Vol. 17, Iss. 1 (2017), Pp. 182–195

# Promotion vs. Education in Choosing "Real Food"

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#### **Abstract**

The global agro-industrial system contributes to an abundance of human and ecological health problems from social injustices and public health issues to global warming and ecological degradation. In response to these problems, universities across the country are joining the Real Food Challenge (RFC). The RFC is a national student-driven organization that describes "Real Food" as possessing at least one of the following four attributes: local, fair, ecologicallysound, and/or humane. By mobilizing the power of students on college campuses, the RFC aspires to shift one billion dollars in dining purchasing towards "Real Food" by the year 2020 while engaging students in change-making leadership roles. One key element for the continued success of the RFC is a better understanding of factors affecting college student food choice. Our research explores these factors as well as the types of interventions that will most effectively impact them. Both educational and social marketing strategies were found to effectively increase the importance of Real Food factors affecting college student food choice decisions. In addition, the overwhelming majority of student participants believe that their personal food choices can have an impact on moving the larger industrial food system towards sustainability. Identifying strategies that encourage students to choose more "Real Food" can provide administrations with the necessary support to increase sustainable food purchasing while fueling the RFC on its industry-shifting path towards a more sustainable food system overall.

**Keywords:** real food, agriculture, sustainable food. agro-industrial, food education

### **Authors' Notes:**

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Promotion and Education from the University of Utah where he completed the Real Food Calculator and championed his University's signing of the Real Food Campus Commitment. He's now in his second year of medical school at the University of Wisconsin School of Medicine and Public Health where he continues to pursue behavior-level interventions for improving health.

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#### Introduction

The production, transport, and consumption of our food contributes to critical issues from global warming and social injustices to public health concerns. While advances have been made in organic production and labeling, much work remains to address more complex food-based aspects of sustainability and justice including humane food processing, fair working conditions and fair trade (Alkon & Agyeman, 2011; Tanner & Kast, 2003). In response, the Real Food Challenge (RFC) has created a framework to analyze and quantify Real Food purchases on college campuses. Anim Steel (2014) describes Real Food as food that "nourishes communities, producers, consumers, and the earth." From this perspective, local foods nourish communities by keeping food dollars in tight-knit economies, while fair foods provide just working conditions for producers. In addition, consumers can take solace in humane treatment of food-producing animals, while ecologically sound foods contribute to planetary health by avoiding fossil fuel-intensive fertilizers and pesticides. While this description is broad, RFC has developed a calculator based on both third party certifications and location-based criteria-driven research such that students from 240 institutions have researched 566,570 products (Real Food Calculator, 2016). Beyond certifications and local research, Real Food guidelines disqualify products with ingredients causing serious health problems e.g., acesulfame potassium, rGBH/rBST, and sodium nitrate (Real Food Standards, 2016). Generating awareness of Real Food attributes advances the broader goal of shifting \$1 billion of university food budgets away from deleterious agro-industrial practices by the year 2020 (Real Food Challenge, 2007). As such, this more expansive approach to nourishment offers a tool for affecting both individual food-related behavior (Pursehouse, 2012; Riebel & Robbins, 2011), and University and national purchasing practices.

#### **Food Choice Research**

Recent research investigating university students' food choices has focused on two main areas. The first area focuses on perceptions and attitudinal determinants that shape the behavior (Boek et al., 2012; Lockie et al., 2004; Smith & Paldino, 2010; Wilkins et al., 2000). The second examines the deeper conceptual understandings of sustainability and the curricular changes needed to influence student behaviors (Cachelin et al., 2009; Sherman, 2008). Going forward, Hekler, Gardner & Robinson (2010) have identified the need for further study of social marketing interventions, while Brown (2013) and Boek et al. (2012) have identified the need for more research into the impacts of university coursework in actually influencing food-related behavior changes on college campuses.

Research investigating sustainable eating behaviors is on the rise in a variety of disciplines illustrating that scholars and students alike are becoming concerned with the consequences of their food choices. As more scholars develop instruments for assessing environmentally-conscious eating interventions for college students (i.e., Weller et al., 2014; Yeh et al., 2010) researchers are bound to better understand food choice factors. Pelletier's (2013) research links dietary quality and attitudes towards organic, local, and sustainable foods to suggest that nutrition education may have an important role to play for young adults interested in sustainability. For example, he found that young adults who place high importance on alternative production practices consume 1.3 more servings of fruits and vegetables daily, more dietary fiber, fewer added sugars, and less fat than students placing low importance on these sustainable practices.

