

Enabling Access to Healthy Food Alternatives for Low-Income Families: The Role of Mobile Technology

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Abstract. This research explores the barriers that marginalized citizens face with access to healthy alternatives to the high calorie, highly-processed foods available in most urban areas. Numerous barriers, including technology-related ones, are identified and propositions are offered that might reduce the negative effect of these challenges/encounters. From examining the benefit to citizens on public assistance that results from adequate education about healthy eating, to education on the existence of accessible healthy alternatives, and access to inexpensive accessible food sources this study focuses on offering possible real world solutions, both technology-related and non-technology related, to the barriers to inclusion of economically marginalized citizens.

Keywords: Social Entrepreneurship, Farmers' Markets, Government Assistance, Technology Barriers, Innovation.

1 Introduction

Marginalized citizens face many of barriers in accessing healthy alternatives to the high calorie, highly processed foods available in most urban areas. This paper focuses on the barriers that affect those who rely on government Electronic Benefits Transaction cards (EBT) access healthy goods.

A growing number of people working on social issues facing underserved people are social entrepreneurs. Social entrepreneurs adopt the role of change agents in the social sector by adopting a mission to create and sustain social value (Bornstein, 2007; Bornstein and Davis, 2010; Welch, 2008). They recognize and pursue new opportunities to serve that mission by engaging in a process of continuous innovation, adaptation, and learning, acting boldly without being limited by resources currently in hand, and exhibiting greater accountability to the constituencies served and for the outcomes created (Dees, 2001).

Social ventures are needed when “exclusion, marginalization, or suffering of a segment of humanity ... lacks the financial means or political clout to achieve any transformative benefit on its own” (Martin and Osberg, 2007, pg. 35). A social

entrepreneur can then identify an opportunity and work towards addressing the need through creativity and courage and then direct action.

Although many social entrepreneurs attempt to address one of the Millennium Development Goals (see <http://www.undp.org/mdg/index.shtml>), a social venture can make meaningful and local impact here in the US. As with ventures working in the developing world, designing a solution targeted at the base of the pyramid is different than targeting the middle or the top (Brown and Wyatt, 2010). One Millennium Development Goal is to halve the proportion of people who suffer from hunger. Although this goal specifically targets developing countries, hunger is something that affects people of all nations, including the US. One of the programs the US government has used to help address this problem is SNAP (Supplemental Nutrition Assistance Program, formerly known as food stamps). The government puts money on an electronic benefit transfer (EBT) card from which families can purchase food from merchants. Unfortunately, the most nutritious and healthy alternatives are often not selected. In fact, the most nutritious and healthy alternatives are often not available at grocery stores, but instead at farmers' markets and road side stands where EBT cards are generally not accepted. In our endeavor to investigate the factors affecting acceptance of EBT cards and the client's use of these markets, we focus our research on farmers' markets.

The first possible barrier is getting the necessary technology to the supplier, which in most cases is the farmer. Secondly, we must overcome the perception by potential clients that boxed and processed food is cheaper than healthy fresh fruits and vegetables. Thirdly, the transportation issues on both ends of the transaction (getting clients to the farm/farmers' market or getting the produce to the city) must be addressed. The fourth barrier is addressing the need to engage the farmers in such a way that they recognize the potential client base that exists if they were to allow customers to seamlessly use multiple methods of payment, including EBT cards. Potential strategies to overcome these barriers are discussed in a later section of the paper.

2 Challenges to Connecting Families to Farmers

In the case of connecting low-income people with fresh and healthy food options direct from farmers, several stakeholders are involved. These include the client, the farmer, the government (providing the benefits), and the infrastructure providing the electronic processing of the transaction.

2.1 Family

Anecdotal evidence shows that when farmers' markets don't address the underlying impediments to frequenting them, the success of the venture is not assured. A social venture focused on bringing fresh food from farmers to low-income clients using government-assisted programs includes such things as education on healthy alternatives, mobile commerce solutions for using EBT cards at temporary markets

without the need for electricity or hard lined telecommunication, as well as governmental support and inexpensive and convenient transportation.

Education about nutrition and healthy cooking is needed so low-income clients are provided not only with the knowledge to make good purchase decisions, but also with the knowledge to prepare healthy alternatives. The inexpensive processed food that most clients purchase will not lead to healthy living, but only a further decline of the overall health of the US population. Given the skyrocketing costs of health care and the increasing rates of obesity, there should be an incentive to all stakeholders to provide healthy alternatives.

