February 21, 2014

NOTE TO THE   OMB CLEARANCE 1220-0141
REVIEWER OF: "Cognitive and Psychological Research"

FROM: Erica Yu
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                                      Office of Survey Methods Research

SUBJECT: Submission of Materials for the
                                      Autobiographical Retrieval Strategies study

Please accept the enclosed materials for approval under the OMB clearance package 1220-0141 "Cognitive and Psychological Research." In accordance with our agreement with OMB, we are submitting a brief description of the study.

The total estimated respondent burden hours for this study is 225 hours.

If there are any questions regarding this project, please contact Erica Yu at 202-691-7924.

1. Introduction and Purpose

This study aims to explore survey response processes that require recall from memory. The Consumer Expenditure Quarterly Interview Survey (CEQ), along with several other federal surveys, relies on questions about past behavior that often require respondents to retrieve information from autobiographical memory -- a combination of personal experiences (episodic memory) and general knowledge (semantic). An example would be recalling whether you recently purchased any sweaters and, if so, the price that you paid. The retrieval of autobiographical information is fundamental to the design of many survey questions and yet remains poorly understood in the context of the CEQ and more widely in the research literature.

The Bureau of Labor Statistics has completed several projects with the goal of improving data quality for the CEQ. In support of the upcoming redesign of the Consumer Expenditure (CE) surveys, this study seeks to identify retrieval strategies that may be commonly used in the CEQ as well as identify which retrieval strategies lead to recall output aligned with survey goals. Importantly, this study aims to explore retrieval from autobiographical memory but does not aim to describe the mechanisms of retrieval. The findings from this study will add to the general research literature on recall from memory and may also be used to make recommendations about how the redesigned CE interviews should be structured to improve data quality.

2. Research Design

Recall from memory is widely believed to be a process that includes the activation of an item in memory based on the strength of its association with an initial cue. Once an item is successfully retrieved, it is believed that the newly retrieved item now serves as the cue for the retrieval of a subsequent item from memory. Typically, the literature on such models of memory focuses on the processes of retrieval from semantic memory, where strengths of association have been proposed to be based on similarity, with the probability of recall proportionate to the strength of the similarity. However, in the context of targeting memories that include personal information, the basis on which these associations are evaluated is much less clear. Personal information may provide associations between memoranda that are objectively unrelated to each other. For example, the strength of the association between shoes and suitcases is typically low but

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a person who yesterday purchased a pair of shoes and a suitcase from the same store may strongly associate the two items together. As with other models of memory, this does not require that the individual explicitly direct retrieval or have awareness of using a strategy.

To explore recall from memory, we have designed an online recall task that asks participants to recall several recent purchases and then describe the connections between successive recalls through open-ended questions and a self-categorization task. Although the participant may not have explicitly used the subsequently named connection at the time of retrieval, the reported information will be the best data available on how the successive recalls are associated when the connections are potentially personalized. The initial recall cue (an 'anchor') will be derived from expenditure categories used in the CE interview (e.g., "Shirts, sweaters, blouses, or tops"). Upon responding to the anchor item by reporting an expense that comes to mind, participants will be prompted to report the next purchased item that comes to mind, and so on, until the participant has recalled from memory a sequence of five items. In the current study, we manipulate the anchor used as the initial recall cue in order to explore the effect of retrieval strategies on which items are recalled.

Retrieval strategies

It may be that the strength of the association between two items is not based on semantic similarity. There are likely many competing relationships that may link any two items together, of which semantic similarity is only one; the ultimate associative strength may be driven by one, a combination of several, or all of those relationships. Support for this proposition comes from the evidence of clustering of items in recall: recalled items are often highly similar to each other on some dimension, forming a 'cluster', until a point at which the similarity breaks and a different set of highly similar items are recalled together in another cluster.

To investigate this question, we have selected several initial cues that we hypothesize will trigger a range of retrieval strategies. We briefly describe those strategies in the bullets below, identify the initial cues (i.e., CE expenditure category labels) that we expect will most likely evoke the strategy. For each category, we aim to collect 180 participants; this sample size is based on previous studies from the literature

and is expected to enable us to conduct exploratory analyses of patterns of recalled items and retrieval strategies.

- *Outlet-driven retrieval*: the outlet at which the cued item was purchased will be the salient information that cues the next item to be recalled.

     1. "Shirts, sweaters, blouses, or tops" (n=180)

- *Semantic category-driven retrieval*: the semantic meaning of the underlying category to which the item belongs (approximated by CE expenditure categories) will be the most salient information that cues the next item to be recalled. That is, in the current task, the item is more closely related to other similar items than the item is related to other distinguishable information such as personal events.

