



Research report

Students as subjects in food advertising studies. An appraisal of appropriateness

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ABSTRACT

Considerable knowledge on food advertising has been generated by research on consumers' psychological reactions to food advertising messaging using either students or nonstudents as subjects. Building on past research, this article investigates the methodological question of whether students are appropriate surrogates for nonstudents in food advertising studies. Following exposure to print advertisements featuring healthy and unhealthy foods with two different nutrient attribute-based message appeals, student and nonstudent subjects were asked to complete five standard evaluative response measures to the food ads: claim believability, attitude-toward-the ad, attitude-toward-the-product, attitude-toward-the-brand, and purchase intention. Among the findings, students were found to react differently and more negatively to identical food advertisements than nonstudents. Overall, the message sent to health communication researchers, policy officials, and practicing professionals is – unless certain criteria are satisfied – students should be considered inadequate subjects to represent all age groups of the general population in food advertising research. Thus, conclusions drawn from student-based research about advertising processing and effects should be questioned and broad generalizations avoided.

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Introduction

The research reported in this paper addresses the methodological question of whether students are appropriate surrogates for nonstudents in studies designed to generate externally valid and relevant knowledge about consumers' psychological reactions to food advertising messaging. The question of appropriateness is important because the literature on food advertising effects is abundant with studies using either student (e.g., Cheong & Kim, 2011; Lin, Blum, & Dodd, 2002; Choi, Paek, & King, 2012; Choi & Springston, 2014; Koordeman, Anschutz, van Baaren, & Engels, 2010; Paek, Yoon, & Hove, 2011; Schuldt & Hannahan, 2013; Shimp & Stuart, 2004; Wonderlich-Tierney, Wenzel, Vander Wal, & Wang-Hall, 2013) or nonstudent samples (e.g., Andrews, Burton, & Netemeyer, 2000; Mazis & Raymond, 1997; van Kleef, van Trijp, & Luning, 2005). Yet, evidence from marketing research reports that student and nonstudents react differently to marketing phenomena (e.g., Burnett & Dunne, 1986; Cunningham, Anderson, & Murphy, 1974; Peterson, 2001; Vinson & Lundstrom, 1978), including advertising stimuli (Soley & Reid, 1983; Yavas, 1994). A consequential conclusion in-

dicated by the cumulative literature is that the appropriateness of student subjects as surrogates for nonstudent subjects is domain-specific, and thus must be considered relative to the particular domain of inquiry.

Food advertising is a special domain of advertising research, which is conducted to inform professionals and scientists about the practical and theoretical influences of the form of marketing communication. If student and nonstudent subjects are different in how they evaluate and react to food advertising stimuli in research settings, any implications about food advertising effects drawn from student-based studies (e.g., Cheong & Kim, 2011; Lin et al., 2002; Choi et al., 2012; Choi & Springston, 2014; Koordeman et al., 2010; Paek et al., 2011; Schuldt & Hannahan, 2013; Shimp & Stuart, 2004; Wonderlich-Tierney et al., 2013) might be of little relevance to real marketplace conditions and the source of potential misinformation for food marketers, health communication experts, regulatory policy makers, and other interested constituencies (e.g., Peterson, 2001; Soley & Reid, 1983). According to Peterson (2001), who conducted a second-order meta-analysis of marketing related studies on the subject, researchers would be wise to practice constraint when generalizing from students to nonstudent populations. Based on his analysis, he warned that homogeneity (less noise and extraneous factors) may reduce the magnitude of differences or minimize relationships that exist when students are used as nonstudent

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surrogates and emphasized the importance of replicating research based on college students with nonstudents before generalizations are made about consumer behavior.

External validity, or generalizability, is at the heart of social and behavioral research (Soley & Planchon, 1983), and the decision to use student versus nonstudent subjects is central to the generalizability of any research study, including studies of food advertising. Its importance was first articulated by Campbell and Stanley (1963) in the early 1960s and then revisited by Cook and Campbell (1979) in the late 1970s (Easley, Madden, & Dunn, 2000). As underscored by the healthy exchange between marketing scholars in the early 1980s, external validity is of particular significance to researchers who work in applied and professional studies where findings are not only of theoretical importance for advancing basic scientific knowledge, but also of practical relevance for advancing professional practices.