Lack of acceptance of government programs by all merchants, including farmer's markets, hinders the use of these benefits. Many vendors are reluctant to go through the time and money consuming process of getting approval to accept government provided funding through family support programs such as SNAP. As a result families are forced to either pay out of pocket or buy from a source that accepts these types of funding.

Lack of convenient and affordable transportation options is an issue for most of the clients using SNAP benefits. Because farmers' markets are generally located in parks and other locations away from centralized marketplaces, transport to and from the markets is a concern for many families.

The perceived price premium over grocery store options (Goodman, 2011) (and some actual price differential) may lead many families to choose processed food at grocery stores over natural and fresh alternatives. Education not only about the benefits of healthy eating, as outlined above, but also on the actual pricing differential must be offered.

Lack of product variety and weather-related seasonal availability may cause some families to avoid farmers' markets. Because in a grocery store there are readily available fruits and vegetables of the canned and frozen variety offered year round many people choose to consume them over healthier fresh fruits and vegetables that are available at specific times of the year.

The elements outlined above are important aspects of any social venture focusing on this target segment in this manner. To better understand the stakeholders and possible limitations, a family-based model is drawn below (figure 1).

Based on the Family's model we offer five propositions.

We propose that an increase in the number of low-income families using farmers' markets will occur:

1. When proper education programs are offered to potential customers that include basic facts about the assistance programs, the benefits of healthy eating, the ease of preparing fresh, healthy and tasty meals, and the ease of access to a local farmers' market.
2. When widespread acceptance of government assistance benefits (to include EBT cards) are offered by vendors at farmers' markets.
3. When convenient and inexpensive transportation options are provided.
4. When the perceived and actual cost of buying healthy food is comparably priced with pre-packaged and boxed foods found in generic supermarkets.
5. When product variety and seasonal availability can approach that what is seen in local grocery stores.

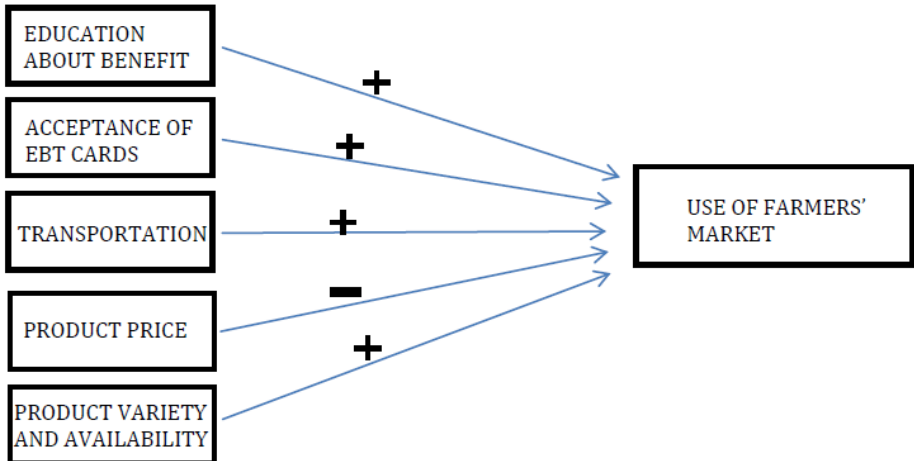


Fig. 1. Family Model

2.2 Farmers

Several metropolitan areas have proactively included the ability to utilize the EBT cards at markets with limited success. Studies (Northpoint, 2009; Kaiser, 2005) have shown that barriers to widespread usage include numerous reality- and perception-based challenges.

Perceived Usefulness (Davis, 1989) refers to how useful a user feels a technology is and is a determinant of adoption. If the farmers feel that using the EBT cards is useful to them (increased revenue, increased traffic at the markets, etc.), they will be more likely to accept them. The more useful the technology is perceived to be, the more likely it will be adopted.

Perceived Ease of Use (Davis, 1989) refers to the amount of effort required to use a technology and is also a determinant of adoption. The lower the effort required the more useful and the more likely a user will adopt the technology. If farmers perceive that little effort is required on their part, they will be more likely to adopt the EBT cards.