These contributions strengthen the research base, yet a gap persists as not much is known about how personal characteristics motivate food choices (Boek et al., 2012). Our project addresses this gap by analyzing how social marketing and educational interventions influence students' food choices while also examining primary food choice factors.

## Community-Based Social Marketing

Community-Based Social Marketing (CBSM) is a promotional technique based in behavior change models (McKenzie-Mohr, 2011). Developed in response to ineffective information-intensive campaigns, CBSM includes the following steps: 1) identify barriers and benefits, 2) develop a strategy with effective "tools" for behavior change, 3) pilot it, and 4) evaluate it. More specifically, the CBSM strategy, developed by McKenzie-Mohr (2011), describes commitments, prompts, norms, communication, incentives, and barrier-removal as critical tools of changing behavior.

University campuses have been the stage for many behavior change interventions including work to reduce energy consumption through elimination of barriers and the provision of tools to facilitate positive behaviors (Aronofff et al., 2013). A study conducted at Pacific University Oregon found an "increase in campus-wide purchasing of recycled content paper and [environmentally preferred products, and also that] 74 percent of staff and faculty changed their behavior because of the CBSM campaign." (Cole & Fieselman, 2013, p. 176) The CBSM strategy is clearly an effective tool to promote environmentally conscious behavior in higher education institutions.

Our research begins with the question: Will social marketing strategies or educational interventions prove most effective in promoting Real Food choices? To address this question, we collected data regarding the factors that motivate student food choice, and students' perceived self-effiacacy toward systemic change. Given the

increasing interest in Real Food on college campuses, and the importance of student food choice in the food movement overall, this data may have a significant impact on the Real Food Movement and beyond.

#### **Methods**

#### Study design

Our study used a parallel group experimental design to assess self-reported student behavior change data. The study aim was to enroll approximately 200 student participants, recruited from the 389 available seats in three separate courses; each of the three courses had at least one food-related curricular component. The three courses selected were Scientific Foundations of Human Nutrition and Health, Environmental Justice, and Community Health Issues. Scale-based survey questions provided quantitative data analyzed using paired and independent t-tests. Students were randomly selected to experience either an educational (ED) or social marketing (SM) intervention and took pre and post-test surveys administered through Canvas learning management system software.

#### Food selection factors

Food selection factors were assessed in asking students which of six factors affected their food choice. Students were able to select all factors that applied when asked about the importance of these factors when choosing food. Participants were then asked to identify the most important factor. Each question listed the following as possible responses: Cost, Cook/Wait-time, Fairly-produced, Local and/or Organic, Nutrition/Calories, Taste. In order to gauge the effect of label reading on food selection, participants were asked "When choosing packaged foods, how often do you read labels?" with Likert-type scale answers: never, rarely, sometimes, often, always.

Additional questions were developed to assess other factors related to self-efficacy and Real Food, beginning with how students believed food labeling would impact their choices. Students were asked "Which of the following food labels would impact how you choose your food? Choose all that apply", and given four options: Local, Fair, Ecologically Sound, and Humane. It's important to note that these food attributes are taken directly from the Real Food Challenge Organization's standards (Real Food Calculator, 2016). Another food labeling question asked at post-test was "If qualifying food products on campus carried a "Real Food" label, do you believe that the number of meals you purchase and eat on campus would increase?" With regards to sustainability, participants were asked, "Do you believe there is a relationship between food choices and sustainability?" and then, "How important is the relationship between

food and sustainability?" with Likert-type scale answers of: not at all, somewhat important, important, very important, and critical. To measure self-efficacy in making food decisions with impacts on sustainability practices, students were asked, "Do you believe that your personal food choices can have an impact on moving towards more sustainable food systems?" Finally, in regard to the RFC, students were asked "Can you describe the Real Food Challenge program?" to which they could simply respond yes or no, and at post-test they were asked "Where would you like to see Real Food information incorporated? Choose all that apply."

