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Short Communication

Does a familiarization step influence results from a TCATA task?

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ABSTRACT

Temporal Check-All-That-Apply (TCATA) is a multi-attribute temporal approach that extends CATA questions. It is based on continuous selection of the sensory attributes that are perceived as applicable for describing a focal sample during consumption. Compared to CATA, TCATA is a relatively intense and demanding task for consumers who have to focus their attention on the evolution of the sensory characteristics of samples during consumption. The present work evaluated a short familiarization step (7–10 min) where participants became acquainted with the list of sensory terms and applied these to a practice sample using a CATA task and also completed a TCATA task using a warm-up sample. All participants, including those who did not take part in the familiarization step, watched a demonstration video that explained how to use the TCATA software and to complete the task. Three consumer studies, each involving ~100 participants, were conducted using dried apricots, peanuts, and milk chocolate. The TCATA curves when data were collected with and without the familiarization step were not systematically different. However, a small increase in sample discrimination was established and on this basis familiarization should be considered when using TCATA with consumers. A need to explore other familiarization protocols than the one used here exist in order to develop guidelines for implementation.

1. Introduction

Temporal Check-All-That-Apply (TCATA) is a novel multi-attribute temporal approach that extends Check-All-That-Apply (CATA) questions (Castura, Antúnez, Giménez, & Ares, 2016). It is based on continuous selection of the sensory product attributes that are perceived as applicable for describing a focal sample during consumption. Assessors are presented with a list of terms and are asked to select all that apply to describe the sensations they perceive at each moment of the sample evaluation, and to uncheck the terms when they no longer apply.

TCATA has been applied with trained assessors, semi-trained assessors, and naïve consumers for dynamic sensory characterization of a wide range of products (Baker, Castura, & Ross, 2016; Boinbaser, Parente, Castura, & Ares, 2015; Castura et al., 2016; Oliveira et al., 2015) and has been reported to provide a more detailed description of how the sensory characteristics of products change during consumption than the Temporal Dominance Method (TDS) (Ares et al., 2015).

Self-reported task perception measures have indicated that consumers perceive TCATA as easy and not tedious (Ares et al., 2015, 2016). Nonetheless, it is more intense and demanding than a standard CATA task in the sense that consumers have to continuously focus their attention on all of the sensory characteristics of the product they perceive during consumption, check those that apply to describe the sample and also uncheck those that no longer apply. With this in mind, the present research explores the value of familiarizing consumers with the method and focal products prior to data collection.

Based on the current literature, it seems likely that a short familiarization step with the TCATA methodology and exposure to the product category may be beneficial, leading to increased understanding of the task and improved sample discrimination. For example, for descriptive analysis it has been shown that the first few sessions deliver the biggest gains in terms of ability to discriminating between samples and building consensus between assessors (Byrne, Bredie, & Martens, 1999; Byrne, O'Sullivan, Dijksterhuis, Bredie, & Martens, 2001). In projective mapping, a

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short familiarization with the methodology using colored shapes or other simple stimuli has been recommended as a means to improving consumer understanding of how to evaluate samples (Hopfer & Heymann, 2013; Perrin et al., 2008), which in turn can lead to increased sample discrimination (Liu, Grønbeck, Di Monaco, Giacalone, & Bredie, 2016). A familiarization step has also recently been recommended for other temporal methods to familiarize consumers with the computerized system used for data acquisition and become acquainted with the list of attributes (Di Monaco, Su, Masi, & Cavella, 2014; Pineau & Schlich, 2014). For example, Thomas, Visalli, Cordelle, and Schlich (2015) used two warm-up products prior to the evaluation of the focal samples to familiarize consumers with TDS.

In summary, the aim of the present work was to evaluate the influence a familiarization step on results from TCATA tasks with consumers.

2. Materials and methods

The present work comprised three studies involving different product categories. In all studies a between-subjects experimental design was used to evaluate the influence of a familiarization step on results from TCATA. Half of the consumers completed the task without any prior familiarization, whereas the other half took part in a short method and product familiarizing step. The characteristics of the studies are summarized in Table 1.

