minus* Positive-on-right



What we've learned

Some learnings:

With Vertical scale design ...

Consistent findings as literature suggests: “Top-positive” scales generally produce higher scores

Findings also robust across markets

With Horizontal scale design ...

Counter to priming expectations, consistent findings of higher scores when scale goes low to high (L-R in US and R-L in Israel)

Cognitive processes ...

Preliminary exploration of reaction time does not help resolve cognitive process questions

Findings support the need for more work in the area, but encourage the idea of adapting answer scale design to the local written language conventions.

Further investigations of current data

- Explore better modeling techniques
 - To better capture the response process (e.g., with item response tree models)
 - To better model effects of experimental factors and covariates (e.g., question content type, question order, demographics, exposure to left-to-right materials among Israel and Japan respondents), possibly using cross-classified random effect models (Judd, Westfall, & Kenny, 2017)
- On selected questions, incorporate validation data (e.g., Ipsos Global Advisor survey results)
- Look at impact of experimental conditions on structure-oriented analysis (measurement relationships, structural relationships)

Appendix 1

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Appendix 2

Additional Literature Summaries

Recent research on scale orientation

Desktop respondents

	Maloshonok & Terentev (2016)	Liu & Keusch (2017)	Terentev & Maloshonok (2019)
Scale orientation	Vertical & Horizontal	Vertical	Vertical
Items	3 bipolar fully labeled items	Agree - Disagree vs. Disagree - Agree	Unipolar scale Least to Most and Most to Least
Online sample	Russian MOOC students	U.S. KnowledgePanel	Russian MOOC students
Results	Mixes results: Only one item show stat. Sign differences in horizontal (primacy)	Higher acquiescence response style when scale presented with agree first	Primacy effects

Previous research on scale orientation

Desktop vs. Mobile respondents

	Mavletova (2013)	Lugtig & Toepoel (2016)	Revilla & Couper (2018a, 2018b)
Scale orientation	Vertical	Vertical	Horizontal & Vertical
Items	6 items with fully labels response options	List of checkboxes	Set of different scales endpoint labeled
Online sample	Russian Opt-in Panel	Dutch LISS panel	Spanish Opt-in Panel
Results	Higher primacy effects in Desktop vs. Mobile	Higher primacy effects for Mobile vs. Desktop	More answer changes on Mobile Vs. Desktop Larger primacy effects on Mobile vs. Desktop

Appendix 3

Survey Questions

Questions using 5-pt bipolar scales

Content Type	Content Sub-type	Q Text	Scale Construct	Full Answer Scale
Well-being	Physical health	How healthy or unhealthy do you feel physically?	Healthy / Unhealthy	Very healthy, Somewhat healthy, Neither healthy nor unhealthy, Somewhat unhealthy, Very unhealthy
Social topics	Country direction	Generally speaking, would you say things in this country are heading in the right direction, or the wrong direction?	Right direction / Wrong direction	Right direction, Somewhat in the right direction, Neither in the right direction nor wrong direction, Somewhat in the wrong direction, Wrong direction
Social topics	Local economy - current	How would you describe the current state of the economy in your local area?	Strong / Weak	Very strong, Somewhat strong, Neither strong nor weak, Somewhat weak, Very weak
Social topics	Local economy - 6 mo. from now	Looking ahead six months from now, do you expect the economy in your local area to be better or worse than it is now?	Better / Worse	Much better, Somewhat better, About the same, Somewhat worse, Much worse
Personal financial situation	Current	How would you describe your current financial situation?	Strong / Weak	Very strong, Somewhat strong, Neither strong nor weak, Somewhat weak, Very weak
Personal financial situation	6 mo. from now	Looking ahead six months from now, do you expect your personal financial situation to be better or worse than it is now?	Better / Worse	Much better, Somewhat better, About the same, Somewhat worse, Much worse
Marketing funnel	Category purchase intent - Smartphone	How likely or unlikely are you to purchase a new smartphone in the next 12 months?	Likely / Unlikely	Very likely, Somewhat likely, Neither likely nor unlikely, Somewhat unlikely, Very unlikely