     2. "Room-size rugs or other non-permanent floor coverings" (n=180)

- *Purpose-driven retrieval*: the underlying purpose for the expenditure will be the most salient information that cues the next item to be recalled. It is expected that the sequence of recalled items will cut across many possible categorizations, but connected together by a common cause for the expenditures. A "purpose" is broadly construed to include goals, activities, and events.

     3. "Hospital room or hospital services" (n=180)

- *Context-driven retrieval:* one element of the retrieval cue that may be relevant for the current task is the breadth of the recall category and the range of items in memory associated with that category. A broader category cue may activate a wider but shallower range of items in memory compared to a narrow category that activates only a few items very strongly, for example. To test this hypothesis, we will compare the recall patterns of two groups – a global (broad) category and a sub-global (narrow) category.

     4. Global- "Sports" (n=180)
     5. Sub-global- "Health clubs, fitness centers, swimming pools, weight loss centers, or other sports or recreational organizations" (n=180)

Task

        The participant's task will be to report the first expense that comes to mind when thinking of an 'anchor' CE expenditure category cue. Upon reporting the first item that comes to mind, the participant will be showed their most recent answer and asked what expense next comes to mind. After reporting five items, the participant will be asked to describe the relationship between each consecutive pair of items, both with an open-ended description as well as a choice from a selection of relevant dimensions (e.g., purchased at the same outlet, purchased for the same purpose). All participants will receive the same questions but the questions will be tailored to each participant's responses. A complete list of the questions as will be presented to participants is included in Appendix A.

3. Participants

        This research design requires a large sample of 900 participants in order to conduct exploratory analysis and modeling of retrieval strategies. These participants will be randomly assigned to the five groups described. The task will be administered on-line using the Qualtrics survey website. Participants will be recruited using a convenience sample from Amazon Mechanical Turk; this study is focused on internal validity rather than representativeness of any population. Mechanical Turk is expected to provide quick data collection turnaround at a cost of about $2.20 per participant, which will result in a total of $1,980 in participation fees. This total will be paid directly to Amazon Mechanical Turk to administer the surveys and recruit participants.

4. Burden Hours

        Our goal is to obtain responses from 900 participants recruited from Amazon Mechanical Turk. Each session is expected to take no more than 15 minutes to complete, for a total of 225 burden hours (900 participants x 0.25 hours). The survey will be administered completely online at the time and location of the participant's choosing.

5. Data Confidentiality

        Recruiting of participants will be handled by Amazon Mechanical Turk. Participants will be informed as to the voluntary nature of the study. Participants will also

be informed that the study will be used for statistical purposes to understand recall from memory. No pledge of confidentiality will be given to survey respondents.

The following task will be administered to participants on-line. The horizontal lines indicate page breaks, for which the participant must click a button to continue to the next screen.

Welcome!

Thanks for your interest in our research. You're here because we've asked you to participate in research on how memory works. We're trying to understand how memories of your past experiences are related to each other.

We'll be asking you about your memories for recent purchases made...

- In the last 3 months
- By you or anyone that you currently live with

Unlike some surveys or online tasks you may be familiar with, we ask that you complete this task all at one time and that you only start once you are in a quiet place where you won't be disturbed for about 15 minutes. Only share information you're comfortable with - nothing too personal - but please be honest and follow the instructions.

Please do not use your browser's back button.

This voluntary study is being collected by the Bureau of Labor Statistics under OMB No. 1220-0141. We will use the information you provide for statistical purposes only. Your participation is voluntary, and you have the right to stop at any time. This survey is being administered by qualtrics.com and resides on a server outside of the BLS Domain. The BLS cannot guarantee the protection of survey responses and advises against the inclusion of sensitive personal information in any response. By proceeding, you give your consent to participate in this study.

Instructions

We will show you the name of a category and ask you to tell us about a recent expense that comes to mind.

Here's an example of what you'll be doing.

This section deals with purchases of furniture, household decorative items, dishes, household linens, floor coverings, and window coverings.

Thinking about the last three months since December 1, 2013,
what expense comes to mind when you think of
Travel items including luggage

Describe the item [   ]

Estimate the cost ($) [   ]

You would type in something like:

Describe the item   *Carry-on suitcase*
Estimate the cost ($)   *63.50*

Instructions

From there, we'll ask you to follow your train of thought - tell us what expense your first answer makes you think of, then what your next answer makes you think of, and so on.

What expense comes to mind next when you think of your household's expense for
Carry-on suitcase

Describe the item [   ]

Estimate the cost ($) [   ]

You would type in something like:

Describe the item   *Shoes*
Estimate the cost ($)   *22.99*

Instructions

Spend just a few seconds on each question - we want to know the first expense that comes to mind when you think of the category. We want your gut reaction so please don't try to use your browser's back button.

