

Developing alternatives to complex questions in an application for federal program participation

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Background

- Supplemental Nutrition Assistance Program (SNAP) retailer application
 - Stores apply for authorization to receive SNAP funds as payment from customers
 - Application collects information about business, owners/officers, sales, inventory, etc.
 - Stores must meet stocking requirements for quantity and variety of healthy food options

Data collection

- Cognitive/usability interviews (n=25)
 - Owners/employees of convenience, grocery, & specialty stores
- Participants completed online application
 - Thinkaloud followed by debriefing probes
- Limited exploratory testing of alternative inventory questions (n=12)

The issues at hand

- Complex questions about inventory
 - Ambiguous concepts
 - Numerous data specifications
 - Implicit/complicated response tasks

Inventory concepts



Staple food group

Vegetables or
Fruits

Dairy

Meat, Poultry,
or Fish

Breads or
Cereals

Variety

Apples

Milk

Beef

Cold cereal

Celery

Cheese

Salmon

Pasta

Tomatoes

Yogurt

Pork

Tortillas

Artichokes

Baby formula

Chicken

Oatmeal

Stocking unit

Stocking units



Inventory requirements

*Must have at least **three varieties** in each staple food category.*

*Each variety must have at least **three stocking units**.*

Vegetables or Fruits



Dairy



Meat, Poultry, or Fish



Breads or Cereals



Inventory questions



Inventory Information

In this section, you will specify the types of inventory that you carry at this location. Please answer the questions regarding staple food varieties and the depth of stock that you have currently and on a continuous basis in your store.

Answer the following questions regarding staple food varieties that you have currently and on a continuous basis in your store. Select the number of varieties for each staple food category if less than 10. Select "10+" if the number of varieties for each staple food category is equal to or greater than 10.

Indicate the number of varieties in the Breads and/or Cereals staple food category (Examples: rice, pasta, flour, pita, tortilla, etc.):

 ▼

Indicate the number of varieties in the Dairy products staple food category (Examples: soymilk, butter, yogurt, infant formula, etc.):

 ▼

Indicate the number of varieties in the Meat, Poultry, and/or Fish staple food category (Examples: beef, pork, eggs, tuna, etc.):

 ▼

Indicate the number of varieties in the Vegetables and/or Fruits staple food category (Examples: apple, tomato, peach, carrot, etc.):

 ▼

Answer the following questions regarding stocking units of staple food varieties that you have currently and on a continuous basis in your store.

Do you have at least three stocking units of each variety in the Breads and/or Cereals category (Examples: 3 bags of rice, 3 boxes of pasta, etc.)?

 Yes No

Do you have at least three stocking units of each variety in the Dairy products category (Examples: 3 cartons of soymilk, 3 cans of infant formula, etc.)?

 Yes No

Do you have at least three stocking units of each variety in the Meat, Poultry, and/or Fish category (Examples: 3 cans of tuna, 3 cartons of eggs, etc.)?

 Yes No

Do you have at least three stocking units of each variety in the Vegetables and/or Fruits category (Examples: 3 apples, 3 cans of peaches, etc.)?

 Yes No

Answer the following questions regarding perishable foods that you have currently and on a continuous basis in your store.

Do you have at least one variety of perishable foods in the Breads and/or Cereals category (Examples: bread, pita, etc.)?

 Yes No

Do you have at least one variety of perishable foods in the Dairy products category (Examples: refrigerated cow's milk, refrigerated butter, etc.)?

 Yes No

Do you have at least one variety of perishable foods in the Meat, Poultry, and/or Fish category (Examples: fresh eggs, frozen chicken, etc.)?

 Yes No

Do you have at least one variety of perishable foods in the Vegetables and/or Fruits category (Examples: fresh apples, frozen broccoli, etc.)?

 Yes No

Inventory questions

Inventory Information

In this section, you will specify the types of inventory that you carry at this location. Please answer the questions regarding staple food varieties and the depth of stock that you have currently and on a continuous basis in your store.

Answer the following questions regarding staple food varieties that you have currently and on a continuous basis in your store. Select the number of varieties for each staple food category if less than 10. Select "10+" if the number of varieties for each staple food category is equal to or greater than 10.

Indicate the number of varieties in the Breads and/or Cereals staple food category (Examples: rice, pasta, flour, pita, tortilla, etc.):

Select-One ▼

Indicate the number of varieties in the Breads and/or Cereals staple food category (Examples: rice, pasta, flour, pita, tortilla, etc.):

Select-One ▼

Answer the following questions regarding stocking units of staple food varieties that you have currently and on a continuous basis in your store.

Do you have at least three stocking units of each variety in the Breads and/or Cereals category (Examples: 3 bags of rice, 3 boxes of pasta, etc.)?

Yes No

Do you have at least three stocking units of each variety in the Breads and/or Cereals category (Examples: 3 bags of rice, 3 boxes of pasta, etc.)?

Yes No

Answer the following questions regarding perishable foods that you have currently and on a continuous basis in your store.

Do you have at least one variety of perishable foods in the Breads and/or Cereals category (Examples: bread, pita, etc.)?