2.1. Consumers

Each study was conducted with 100–109 consumers (Table 1). Participants were recruited in Auckland, New Zealand by a marketing research provider based on their consumption of the focal products, as well as their interest and availability to participate in the study. Data were collected as part of a consumer research project that included tasting of other foods/beverages.

Participants were aged between 18 and 67 years old and the percentage of female participants ranged from 48% to 75%. The consumer samples comprised varying household compositions, income levels, and education levels, but they were not representative of the Auckland population. It was a requirement that participants were familiar with computers and using a computer mouse. Participants gave written informed consent and were compensated in cash for their participation.

2.2. Samples

Commercial samples available in the New Zealand marketplace were used in all studies (Table 1). Samples were presented in odor-free plastic vessels labelled with random 3-digit codes for identification. Serving sizes were adjusted to allow a single bite per sample.

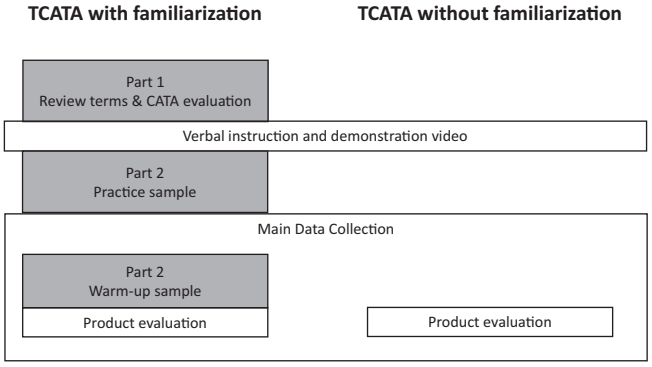

Fig. 1. Overview of the experimental procedure for participants in the research.

2.3. Experimental procedure

The process of data collection was similar for all studies. Participants were randomly assigned to one of the two experimental treatments (TCATA without familiarization step vs. TCATA with familiarization step) (Fig. 1). The two-part familiarization step took 7–10 min. Differences in the distribution of age, gender, frequency consumption, and liking of the focal products were non-significant between participants allocated to the two familiarization treatments ($p > 0.13$).

Only participants in the "with familiarization" group were presented with and asked to carefully read a list of the terms that would feature in the TCATA task, whereupon they completed a CATA task (paper ballot) for one sample (not included in main study). This provided product category exposure and experience with the sensory attributes to be evaluated during the TCATA task.

All participants (regardless of experimental condition) received verbal instructions and watched a demonstration video describing how to complete the computerized TCATA task, which carefully explained how to start the evaluation, and how to evaluate the samples by selecting and unselecting terms.

Next, only participants in the "with familiarization" group assessed two samples: a practice sample and a warm-up sample. Participants were told that the first sample they received would be a practice sample in order to become more familiar with the TCATA task. Experimental moderators were present in the booth area during this stage and consumers were encouraged to ask questions. Immediately following the practice sample, main data collection commenced. Participants were not informed that the first sample herein was a warm-up sample, and that results would be discarded. Thus, the evaluation data used was similar for all participants. For participants in the control experimental condition, main data collection commenced immediately after watching the demonstration video. Experimental moderators were present in the booth area for the first sample being assessed.

All assessors were instructed that the task required characterization of samples using a list of terms (which they reviewed prior

Table 1
Overview of the TCATA studies included in this research.

Study	Number of consumers (consumers who completed the familiarization step between brackets)	Product category	Number of samples	Task duration (s)	Number of terms	List of terms
1	100 (50)	Dried apricots	4	90	9	Apricot flavor, chewy, fibrous, moist, peach flavor, soft, sour, stuck in teeth, sweet
2	109 (60)	Peanuts	3	70	10	Bits left, bland, chicken stock, crunchy, dry, honey flavor, roasted/toasted, salty, stale/rancid, sweet
3	100 (50)	Milk chocolate	4	60	9	Cocoa, melts in mouth, milky, mouth coating, powdery, smooth mouthfeel, soft, sweet, waxy