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Debunking legendary beliefs about student samples in marketing research

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ABSTRACT

The current research investigates three legendary beliefs related to sample definition and the selection of contextual target populations: the representativeness of samples, the willingness of research participants, and the homogeneity of samples. After identifying several current trends related to the use of college-students as data sources, data from three randomly drawn samples of students and consumers empirically debunks the legendary beliefs. Findings indicate the contextual setting of the research directly shapes the representativeness of drawn samples, the willingness of college students equals the willingness of non-college consumers, and drawing samples from the same institution artificially increases sample homogeneity. Debunking these legendary beliefs reveals the need for multiple-sample research, probabilistic sample selection procedures, clearer discussions of qualifying criteria, and the consideration of new confounding factors (e.g., research subject incentivization). The article discusses how the truths of the legendary beliefs influence the generalizability of research results to contextual populations of interest.

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1. Introduction

The demands for analytical and scientific rigor in research continue to rise, with quality journals asking for stronger theoretical justifications and improved managerial contributions (Lehmann, McAlister, & Staelin, 2011). Identifying the correct sample frame for empirical studies remains a critically important decision that can influence the quality of data a researcher obtains. When conducting empirical research involving human beings, one persistent data collection issue that continues to create controversy and debate centers on if college students are a reasonable sampling frame.

Inherent within this sampling frame issue is the concept of defined target population or target population (Dillon, Madden, & Firtle, 1990). No universal definition of target population exists. For example, Burns and Bush (2003) define target population as “the entire group under study as specified by the objectives of the research project” (p. 334). Dillon et al. (1990) define target population as a “set of people, products, firms, markets, etc. that contains the information that is of interest to the research” (p. 265). Hair, Bush, and Ortinau (2009) define this concept as a “specified group of people or objects for which questions can be asked or observations made to obtain the desired information” (p. 52).

Prior to handling sample frame issues, researchers need to have a clear understanding of the characteristics of the individuals who

represent the defined target population, to effectively assess the internal and/or external validity of a study's results and inferences. The description of the target population needs to be consistent with the research objectives, including a clear description of all the specific qualifying criteria that subjects must meet for inclusion in the sample frame and study.

The existing literature focuses heavily on debates of the appropriateness of using college student sampling frames in research, instead of informing researchers about the reasonableness of college student sampling frames. The debates center on the convenience, accessibility, representativeness, and costs of obtaining research subjects (Bello, Leung, Radebaugh, Tung, & Van Witteloostuijn, 2009; Creswell, 2009; Lynch, 1982; Wells, 1993). For example, pro arguments include the preservation of “internal validity” for theory development or causal hypothesis testing (Peterson, 2001; Thomas, 2011; Webster & Sell, 2007). Con arguments include limitations of the generalizability of the results and implications to non-student target populations (Beltramini, 1983; Campbell & Stanley, 1963; Cunningham, Anderson, & Murphy, 1974; Steinfatt, 1991; Stevens, 2011). Additional debate topics include the homogeneity of samples (e.g., Hair, Black, Babin, & Anderson, 2010; Oakes, 1972; Peterson, 2001; Thomas, 2011), the willingness of students to participate in research (e.g., Bello et al., 2009; Dobbins, Lane, & Steiner, 1988; Malaviya & John, 2001) and the costs of student research (e.g., Huang, Gattiker, & Schwarz, 2008; Lamb & Stem, 1979; Knemeyer & Naylor, 2011; Malaviya & John, 2001).

Many of these debates surrounding the use of college student sample frames stem from established beliefs that, over time, have become deep-rooted legendary beliefs and act as a justification for using or not using college students as data sources. Among the different debates,

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the debate over establishing internal/external validity with student-based data continues to be most important and relevant to academic scholars conducting empirical research. Given the interest and importance of the long standing beliefs about college students as data sources, the two fundamental questions that drive the current study are: (1) when are college students an appropriate sampling frame and (2) how should college students be sampled?

The current research differs from previous research in several ways. First, the main research objective is not to validate existing pros and cons for using college student data, but rather to empirically investigate some of the deep-rooted legendary beliefs (i.e., representativeness, incentivization, and sample homogeneity) that underlie college student based-data. The empirical findings and inferences of these legendary beliefs can further enhance the reader's understanding of the appropriateness of college students as data sources. Second, the collection of data from three sub-segments of restaurant consumers (non-student consumers, incentivized college students, and non-incentivized college students) represents a replication-study approach, meaning that the generalizability of the results can be directly tested across the three sub-segments. Third, unlike most previous studies that include manipulated independent variables and measured dependent behavioral constructs of interest, the current study limits the focus to one attitudinal construct termed the consumers' overall restaurant image (ORI).

