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The effect of varying educational intervention on consumers' understanding and attitude toward sustainability and process-related labels found on chicken meat products



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ABSTRACT

This study focused on comparing the efficiency of educational intervention on improving consumers' understanding and attitude toward sustainability and process-related label claims. Participants were randomly distributed into 1 of 3 educational-intervention groups: (1) active learning (discussing label claims with other participants), (2) passive learning (reading a flyer about label claims), and (3) passive learning with an authoritative effect (attending a professor's lecture on label claims). Participants were asked to fill out a survey regarding their understanding and attitude toward 10 sustainability and processrelated labels commonly displayed on chicken meat products at 3 different times: before, immediately after, and 2 weeks after educational intervention. Participants' subjective understanding (self-rated awareness) and objective understanding (recall of actual knowledge) of the label claims significantly increased following educational intervention, independent of the particular type of such intervention. Participants' attitudes toward label claims varied, however, by the type of educational intervention. Passive learning led participants not only to more trust, but also to consider label claims to be more important when purchasing chicken meat products. In contrast, active learning induced no significant change in the importance level of label claims with respect to their purchasing decision, as well as in the trustiness to label claims. In conclusion, educational intervention, whether based on passive or active learning, improves consumers' label understanding of chicken meat products. However, since attitude toward label claims varies by the type of educational intervention, food processors and researchers should take further steps in designing more effective ways to mediate the information regarding label claims.

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1. Introduction

In the presence of enormous market competition, food manufacturers today rely on packaging information to differentiate their products from those of others. In 2005, the U.S. food industry spent \$32 billion on advertising and \$66.5 billion on packaging to effectively provide consumers with essential product information (United States Department of Agriculture Economic Research Service, 2014). Consumers may expect their acceptability of certain products based on a variety of visual cues seen prior to purchase (also referred to as "search qualities"; e.g., appearance, packaging, etc.) (Nelson, 1970). After using the products, consumers tend to evaluate perceived product-qualities (also referred to as "experience qualities") based on their prior expectations elicited

by visual cues (search qualities), thereby modulating consumer acceptability of the products (e.g., assimilation-contrast model; Anderson, 1973; Cardello, 1994). In addition, perceived "credence qualities", reflecting the credibility of the seller toward the buyer, is thought of as another class of properties influencing consumer acceptability of products (Darby & Karni, 1973). Credence includes use of information formats that enhance consumer knowledge about a product with respect to its nutritional value, ethics, or trust (Darby & Karni, 1973; Fernqvist & Ekelund, 2014; Grunert, 1997).

Credence qualities involve label information that consumers often read on a variety of food-product-packaging. Surprisingly, many consumers tend to overestimate their understanding of label information (Hoogland, De Boer, & Boersema, 2007; Sharf et al., 2012). For example, in a survey among 120 young adults aged from 18 to 40 years examining consumers' understanding of food labels, the "self-reported" expertise of 43.9% of the participants reflected a sound knowledge of food labels, but only 27.2% of the total number

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of participants actually scored "high" in the questionnaire about the food labels (i.e., 8-10 correct-answers in a total of 10 questions) (Sharf et al., 2012). Of particular interest was the fact that only 22% of the participants who felt they had strong knowledge of the nutritional declaration (e.g., "without cholesterol", "contains no caffeine") were found to score "high" on the questionnaire (i.e., 80-100% of correct answers). In another study conducted by Hoogland et al. (2007), many Dutch consumers were found to not have a full understanding of what a certified organic logo actually means even though they reported themselves to be familiar with the logo. In addition, consumers' label understanding and their label usage when purchasing food products varies by label type. For example, consumers in European countries selfreported that they most frequently look for price, best before/use by date, and brand among 14 different types of information available on food packages when purchasing food and drink products (Grunert, Hieke, & Wills, 2014). In contrast, they tend to give little attention to information regarding ethical impact (e.g., working condition, fair trade), environmental impact (e.g., production, transport), and allergies in food/drink purchasing (Grunert et al., 2014). Furthermore, consumers who have previously seen ethical and environmental claims are more likely to understand such claims than those who have not seen them before (Grunert et al., 2014). Based on these results, consumers' actual understanding of ethical and environmental labels is expected to be lower than that of other more popular point-of-sale labels (e.g., best before/ use by date, ingredient list, and nutritional benefits). However, there has been a significant increase in the number of sustainability label claims that include ethical and environmental information (e.g., "animal welfare", "fed all vegetarian diet", or "free range", etc.) in the food industry (Van Loo, Caputo, Nayga, & Verbeke, 2014). Accordingly, in recent years consumers in the U.S. have become more interested in information regarding how foods are produced with respect to environmental, ethical, and animal welfare conditions. However, it remains doubtful as to whether consumers have a correct understanding of the sustainability-related label claims. Thus, building on increased concerns about sustainability-related labels, this study was designed to compare the effectiveness of educational intervention on consumers' understanding and attitudes toward sustainability and process-related label claims. Herein, "sustainability" can be characterized by two dimensions, i.e., a temporal dimension and a social dimension (World Commission on Environment and Development, 1987). The temporal dimension (mutual connections between present and future) is mainly associated with environmental aspects (e.g., organic and non-genetically modified organism) and the social dimension (mutual connections between consumers and others) is mainly associated with ethical aspects (e.g., fair trade and animal welfare) (Grunert et al., 2014).