In an influential article, Calder, Phillips, and Tybout (1981) distinguished between “effects application research” and “theory application research.” “Effects application research” was defined as inquiry conducted to produce parameter estimates for larger populations, and “theory application research” as inquiry research in which theory generalization, not population parameter representativeness, is the focus. As noted by Peterson (2001), Kruglanski (1975) made a similar distinction between “particularistic research” and “universalistic research.” From their analysis, Calder and associates argued that the use of student subjects as surrogates for nonstudents is appropriate in consumer studies when the research is theoretical in nature. A year later, Lynch (1982) published a paper that challenged Calder et al.’s (1981) distinction by arguing for the need for external and construct validity in all consumer research, regardless of application. As a form of consumer study, food advertising research resides squarely at the intersection of theoretically-oriented (i.e., basic) and applied research, and even though the issue is not settled, the research on the question of student versus nonstudent subjects supports the conclusion that students should not be used when the focus is on “effects application”.

Unlike basic research on theoretical constructs and relationships in fields such as psychology and sociology, research on advertising by its nature has practical implications. The point is underscored by the two common practices in published advertising research: (1) even if researchers are studying theoretical relationships in the research setting, subjects must be ‘qualified’ as relevant targets of product/brand messages (i.e., they must be users or potential users of advertised items for the sake of relevancy) and (2) implications routinely appear in advertising articles either because authors feel obliged to highlight the managerial relevance of their findings for advertising practice or they are required by journal policy to offer practical recommendations. In the case of food advertising research, examples of empirically derived practical implications can be found in Cheong and Kim (2011), Choi et al. (2012), Choi and Springston (2014), Lin et al. (2002), Paek et al. (2011), Shimp and Stuart (2004), and Wonderlich-Tierney et al. (2013). The results presented herein inform as to whether such findings are generalizable to the larger consumer population and thus are of applied relevance to those interested in food advertising processing and effects.

Research focus and hypotheses and research question

The general prediction of the present study is that student subjects, defined herein as college students, will evaluate the same food advertisement stimuli differently than will subjects from the general adult population, defined as non-college students including adults of all ages from the general population. Specifically, it is hypothesized that:

H₁: Claim believability, attitude-toward-the ad, attitude-toward-the-product, attitude-toward-the-brand, and purchase intention evaluations of the food advertisements will differ significantly between the student and nonstudent subjects.

H₂: The food advertisement evaluations of the student subjects will be more negative than those of the nonstudent subjects.

Hypothesis 1 is predicated on the natural differences between students and adults discussed by Peterson (2001). Unlike adults, students are early in their life cycles and have “unfinished personalities” (less-crystallized attitudes, less-formulated sense of self, less-life experience). As a result, they are more homogeneous as a group than nonstudents. As noted by Peterson (2001), homogeneity translates into stronger hypothesis tests in research settings because there is less noise (i.e., extraneous factors) inherently among student populations than among adult populations. Hypothesis 2 is predicated on Soley and Reid’s (1983) finding regarding evaluative differences between the two subject groups. Their analysis found significant differences between the student and adult subjects across all four evaluative dimensions, and the student subjects tended to evaluate the advertisement more negatively than the adult subjects on all response measures.

Additionally, one research question was posed to explore whether there are differences in evaluative responses to food advertisements by adults of different ages. The question asked:

RQ1: Do nonstudent subjects of different ages react similarly or differently to food advertisements?

The question is posed to determine if chronological age, a basic and simple demographic segmentation variable, is an important factor of consideration in food advertising research (DeLorme, Huh, & Reid, 2006). Based on the previously mentioned issue of homogeneity, the expectation is that the evaluations of student subjects will be different from the three age groups and that nonstudents of a younger age (i.e., 18 to 44) will be different from mature (i.e., 45 to 64) and older adults (i.e., 65 and older).

Research method

The hypotheses and research question were tested using a methodology similar to Soley and Reid (1983). However, the present study differed in two important ways: a larger number of subjects were asked to evaluate multiple ads, not a single ad, and the subjects evaluated the ads both on ad-specific and product/brand factors. Requiring subjects to evaluate multiple ads, not just one ad, is important because greater confidence can be placed in results generated by responses to ads for a broader range of content features (e.g., different products, different appeals, etc.). Furthermore, the inclusion of the product and brand evaluations is important because it is how consumers respond to products/brands featured in advertising messaging that is important, not how they respond to the messaging itself – the advertising.

Sixteen print advertisements were created for two healthy (multigrain cereal and plain yogurt) and two unhealthy foods (chocolate chip cookies and pepperoni pizza). Print advertisements were selected as the messaging stimuli because (1) the print format allows the provision of detailed product information (Shimp, 2000), promotes more involved information processing, and (2) a major proportion of the advertising spending of U.S. food advertisers is allocated to consumer magazines (e.g., 27.1% of 2010 media dollars) (Advertising Age, 2011). As noted later, a real, but unfamiliar food brand was featured in the ads in attempt to minimize brand-specific biases such as attitude toward the company, brand-associated attributes, and so forth. The classification of foods into healthy and unhealthy product categories was determined by a series

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