The remainder of this article proceeds as follows. Section 2 highlights the results of a partial review of several high-ranking marketing journals demonstrating the prevalence of college student data in academic research. Section 3 presents the deep-rooted legendary beliefs relating to college student data sources and the main construct (ORI) using casual-dining (CD) and fine-dining (FD) restaurant contextual settings. The following sections present the multi-replication research design, followed by the main results, discussion, and implications of

the findings, with the closing section presenting limitations and suggestions for future research.

2. Current trends on the usage of college students and non-students in high-ranking marketing journals

The main objective of the partial review of selected high-ranking marketing journals is to gain a better perspective on the reliance on college students in academic research. The review covers 1090 published articles in four high-ranking marketing journals (148 from *Journal of the Academy of Marketing Sciences [JAMS]*, 567 from *Journal of Business Research [JBR]*, 224 from *Journal of Consumer Research [JCR]*, and 151 from *Journal of Marketing [JM]*) for the years 2009–2011. Using the five specific evaluative criteria reported in Table 1, preliminary analysis reveals that 228 articles employ only student-based data, 399 articles use only non-student data, and 109 articles use a combination of student and non-student samples. Given the current study's focus on internal/external validity issues, those 109 articles that include both student and non-student samples with different contextual target populations are excluded, leaving 627 articles that contain either college student or non-student sampling frames.

Content analysis shows that college student subjects appear most frequently in experimental research (77%), while non-student sample frames appear most in traditional survey research (57%). College students are the subject of choice in experimental research most frequently in JCR (96%), and less frequently in JM (68%), JAMS (50%) or JBR (46%). Despite the high usage of college student samples in research, potential limitations with using college students often go unnoticed. Among the articles employing student sample frames, only 21% recognize that college students create any potential limitations to the study's findings, inferences, and implications. Disclosure of potential limitations occurs

Table 1
Summary of current trends regarding the use of student and non-student sample frames in high-ranked marketing journals.^a

Criteria of evaluation	Total (N = 736)			JM (N = 88)			JCR (N = 206)			JAMS (N = 98)			JBR (N = 344)		
	Student	Non-St.	Both	Student	Non-St.	Both	Student	Non-St.	Both	Student	Non-St.	Both	Student	Non-St.	Both
Sub-totals	228	399	109	19	57	12	131	30	45	10	77	11	68	235	41
Research design															
Experiment	175 (77)	37 (9)	55 (50)	13 (68)	5 (9)	3 (25)	126 (96)	9 (30)	39 (87)	5 (50)	3 (6)	3 (27)	31 (46)	8 (3)	10 (24)
Surveys	37 (16)	227 (57)	26 (24)	2 (11)	34 (60)	4 (33)	4 (3)	1 (3)	3 (7)	4 (40)	40 (52)	6 (55)	27 (40)	152 (65)	13 (32)
Recognized limitation															
Recognized	49 (21)	–	10 (9)	2 (11)	–	–	8 (6)	–	1 (2)	3 (30)	–	–	36 (53)	–	9 (22)
Not recognized	170 (75)	–	86 (79)	16 (84)	–	10 (83)	123 (94)	–	43 (96)	6 (60)	–	10 (91)	25 (37)	–	23 (56)
Not applicable	9 (4)	–	13 (12)	1 (5)	–	2 (17)	–	–	1 (2)	1 (10)	–	1 (9)	7 (10)	–	9 (22)
Results of Hypotheses tests															
Supported	94 (41)	101 (25)	37 (34)	15 (79)	33 (58)	9 (75)	57 (44)	5 (17)	11 (24)	7 (70)	10 (13)	4 (36)	15 (22)	53 (23)	13 (32)
Mixed	47 (21)	181 (45)	28 (26)	1 (5)	11 (19)	1 (8)	8 (6)	3 (10)	5 (11)	3 (30)	50 (65)	6 (55)	35 (52)	118 (50)	16 (39)
Not applicable	87 (38)	117 (30)	44 (40)	3 (16)	13 (23)	2 (17)	66 (50)	22 (73)	29 (65)	–	17 (22)	1 (9)	18 (26)	64 (27)	12 (29)
Incentives offered															
Offered	147 (65)	68 (17)	56 (51)	12 (63)	36 (63)	12 (100)	113 (86)	3 (10)	30 (67)	4 (40)	11 (14)	4 (36)	18 (26)	18 (8)	10 (24)
Not offered	81 (35)	331 (83)	53 (49)	7 (37)	21 (37)	–	18 (14)	27 (90)	15 (33)	6 (60)	66 (86)	7 (64)	50 (74)	217 (92)	31 (76)
Underlying theories															
Used	61 (27)	136 (34)	23 (21)	12 (63)	28 (49)	8 (67)	15 (11)	3 (10)	3 (7)	5 (50)	44 (57)	3 (27)	29 (43)	61 (26)	9 (22)
Not used	167 (73)	263 (66)	86 (79)	7 (37)	29 (51)	4 (33)	116 (89)	27 (90)	27 (93)	42 (50)	5 (43)	8 (73)	39 (57)	174 (74)	32 (78)

^a Cell numbers represent: frequency (percentage).

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