Yes No

Do you have at least one variety of perishable foods in the Dairy products category (Examples: refrigerated cow's milk, refrigerated butter, etc.)?

Yes No

Do you have at least one variety of perishable foods in the Meat, Poultry, and/or Fish category (Examples: fresh eggs, frozen chicken, etc.)?

Yes No

Do you have at least one variety of perishable foods in the Vegetables and/or Fruits category (Examples: fresh apples, frozen broccoli, etc.)?

Yes No

Interpretations of concepts

- Staple food group – generally clear
- Variety – often misunderstood
 - General usage: Varieties of apples – Macintosh, Gala, Fuji, etc.
 - SNAP: “Apples” is one variety.
- Stocking unit – clear to most, confusing for some
 - How products are stocked/presented (e.g., shelves, coolers, sections)
 - Retail term – “facing units”
 - Bulk food sold by weight

Complexity of questions

Presenting multiple ambiguous concepts and other information simultaneously increases likelihood of response errors.

Answer the following questions regarding staple food varieties that you have currently and on a continuous basis in your store. Select the number of varieties for each staple food category if less than 10. Select "10+" if the number of varieties for each staple food category is equal to or greater than 10.

Indicate the number of varieties in the Breads and/or Cereals staple food category (Examples: rice, pasta, flour, pita, tortilla, etc.)

Select-One

Answer the following questions regarding stocking units of staple food varieties that you have currently and on a continuous basis in your store.

Do you have at least three stocking units of each variety in the Breads and/or Cereals category (Examples: 3 bags of rice, 3 boxes of pasta, etc.)?

Yes No

“Variety” concept gets lost

- Volume of text challenges attention, working memory
- Tendency to focus on other details at expense of considering “varieties”
 - E.g., “currently and on a continuous basis”

Counting task adds to complexity

Indicate the number of varieties in the Breads and/or Cereals staple food category (Examples: rice, pasta, flour, pita, tortilla, etc.):

- Asking for “number of varieties” inhibits consideration of “varieties.”
 - Do I have three varieties of Breads and Cereals? Yes – fettuccini, spaghetti, and linguini.
- Applicants with many varieties focus on how to count them, and get bogged down until they realize that they can report “10+.”
- Applicants with seasonal fluctuation get preoccupied with how to report accurate numbers.

Combining concepts compounds confusion

Do you have at least three stocking units of each variety in the Breads and/or Cereals category (Examples: 3 bags of rice, 3 boxes of pasta, etc.)?

- Difference between “varieties” and “stocking units” obscured or overlooked when trying to understand/apply both at the same time.
- Some were not sure how they were different.
- Some did not make a distinction:
 - Do I have at least three stocking units in this staple group?
Yes – one bag of rice, one loaf of bread, one box of cereal.

Alternative question strategies

Alternative strategy #1 – Group questions by staple category

- Analogous to person-based vs. topic-based questions in HH survey
 - Person-based questions are easier to answer
- Group questions by staple rather than by variety/stocking unit

Indicate the number of varieties in the Breads and/or Cereals staple food category (Examples: rice, pasta, flour, pita, tortilla, etc.):

Indicate the number of varieties in the Dairy products staple food category (Examples: soymilk, butter, yogurt, infant formula, etc.):

Indicate the number of varieties in the Meat, Poultry, and/or Fish staple food category (Examples: beef, pork, eggs, tuna, etc.):

Indicate the number of varieties in the Vegetables and/or Fruits staple food category (Examples: apple, tomato, peach, carrot, etc.):

Do you have at least three stocking units of each variety in the Breads and/or Cereals category (Examples: 3 bags of rice, 3 boxes of pasta, etc.)?

Do you have at least three stocking units of each variety in the Dairy products category (Examples: 3 cartons of soymilk, 3 cans of infant formula, etc.)?

Do you have at least three stocking units of each variety in the Meat, Poultry, and/or Fish category (Examples: 3 cans of tuna, 3 cartons of eggs, etc.)?

Do you have at least three stocking units of each variety in the Vegetables and/or Fruits category (Examples: 3 apples, 3 cans of peaches, etc.)?

Alternative strategy #1 – Group by staple category

Vegetables or Fruit staple group

Indicate the number of varieties of Vegetables or Fruits that you carry currently and on a continuous basis (examples: apple, tomato, peach, carrot, etc.).

Do you have three or more stocking units in three of these varieties of Vegetables or Fruits (examples: three apples, three cans of peaches, etc.)? Yes No

Do you have at least one variety of perishable foods in the Vegetables or Fruit staple food group? (Examples: fresh apples, frozen broccoli, etc.)? Yes No

Meat, Poultry, or Fish staple group

Indicate the number of varieties of Meat, Poultry, or Fish that you carry currently and on a continuous basis (examples: beef, pork, eggs, tuna, etc.).

Do you have three or more stocking units in three of these varieties of Meat, Poultry, or Fish (examples: three pounds of beef, three chickens, etc.)? Yes No

Do you have at least one variety of perishable foods in the Meat, Poultry, or Fish staple food group? (Examples: fresh beef, frozen chicken, etc.)? Yes No

Cereal or Grains staple group

Indicate the number of varieties of Cereal or Grains that you carry currently and on a continuous basis (examples: rice, pasta, flour, pita, tortillas, etc.).