If you can't think of a recent expense for the category we ask about, tell us about another expense that the category made you think of - **any expense from any time**. No matter how unrelated it may seem - write it in! But please report only <u>actual expenses</u> that you or someone in your household have had.

When you are ready to start, continue on to the next screen.

{EXAMPLE: This section deals with purchases of clothing, watches, and jewelry}

Thinking about the last three months since December 1, 2013,
what expense comes to mind when you think of
{EXAMPLE: Shirts, sweaters, blouses, or tops}

Describe the item

Estimate the cost ($)

What expense comes to mind when you think of your household's expense for
{Respondent's first answer}

Describe the item

Estimate the cost ($)

What expense comes to mind when you think of your household's expense for
{Respondent's second answer}

Describe the item

Estimate the cost ($)

What expense comes to mind when you think of your household's expense for
{Respondent's third answer}

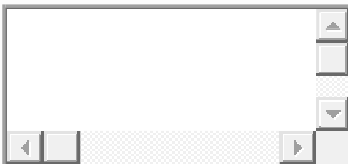Describe the item

Estimate the cost ($)

What expense comes to mind when you think of your household's expense for

{Respondent's fourth answer}

Describe the item

Estimate the cost ($)

Instructions

Now we are going to ask you to tell us about how the items you just told us about are related to each other. There are no wrong answers - no matter how silly the connection might seem.

Please describe why

{Initial Category}

made you think of

{Respondent's first answer}

Please describe why

{Respondent's first answer}

made you think of

{Respondent's second answer}

Please describe why

{Respondent's second answer}

made you think of
{Respondent's third answer}

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Please describe why
{Respondent's third}

made you think of
{Respondent's fourth answer}

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Please describe why
{Respondent's fourth answer}

made you think of
{Respondent's fifth answer}

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Instructions

You've told us a lot about how your memories relate to each other. Now we're going to ask you to categorize the connections you told us about.

Please select one category that best matches what you were thinking. We are interested in your perspective - choose whichever seems most appropriate to you.

When thinking of why
{Initial category}
made you think of
{Respondent's first answer}

you wrote
{Respondent's first reason}

Which of these statements best matches what you were thinking? Select one.
- ○ They were purchased by or for the same person
- ○ They were purchased at the same store
- ○ They are similar items
- ○ The items were used for the same purpose
- ○ None of the above

When thinking of why
{Respondent's first answer}
made you think of
{Respondent's second answer}

you wrote
{Respondent's second reason}

Which of these statements best matches what you were thinking? Select one.
- ○ They were purchased by or for the same person
- ○ They were purchased at the same store
- ○ They are similar items
- ○ The items were used for the same purpose
- ○ None of the above

When thinking of why
{Respondent's second answer}
made you think of
{Respondent's third answer}
you wrote
{Respondent's third reason}

Which of these statements best matches what you were thinking? Select one.

○ They were purchased by or for the same person

○ They were purchased at the same store

○ They are similar items

○ The items were used for the same purpose

○ None of the above

When thinking of why
{Respondent's third answer}
made you think of
{Respondent's fourth answer}

you wrote
{Respondent's fourth reason}

Which of these statements best matches what you were thinking? Select one.

○ They were purchased by or for the same person

○ They were purchased at the same store

○ They are similar items

○ The items were used for the same purpose

○ None of the above

When thinking of why
{Respondent's fourth answer}
made you think of
{Respondent's fifth answer}

you wrote
{Respondent's fifth reason}

Which of these statements best matches what you were thinking? Select one.

○ They were purchased by or for the same person

○ They were purchased at the same store

○ They are similar items

○ The items were used for the same purpose

○ None of the above

Final Questions

Please tell us about yourself.

How many people live in your household?

What year were you born?

What is the highest degree you received?

○ None

○ Elementary school diploma

○ High school diploma or the equivalent (GED)

○ Associate degree

○ Bachelor's degree

○ Master's degree

○ Professional degree (MD, DDS, DVM, LLB, JD, DD)

○ Doctorate degree (Ph.D. or Ed.D)

Thank you!

Thank you for participating in this research.

The aim of this research is to study how memories are recalled - we hope to understand what strategies people use to recall this kind of information and how these memories are organized. By telling us how one of your memories led to another memory and led to another memory and so on, you have shown to us how your memories might be organized. We will use your answers along with the answers of hundreds of other people to try to find common patterns that might tell us more about how memory works.

If you have any comments that you'd like to share with us about your answers or about the research in general, please leave them here.

Click through to the next screen to finish and receive your completion code.