Questions using 7-pt bipolar scales

Content Type	Content Sub-type	Q Text	Scale Construct	Full Answer Scale
Well-being	Life satisfaction	In general, how satisfied or dissatisfied are you with your life?	Sat. / Dissat.	Extremely satisfied, Moderately satisfied, Slightly satisfied, Neither satisfied nor dissatisfied, Slightly dissatisfied, Moderately dissatisfied, Extremely dissatisfied
Social topics	Overall state of the country	Now, thinking about your country overall, are you satisfied or dissatisfied with the way things are going in your country today?	Sat. / Dissat.	Extremely satisfied, Moderately satisfied, Slightly satisfied, Neither satisfied nor dissatisfied, Slightly dissatisfied, Moderately dissatisfied, Extremely dissatisfied
Social topics	Country economy	Now, thinking about the economy, how would you describe the current economic situation in [INSERT COUNTRY]? Is it...	Good / Bad	Extremely good, Moderately good, Slightly good, Neither good nor bad, Slightly bad, Moderately bad, Extremely bad
Personal financial situation	Major purchase - compared to 6 mo. ago	Compared to 6 months ago, are you more or less comfortable in making a major purchase, like a home or car?	More comfortable / Less comfortable	A lot more comfortable, Moderately more comfortable, Slightly more comfortable, About the same, Slightly more uncomfortable, Moderately more uncomfortable, A lot more uncomfortable
Personal financial situation	Other purchase - compared to 6 mo. ago	Compared to 6 months ago, are you more or less comfortable with making other household purchases?	More comfortable / Less comfortable	A lot more comfortable, Moderately more comfortable, Slightly more comfortable, About the same, Slightly more uncomfortable, Moderately more uncomfortable, A lot more uncomfortable
Personal financial situation	Afford leisure activities	How certain or uncertain are you about being able to afford the leisure activities you enjoy in the next couple of years?	Certain / Uncertain	Extremely certain, Moderately certain, Slightly certain, About the same, Slightly uncertain, Moderately uncertain, Extremely uncertain
Personal financial situation	Invest & save - compared to 6 mo. ago	Compared to 6 months ago, how certain are you about your ability to invest in the future, including your ability to save money for your retirement or your children's education?	Certain / Uncertain	Extremely certain, Moderately certain, Slightly certain, About the same, Slightly uncertain, Moderately uncertain, Extremely uncertain

Questions using 7-pt bipolar scales (continued)

Content Type	Content Sub-type	Q Text	Scale Construct	Full Answer Scale
Employment	Job security	Compared to 6 months ago, how certain or uncertain are you about job security for yourself, your family and other people you know personally?	Certain / Uncertain	Extremely certain, Moderately certain, Slightly certain, About the same, Slightly uncertain, Moderately uncertain, Extremely uncertain
Employment	Job loss - 6 mo. projection	How likely is it that you, someone in your family or someone else you know personally will lose their job in the next six months as a result of economic conditions?	Likely / Unlikely	Extremely likely, Moderately likely, Slightly likely, Neither likely nor unlikely, Slightly unlikely, Moderately unlikely, Extremely unlikely
Marketing funnel	Favorability - iPhone	How favorably or unfavorably do you feel about iPhones?	Favorably / Unfavorably	Very favorably, Somewhat favorably, Slightly favorably, Neither favorably nor unfavorably, Slightly unfavorably, Somewhat unfavorably, Very unfavorably
Marketing funnel	Favorability - Samsung	How favorably or unfavorably do you feel about Samsung smartphones?	Favorably / Unfavorably	Very favorably, Somewhat favorably, Slightly favorably, Neither favorably nor unfavorably, Slightly unfavorably, Somewhat unfavorably, Very unfavorably

Questions using 5-pt unipolar scales

Content Type	Content Sub-type	Q Text	Scale Construct	Full Answer Scale
Survey participation	Survey participation	How likely would you be to participate in this kind of survey again?	Likelihood	Extremely likely, Very likely, Moderately likely, Slightly likely, Not at all likely
Survey appeal	Survey appeal	How appealing was this survey?	Appeal	Extremely appealing, Very appealing, Somewhat appealing, Slightly appealing, Not at all appealing

NOTE: Analysis reported in this presentation did NOT use these 5-pt unipolar scale questions.

Questions using 11-pt bipolar scales

Content Type	Content Sub-type	Q Text	Scale Construct	Full Answer Scale
Marketing funnel	NPS - iPhone	How likely are you to recommend an iPhone to your family or friends?	Likelihood	10 Very likely, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0 Not at all likely
Marketing funnel	NPS - Samsung	How likely are you to recommend a Samsung smartphone to your family or friends?	Likelihood	10 Very likely, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0 Not at all likely
Well-being	Life satisfaction - present	Using a scale from 0 to 10, where 0 represents the worst possible and 10 represents the best possible, how would you evaluate your life at the present time?	Best possible / Worst possible	10 Best possible, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0 Worst possible
Well-being	Life satisfaction - future	Using a scale from 0 to 10, where 0 represents the worst possible and 10 represents the best possible, what do you think your life will be five years from now?	Best possible / Worst possible	10 Best possible, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0 Worst possible

NOTE: Analysis reported in this presentation did NOT use these 11-pt scale questions.

Appendix 4

Demos by country

Unweighted Age & Gender by Country

Age	U.S.	Israel	Japan
18-24	13%	13%	8%
25-34	20%	23%	15%
35-44	18%	21%	19%
45-54	17%	16%	19%
55-70	32%	27%	39%

Gender	U.S.	Israel	Japan
Male	48%	50%	49%
Female	52%	50%	51%

Unweighted Education by Country

Education	U.S.	Israel	Japan
High school or less	17%	31%	34%
Associate degree and some college	28%	23%	17%
Master and Bachelor	50%	46%*	43%
Doctoral and professional degree	5%		6%

*Academic degree