While 133 students completed the pre-test survey, and 95 students completed the post-test survey, only 55 participants could be traced for repeated measures analysis and these 55 students comprise our participant pool. The discrepancy between those who completed both pre and post-test, and the ultimate 55-participant sample was unanticipated issues regarding anonymous survey implementation through Canvas course software. Additionally, the educational intervention distribution was flawed such that all study participants had the option to complete this intervention regardless of group assignment. Ultimately three groups participated in the study: ED, SM, ED+SM. The ED group consisted of students (n=24) who completed the "unwrapping Real Food" educational module with its 45-minute video lecture and online worksheet. The SM (n=14) group received a series of three separate e-mails designed to increase understanding of real food choices. The ED+SM group (n=18) received e-mails and completed the educational module (Figure 1).

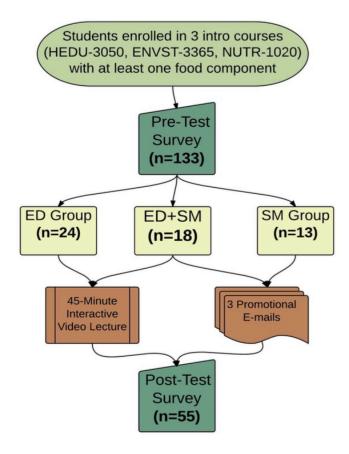


Figure 1: Flowchart of the final implemented study design

#### Data analysis

All study data was exported either from Adobe forms or Canvas before organization and analysis in the Numbers for Mac computer program. As the data were determined to be normally distributed, independent sample t-tests were used to examine pairwise differences between SM ED, and SM+ED groups. A probability value of p<0.05 was utilized to determine statistical significance.

## Results

All study participants were students enrolled in courses with at least one food-related component: ENVST 3365, NUTR 1020, and H EDU 3050. The most common major for the study sample was Health Education. Of the participants, almost three-quarters (74.5%) reported no dietary restrictions, and 18.2% of participants reported being vegetarian.

#### Food selection behaviors

Across all participants, there were significant pre to post-test changes in response to food choice factors when asked to choose all that apply. Both Real Food factor responses rose in frequency from pre to post-test, 38.2% to 43.6% for Fairly Produced, and 43.6% to 63.6% for Local and/or Organic (Figure 2). Nutrition/Calories, not explicitly targeted in education or social marketing strategies, decreased. As in previous studies, (Boek et al., 2012) taste and cost were the most frequently selected factor in both pre and post surveys. Fairly Produced (p=0.04) and Local and/or Organic (p=0.0003) factors saw significant changes. Participant responses to the question "When making food choices, which of the following factors are important to you? Choose all that apply".

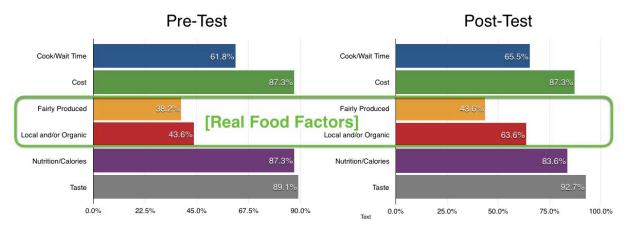


Figure 2: Food choice factor graphs compared pre vs. post-test

## **Educational vs. Social Marketing Interventions**

To answer questions related to the effects of social marketing vs. educational interventions, pre and post-test surveys were traced to 55 participants, all of whom received an intervention (Figure 3). The SM group showed no change in the number of participants choosing at least one "Real Food" factor, while 66.7% of participants in the ED group selected at least one "Real Food" factor at post-test compared to 50% pre-test (p=0.02). The SM+ED group revealed an even more substantial increase with a 33.3% (p=0.01) jump from pre to post-test.

## Participants who chose at least one "Real Food" Factor

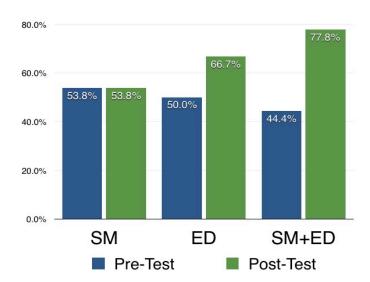


Figure 3: "Real Food" factor choice compared across intervention groups including SM (Social Marketing), ED (Education) and SM+ED (Social Marketing and Education)

# Additional Measures: Labeling, the Real Food Challenge and Self-Efficacy

80% of post-test participants said that labeling indicating local food origin would impact their food choices while just 47.2% said the same for "Ecologically Sound" labeling. Over half (58.2%) said that Real Food labeling would increase the amount of meals they eat on campus. Nearly all (98.2%) students believe that there is a relationship between food choices and sustainability, with almost one quarter (23.6%) categorizing it as critical. In terms of the RFC, 76.4% of participants could describe the campaign, and 87.3% of participants would like to see its information displayed around campus. Finally, 96.4% reported self-efficacy in the creation of a sustainable food system (Figure 4).

