

6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the  
Affiliated Conferences, AHFE 2015

## Investigation of "Bento" culture in focusing on the order of feeding actions

Makoto Sarata<sup>a,\*</sup>, Bertrand Thomas<sup>b</sup>, Akemi Hamada<sup>c</sup>, Yuka Takai<sup>d</sup>, Akihiko Goto<sup>d</sup>,  
Hiroyuki Nishimoto<sup>e</sup>

<sup>a</sup>Advanced Scientific Technology & Management Research Institute of KYOTO, Kyoto 600-8813, Japan

<sup>b</sup>Bertrand Co., Chukyo-ku Rokkaku-dori Fuyacho-higashi-hairu Yaoya-cho 117, Kyoto 604-8072, Japan

<sup>c</sup>Kyoto Koka Women's University, Kyoto 615-0882, Japan

<sup>d</sup>Osaka Sangyo University, Daito 574-8530, Japan

<sup>e</sup>Kyoto Institute of Technology, Kyoto 606-8585, Japan

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### Abstract

"Bento" is widely known as a packed meal culture in Japanese cuisine. In order to investigate the Bento culture, we conducted the behavior analysis in terms of the feeding action for a packed meal. It is called "Shumai Bento" in Japanese. In the first term, "Shumai" is originated as "Shaomai" in China. It is a famous cuisine in Yokohama city which is located near Tokyo city in Japan. Since it is one of famous China towns, "Shumai Bento" is also widely known as a special local product. It holds "Shumai" as a main meal accompanying boiled rice, fried egg and other vegetables in a box-shaped container. In this study, 22 subjects were entered in this experiment. Their motions were recorded by video camera and analyzed in focusing on their order of feedings on each meal. Bento is a set of meals. We have to make a little decision of what to eat at first because all meals are served at same time. In our thought, the first action may be decided by their characteristics. A person conveyed a "Shumai" to her/his mouth at first. Another person conveyed rice to her/his mouth at first. In the second action, it is more complicated decision making from the first one. We need to consider the prior probability as a similar method of the Bayes' theorem. If a person already had a "Shumai" at first, the probability of the selection for "Shumai" will be low. However, if a person so much prefers to eat a favorite meal, in the next action, he may repeat same action. In this study, we classified them by some psychological testing and found the first actions were related with their characteristics.

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Peer-review under responsibility of AHFE Conference

**Keywords:** Shumai Bento; Packed meal; Behavior Analysis; Enneagram test; Explanatory factor analysis

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\* Corresponding author. Tel.: +81-75-315-6725; fax: +81-75-315-6634.

E-mail address: [sarata@astem.or.jp](mailto:sarata@astem.or.jp)

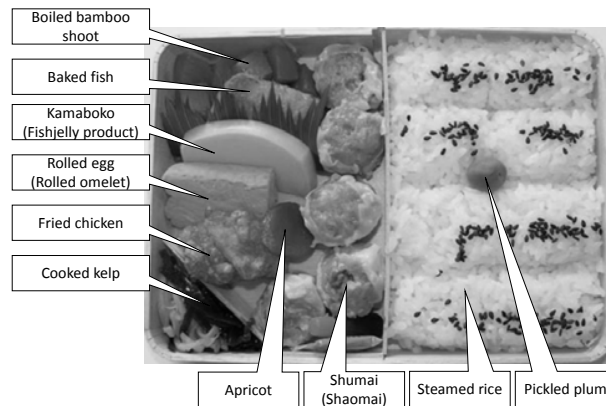


Fig. 1. Contents of Shumai Bento.

## 1. Introduction

“Shumai Bento” is widely known as a special local product in Yokohama city. As shown in the Fig. 1, there are 10 contents in it. The main meal is "Steamed rice" in Japan. The other meals are accompanied with rice, which are "Shumai (Shaomai)", "Boiled bamboo shoot", "Baked fish", "Kamaboko (Fishjelly product)", "Rolled egg (Rolled omelet)", "Fried chicken", "Cooked kelp", "Apricot", and "Pickled plum".

In order to investigate the Bento culture deeply, we conducted the behavior analysis in terms of the feeding action of “Shumai Bento”.

## 2. Observational research

In this study, 22 persons were entered as the subject consumers. Their tasks were to freely eat "Shumai Bento". The purpose of this study was to analyze their motions during the eating. All the actions were recorded by video camera. After recording their motions, we carefully checked their alignment of dietary intake.

The first approach of the behavior analysis by using the cluster analysis is described in the section 2.1. It was used for the base statistical analysis in this study.

The second approach of the psychological behavior analysis by using the Enneagram personality test is shown in the section 2.2 [1].

### 2.1. Statistical approach

As shown in the Fig. 2(a), the above original table was transformed into the below table for the cluster analysis. This multi-value analysis is able to measure similarity between each field on a table. Since each value has to be numeric, it is necessary to transform into truth value which is 1: truth or 0: fault. Therefore we divided a general intake field on the above table into a specific intake field on the below table. For example, "1st intake" was divided 10 intakes, such as "1st intake of Shumai", "1st intake of Steamed Rice" because there are 10 contents in the "Shumai Bento" as shown in the Fig. 1.

Fig. 2(b) shows the concept of similarity measuring by data distance. If there is one field on a table, we can easily measure the data distance between each record. The data distance is equal to the difference between the values.

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