Do you have three or more stocking units in three of these varieties of Cereal or Grains (examples: three bags of rice, three boxes of pasta, etc.)? Yes No

Do you have at least one variety of perishable foods in the Cereal or Grains staple food group? (Examples: bread, pita, etc.)? Yes No

Vegetables or Fruit staple group

Indicate the number of varieties of Vegetables or Fruits that you carry currently and on a continuous basis (examples: apple, tomato, peach, carrot, etc.).

Do you have three or more stocking units in three of these varieties of Vegetables or Fruits (examples: three apples, three cans of peaches, etc.)? Yes No

Do you have at least one variety of perishable foods in the Vegetables or Fruit staple food group? (Examples: fresh apples, frozen broccoli, etc.)? Yes No

Alternative strategy #2 – Top-down vs. bottom-up

Top-down

- Assumes comprehension of form-specific concepts and their application in the analysis of component data to create a response
- Implicit responses tasks, “black box”
- Increased risk of error because applicant is not guided through response task

Alternative strategy #2 – Top-down vs. bottom-up

Bottom-up

- Ask for more basic data that enable program analysts to judge eligibility
- Operationalize simpler, focused cognitive tasks
- Guide and control cognitive processes, avoid potential error

Alternative strategy #2 – Bottom-up questions

- In each staple food group, report:
 - Three specific varieties
 - Number of stocking units for each variety listed

Varieties of Dairy

Please list three varieties in the Dairy staple food group and the number of stocking units in each variety. Each variety must have at least three stocking units.

Variety #1	<input type="text"/>	Stocking units	<input type="text"/>
Variety #2	<input type="text"/>	Stocking units	<input type="text"/>
Variety #3	<input type="text"/>	Stocking units	<input type="text"/>

Of the varieties you listed in the Dairy staple group, how many are perishable?

Varieties of Vegetables or Fruits

Please list three varieties in the Vegetables and Fruits staple food group and the number of stocking units in each variety. Each variety must have at least three stocking units.

Variety #1	<input type="text"/>	Stocking units	<input type="text"/>
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Varieties of Dairy

Please list three varieties in the Dairy staple food group and the number of stocking units in each variety. Each variety must have at least three stocking units.

Variety #1	<input type="text"/>	Stocking units	<input type="text"/>
Variety #2	<input type="text"/>	Stocking units	<input type="text"/>
Variety #3	<input type="text"/>	Stocking units	<input type="text"/>

Of the varieties you listed in the Dairy staple group, how many are perishable?

are perishable?

Varieties of Grains or Cereals

Please list three varieties in the Grains or Cereals staple food group and the number of stocking units in each variety. Each variety must have at least three stocking units.

Variety #1	<input type="text"/>	Stocking units	<input type="text"/>
Variety #2	<input type="text"/>	Stocking units	<input type="text"/>
Variety #3	<input type="text"/>	Stocking units	<input type="text"/>

Of the varieties you listed in the Grains or Cereals staple group, how many are perishable?

Alternative strategy #2 with web features

- Use response options to focus on and reinforce concepts, prevent errors
 - “Apples = 1 variety” not “# varieties of apples”
 - Variety must have ≥ 3 SU’s

Did not test these features

Varieties of Vegetables or Fruit staple foods

Please list three varieties in the Dairy staple food group and the number of stocking units in each variety. Each variety must have at least three stocking units.

Variety #1

Variety #2

Variety #3

Of the varieties you listed in the Dairy staple group, how many are perishable?

General findings

- Version 1 – Re-ordering strategy was an improvement
- Version 2 – Simple and straightforward
- Neither version cleared up confusion over “varieties” and “stocking units” for everyone

Vegetables or Fruit staple group

Indicate the number of varieties of Vegetables or Fruits that you carry currently and on a continuous basis (examples: apple, tomato, peach, carrot, etc.).

Do you have three or more stocking units in three of these varieties of Vegetables or Fruits (examples: three apples, three cans of peaches, etc.)?

Yes No

Do you have at least one variety of perishable foods in the Vegetables or Fruit staple food group? (Examples: fresh apples, frozen broccoli, etc.)?

Yes No

Preferred #1:

- Easier to answer Y/N than write-ins
- #2 is clearer, would get more accurate answers, “makes you think more.”

Varieties of Vegetables or Fruits

Please list three varieties in the Vegetables and Fruits staple food group and the number of stocking units in each variety. Each variety must have at least three stocking units.

Variety #1

Stocking units

Variety #2

Stocking units

Variety #3

Stocking units

Of the varieties you listed in the Vegetables and Fruits staple group, how many are perishable?

Preferred #2:

- Simpler question – three varieties, not counting all varieties.
- Visual arrangement makes it easier to understand what is being requested.

Takeaways

- Don't expect R's to apply common terms in unusual ways
- Avoid overloading R's with data specifications
- Design questions around cognitive response processes and avoid implicit response tasks
- Ask R's for simpler, more discrete data rather than judgments or analysis that you can perform yourself

Questions or feedback?

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