Governmental Regulation (perceived and actual “red tape” involved to be authorized to accept EBT cards), if significant and time consuming to process, will affect the farmers’ intention of accepting EBT cards (Lieberman, 2011). If the farmers perceive that much effort in terms of sifting through bureaucratic processes is required on their part they will be less likely to adopt the EBT cards. Conversely, if few challenges are present and little effort is required on the farmers’ part, then the farmers are more likely to adopt the technology.

Cost to use (cost to implement mobile commerce technology and ongoing costs to process payments) is a determinant of adoption from the farmer. As most farmers’ markets only accept cash, accepting any cards will incur a fee. This will directly affect the likelihood of adoption by the farmer.

Transportation costs and logistics (proximity to market and potential customers) outside of their normal markets may affect their intention to accept EBT cards. Some farmers actually transport their goods to neighborhoods where customers can purchase goods. Because many lower-income people live in the same neighborhoods, farmers may be more inclined to accept the EBT cards if those neighborhoods are in close proximity to his farm or other markets he frequents.

A model focused on the Farmer is drawn below (Figure 2). The model starts with the basic technology adoption model (TAM), specifically the perceived usefulness and perceived ease of use of the technology solution, and is then expanded to include government regulation, costs to use the cards, and proximity to customers.

Based on the Farmer’s model we offer an additional five propositions regarding the influence of factors on intention to accept EBT cards.

We propose that farmers will exhibit higher intention to accept EBT cards:

1. When farmers perceive the usefulness of the mobile device is great enough to allow seamless EBT payments.
2. When the perceived ease of use of the mobile payment method is significant enough to appear worthwhile.
3. When government regulation and “red tape” is reduced to insignificant levels for participating vendors.
4. When the cost to purchase the mobile device and the cost to process transactions is reduced to be effectively a small and insignificant part of the cost of goods sold.
5. When the proximity of the goods to the customer is close enough that spoilage and transportation costs are a small part of the cost of goods sold.

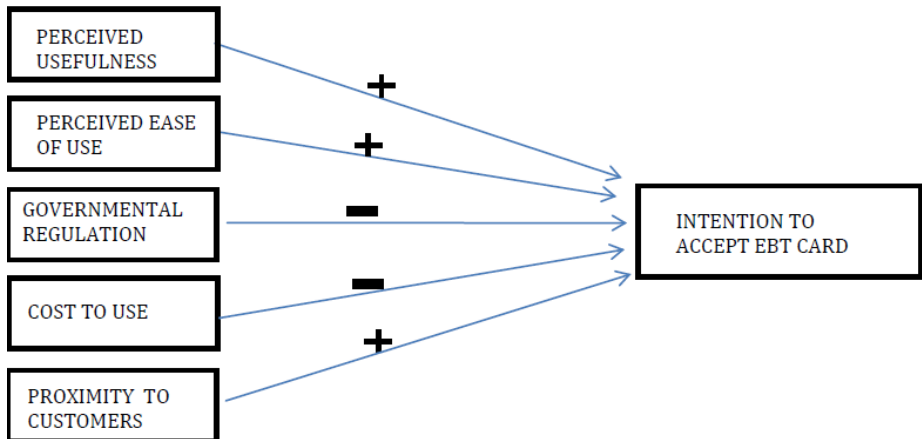


Fig. 2. Farmer Model

3 Research Method, Proposed Analysis and Expected Results

This study will utilize a qualitative data collection method to gather the necessary data from the stakeholders. This data will allow us to take a holistic approach to creating and implementing a mobile-based ecommerce solution allowing low-income EBT users to access fresh, high quality, locally-sourced food. Practical outcomes will include best practices and lessons learned for implementing social ventures focused on healthy food using mobile ecommerce solutions for low-income clients.

4 Conclusions and Current Status

One of the goals of this study is to offer a cost effective means for vendors to offer their products to all market customers through the use of currently available mobile technologies. If the cost can be minimized and methods for product promotion can be included farmers are more apt to take the time to gain government approval to process payments from a customer's EBT card. This will then increase the probability of customers making smart healthy decisions on the foods they feed their families.

This research attempts to develop a more comprehensive model of mobile commerce to be used in a social entrepreneurship endeavor focused on low-income clients using government-assisted programs. The stakeholders have been identified and are currently being interviewed. The results of this study will be presented at HCII 2013.

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