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Insects as food: Exploring cultural exposure and individual experience as determinants of acceptance

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ABSTRACT

Edible insects have attracted much Western interest in recent years due to their nutritional and environmental advantages. Consumers, however, remain aversive towards a class of items that is not traditionally considered to be food. While the focus is often on the Western disgust, looking at consumer perceptions in a culture that considers insects to be delicious could provide new insights into the psychological and cultural mechanisms that underpin these evaluations. This cross-cultural qualitative study explores how cultural exposure and individual experience contribute towards the contrasting evaluations of insects as food by those who do and do not eat them. Eight focus groups were conducted across two cultures—four in Thailand where insects are part of the local food culture, and four in the Netherlands where insects are generally not recognised as food. Within these cultures, two groups consisted of individuals who have experience with eating insects, and two groups consisted of individuals with little or no experience with insects as food. Cultural exposure created expectations of which species were more appropriate to eat and how they should be prepared, whereas individual experiences determined whether judgements were made based on memories of past eating experiences or based on the visual properties and item associations. This study provides insights into the acceptance and rejection factors of unfamiliar food items and identifies the factors to be considered when introducing novel food items that are not yet culturally acceptable as food.

1. Introduction

Edible insects have gained much Western interest in recent years. This is due to their rich content of high quality protein and sustainability of their production in comparison to that of traditional sources of meat (Bukkens, 1997; van Huis, 2013). Yet despite much public interest in these potential benefits, most consumers in the West are still not keen on eating insects. They often react with disgust at the prospect of consuming creatures that are not familiar as food (DeFoliart, 1992; Yen, 2009), but are familiar as pests and transmitters of disease (Harris, 1985, chap. 8). This is in contrast with the attitudes in cultures where a variety of insect species are considered to be traditional delicacies (Hanboonsong, 2010; Ramos-Elorduy, 1997).

The importance of examining the psychological and cultural dimensions underlying attitudes towards eating insects has been emphasized before (Looy, Dunkel, & Wood, 2014), but most research to date has neglected these dimensions by largely focussing on the negative Western perception and how to overcome it (Caparros Megido et al., 2014; DeFoliart, 1992; Yen, 2009). There is a lack of cross-cultural research for understanding the similarities and differences in perceptions and acceptance of insects as food. Through a qualitative research approach, the present paper aims to provide new insights on the acceptance or rejection of insects as food by exploring consumer perceptions and acceptance of edible insects across two countries where cultural exposure and individual experience with insects as food are very different.

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When one looks at foods that are eaten around the world, the diversity shows that 'food' is not just for nourishment and neither is a nourishing substance necessarily 'food' (Fessler & Navarrete, 2003; Meyer-Rochow, 2009). Research on food rejection has emphasized the physical nature of the food item and their meanings and functionalities for a particular cultural group (Fessler & Navarrete, 2003; Martins & Pliner, 2006; Meyer-Rochow, 2009; Rozin & Fallon, 1980; Turmo, 2009). Surveys within a cultural group have shown strong findings on the tendency to avoid foods such as viscera and insects due to aversive textural properties and animal associations (Martins & Pliner, 2006). Little attention, however, has been devoted to why people in other cultures do like to eat these foods in spite of their properties.

Many psychological and biological factors govern food preferences and aversions, but while there are certain predispositions, food likes and dislikes are mostly acquired through experience (Rozin & Vollmecke, 1986). Similarly for insects, there is no evidence of an innate aversion (Bodenheimer, 1951). Individuals learn through experience which foods are appropriate to eat and how they are appropriately eaten (Cardello & Schutz, 1996). Children are taught at a young age what not to eat (Rozin & Vollmecke, 1986), and at the same time also learn to like specific foods through mere exposure and social learning (Nicklaus & Issanchou, 2006). This suggests that both cultural exposure and individual experience would play an important role, where locals learn from a young age to accept foods that are available in their culture.

Food choice usually takes place within a range of familiar foods (Prescott, 1998), where taste satisfaction is a key driver for food choice (Roininen, Lahteenmaki, & Tuorila, 1999; Tepper & Trail, 1998). However, prior experience is also a pre-requisite for the formation of sensory preferences (Einstein & Hornstein, 1970). When prior experience is absent, the willingness to try is often dependent on the level of interest and disgust rather than on the expected experience of the sensory properties (Martins & Pliner, 2005). We posit that the positive and negative evaluations of insects as food could be explained by the different levels of individual experience with eating insects, as prior experience is known to play an important role in how products are perceived, due to the moderating effect of knowledge on how stimuli are interpreted and evaluated (Banović, Fontes, Barreira, & Grunert, 2012; Olson, 1978; Peracchio & Tybout, 1996; Steenkamp, 1990).