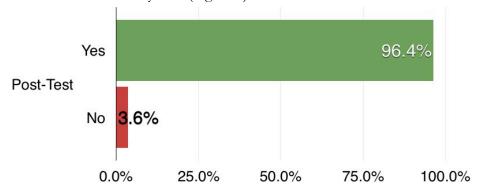


Figure 4: Personal impact on food systems, measured responses to the question "Do you believe that your personal food choices can have an impact on moving towards more sustainable food systems?".

#### Discussion

This study offers interesting insights into how education and social marketing can affect college student food choice factors, and calls for an exploration of the gap between self-efficacy and intended behavior. Despite issues with sample, our results support the notion that interventions can be successful in influencing food choice factors and label-reading habits, both of which can lead to nutritional and sustainability outcomes. These data also suggest that students are confident in their ability to make a difference and are overwhelmingly supportive of the RFC program. This is important information for nutrition and sustainability educators as well as the RFC program itself, and, has several implications not only for work at the intersection of sustainability and nutrition, but also for sustainable

development as a whole.

These data show significant differences in the frequency at which Real Food Factors were selected from pre to post-test after educational interventions, providing evidence that students will more frequently select Real Food factors as important after educational programming, and even more frequently when CBSM and education are combined. The increase in label reading shown also speaks to the efficacy of these interventions (Figure 4.) While this is in keeping with the arguments of Sherman (2008) and Cachelin et al. (2009) who suggest that conceptual understanding is an important element of change making, our results cannot be generalized to suggest that education is more effective than CBSM given the specific population selected, and the use of only four of six CBSM-recommended behavior change tools.

Some of the most interesting findings suggest that an overwhelming majority of study participants believe that not only is there a relationship between food choices and sustainability, but that their personal behaviors have an impact. These data are particularly curious given that even after the interventions less than 64% of participants selected local/organic food as an important food choice factor and less than 44% selected fairness as an important food choice factor. This gap between self-efficacy and behavior is certainly worthy of further investigation. It is possible that not all students associate "local/organic" and "fair" with sustainable food systems. It is also possible that various barriers exist between high self-efficacy and enacting influential behavior. Understanding these barriers may help us eliminate them and consider the importance of approaches beyond personal choice, investing our efforts more heavily in policies and practices that support local, fair, humane, and ecologically sound food systems.

Given that the overwhelming majority of participants named Nutrition/Calories as one of the most important food choice factors, we suggest the RFC explicitly include health and nutrition into Real Food discourse. The vast majority (over 70%) of study participants could describe the RFC at study completion and supported the incorporation of Real Food information everywhere from on-campus dining locations, to their courses and freshman orientation. As such, inviting nutrition educators to collaborate with sustainability and justice scholars around food advocacy on campus would undoubtedly expand the reach of all groups while acknowledging the complexity of food choices for personal, social, and environmental health.

#### Conclusion

While this study is preliminary and small in scope, students predisposed to health promotion help us better understand how to connect the dots between seemingly disparate branches of food studies and consider the benefits and barriers of individual level behavior change in sustainable development. Given the role of education and social marketing in moving students towards more sustainable food choices, and that an overwhelming majority of students feel able to change food systems via personal choice, there is tremendous potential for collaboration between campus sustainability efforts and nutrition educators. Future research should explore the apparent disconnect between students reported self efficacy and their reported food choice as this has broader implications for sustainable development. When sustainable behavior is promoted as an individual act for those with choice, rather than a set of system-wide policies and practices, a variety of barriers may prevent desired outcomes. Exploring the synergies between Real Food and nutrition may be key to RFC's industry-shifting path, and to creating a healthier and more nutritious college food environment.

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