Improving the formation of labels is intended to make them as clear as possible in terms of their visualization and logo content, and it has been suggested as a means for increasing consumers' label understanding (Sharf et al., 2012). However, just using a logo/symbol appears not to be enough to affect the formation of consumers' behavior toward food products, especially when the logo/symbol is not completely understood (Grunert, 2011). In other words, based on the "dual processing theories" (Evans, 2008), when consumers are not able to process the message content (e.g., label claims) because of a lack of knowledge regarding the message and when they are not motivated to process the message content, the impact of message content (e.g., label claims) on consumers' behavior toward objects (e.g., food products) appears to be less stable and robust (referred to as "peripheral processing") compared to when consumers are both motivated and able to

process the message content because of their strong knowledge regarding the message content (referred to as "central processing"; Grunert, 2011). For example, Hoogland et al. (2007) demonstrated that participants had more favorable perceived attributes about products when a sustainability logo was presented in detail compared to when only a logo was presented. However, when we consider that consumers prefer simplified information on labels (Cowburn & Stockley, 2005) and that packaging space for labels is limited, providing a detailed explanation about labels is impractical. Thus, other educational approaches for improving consumers' label understanding could be used, in turn minimizing the necessity for additional explanation of label claims.

Educational intervention regarding label claims can be performed using either "passive" or "active" learning. Passive learning involves knowledge acquisition via didactic teaching characterized by absence of resistance to what is learned (Haidet et al., 2004; Krugman & Hartley, 1970). For example, learners can obtain information by reading educational materials. In contrast to passive learning, active learning emphasizes dynamic communication among learners with respect to a subject to be learned. Participants in the active learning mode are more accustomed to engaging with educational materials and with each other than those functioning in the passive learning mode (Haidet et al., 2004). However, some learners have found that they are more able to make appropriate use of knowledge gained through passive learning than through active learning even though both modes can be effective in improving learners' knowledge (Haidet et al., 2004).

Little research has directly compared passive- and activelearning methods with respect to the efficiency of improving consumers' knowledge or attitude toward food labels, especially sustainability-related labels. Most studies have focused on either passive- or active-learning intervention. Some studies have used flyers or information sheets to provide information on the labels to test whether passive-learning intervention is effective (Hoogland et al., 2007; Lusk et al., 2004; Van Wezemael et al., 2012). These researchers compared participants' knowledge of the label claims and their willingness to pay both before and after they were provided with information about the label claims via a flyer. Alternatively, passive-learning intervention can be achieved through television, internet, personal communication, and teaching; indeed, the popularity of such methods has continued to grow. Notably, consumers have been found to consider medical doctors and research institutes as the most trustworthy sources of information with respect to food-related hazards (Liu, Pieniak, & Verbeke, 2014). In other words, when information regarding label claims is presented by authentic trusted figures or institutes, consumers are inclined to rely more on the authoritative effect as compared to when the information is provided by a flyer. Activelearning intervention has also been used through focus-group discussions designed to educate panel participants regarding food product label claims or new preservation techniques (Haugaard, Hansen, Jensen, & Grunert, 2014). However, to the best of the authors' knowledge, no comparison with other types of educational intervention with respect to the effectiveness of such intervention on consumers' label understanding has been performed.

This study aims to determine whether the type of information provided through label claims affects consumers' understanding and attitude toward sustainability and process-related label claims commonly found on chicken meat products. More specifically, this study will determine which of three types of educational intervention, i.e., active learning, passive learning, and passive learning with an authoritative effect (see below), is most effective in improving not only consumers' label understanding, but also their attitude toward the label claims. In this study, chicken meat was

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