Prior to tasting, consumers make inferences about a product's properties based on their knowledge and form certain product beliefs based on the observed stimuli (Kardes, Posavac, & Cronley, 2004). Consumers, however, draw different inferences according to their familiarity with the products, where high levels of experience with eating a product result in inferences that predict the actual sensory properties more accurately, and low levels of experience result in less relevant inferences being drawn (Alba & Hutchinson, 1987; Dick, Chakravarti, & Biehal, 1990). Yet, consumers tend to act according to their beliefs about a food item regardless of whether they reflect the actual sensory experience (Steenkamp, 1990). Food could thus be rejected on the basis of inaccurate presumptions of bad taste (Rozin & Fallon, 1980, 1987), often resulting in the rejection of items that evoke disgust before it is even tasted (Rozin & Fallon, 1987). This is especially relevant in the case of insects where negative associations are prevalent.

Knowledge about taste and usage of a food item are limited when prior experience is absent. This leads to a reliance on what is known about the category in order to form a judgment (Bar-Anan, Liberman, & Trope, 2006). In the case of insects in Western culture, this alludes to the frequent associations of insects as pests and disease-transmitters. On the contrary, high levels of prior experience enable the recall of past experiences in contextualized detail even without being presented with visual cues (Bar-Anan et al., 2006). Hence, when individual experience is limited, detailed visual presentation in a food context could play an important role because it provides a concrete representation of the item (Trope, Liberman, & Wakslak, 2007) and gives much information on what can be expected of its sensory properties (Yeomans, Chambers, Blumenthal, & Blake, 2008). Therefore going through increasingly contextualised images and actual products containing a variety of insect species could provide several layers of insights into consumer perceptions and expectations of insects as food.

In the current study, focus group discussions were utilised to explore the different consumer perceptions and expectations regarding insects as food in two different cultural contexts – one where insects are eaten (Thailand), and one where insects are generally not eaten (The Netherlands). Within each culture, groups of people that differed in levels of eating experience were selected. Through structured discussions about insects as food and images of various species and insect-based products, the effects of cultural exposure and individual experiences on consumer perceptions were examined. This cross-cultural study provides qualitative insights into consumer rationales behind food acceptance and rejection factors and the complex considerations involved in the acceptance of novel food items that are not yet culturally acceptable as food.

2. Materials and methods

2.1. Methodology

Focus group interviews were used as the method of data collection in this study. It is an explorative qualitative research tool that is widely used in consumer research to investigate reasons why consumers perceive products as they do (Barrios & Costell, 2004; Threlfall, 1999). Focus group interviews are structured discussions usually involving several groups of 4–10 people non-randomly selected from the target population. Group interaction allows for greater accessibility of shared ideas (Morgan & Spanish, 1984). This methodology is particularly useful in cases where little is known about a topic (Krueger & Casey, 2000) and is also often used to explore cross-cultural themes as it enables a better understanding of cultural differences (Knodel, 1995; Perrea, Grunert, & Krystallis, 2015; Strickland, 1999). With respect to insects, focus groups could provide insights into the differences in consumer perceptions and expectations in two cultures that perceive insects very differently.

2.2. Participants and study design

Eight focus group interviews were conducted—four in Wageningen, a town in The Netherlands where insects are available for human consumption in specialty shops and events but are generally not recognized as food, and four in Sakon Nakhon, a province in Thailand where the consumption of insects is part of the local culture. Within each culture, two levels of individual experience were represented, each with two groups of 'eaters' who have eaten insects before and two groups of 'non-eaters' who claim not to eat insects. In total, 54 participants (19 men, 35 women) with a mean age of 38 years (20–65 years) were interviewed in eight groups of 6–8 participants. Each group consisted of participants of similar levels of insect-eating experience, but were a mix of genders, ages, education levels and occupations. There were 15 Dutch non-eaters (D/NE; 7 men, 8 women), 14 Dutch eaters (D/E; 4 men, 10 women), 12 Thai non-eaters (T/NE; 5 men, 7 women) and 13 Thai eaters (T/E; 3 men, 10 women). Due to the differences in cultural availability of insects as food, equivalent experiences for eater and non-eater