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José M. Uscanga
Oklahoma State University

Craig M. Edwards
Oklahoma State University

Craig E. Watters
Oklahoma State University

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Abstract

Interest in entrepreneurship education by scholars and practitioners as a way to overcome poverty is growing. Yet little is known about how entrepreneurship can be a successful approach to achieving prosperity in resource-poor conditions. Entrepreneurship has been mainly associated with the view of entrepreneurs as super humans capable of solving all problems, especially if operating in resource-rich contexts. This qualitative study's purpose was to explore, through photovoice methodology, the entrepreneurial opportunities involving agribusiness and ecotourism that Nicaraguan students recognized in their communities. Photovoice allowed the researchers to gain in-depth information from students who expressed in images what may have been difficult to explain in words. The students recognized different opportunities linked to their contexts as expressed through photos documenting local assets and materials. The study participants also indicated interests in doing social good, which suggested a more societally oriented view of entrepreneurship. The poor, including youth often marginalized, were able to recognize business opportunities in concert with their economic conditions. Opportunity recognition may be one of the more promising ways to overcome poverty. Its facilitation holds implications for agricultural, tourism, and rural development curricula and educational programming.

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Introduction

According to The World Bank (2016), about one billion people live under the global poverty line of \$1.90 USD per day and mainly populate developing countries. The lack of economic opportunities to overcome poverty in many nations is evident: most people live in underserved areas, share the adverse consequences of poverty and social marginalization, and have a mixture of needs (Zahra, Korri, & Yu, 2005). Attention to these issues is usually the focus of *government-based efforts* and many impoverished people have largely hoped that governments will solve their socioeconomic problems (Mack & Pützschel, 2014). However, “[g]overnment alone is clearly not the answer” (Dees, 2007, p. 25). Multi-sectorial approaches should be considered to combat the multifaceted phenomenon of poverty (Van Praag & Ferrer-i-Carbonell, 2007). The rise of for-profit businesses in developing countries represents an approach to overcoming poverty; for example, many *context-appropriate businesses* have been exploited in resource-poor settings through a web of local businesses and other entrepreneurial endeavors (Hahn, 2009; Seelos & Mair, 2007).

Nonetheless, the conception of the entrepreneur as a *heroic man* or *super human* who pursues for-profit businesses in formal, resource-rich economies has dominated the thinking of many entrepreneurship thought-leaders (Banerjee & Duflo, 2012; Williams & Nadin, 2013). An interest, however, by scholars and practitioners on social impact, other than only revenue, has emerged recently, e.g., *social entrepreneurship* (Chell, 2007; Mair & Martí, 2006; Perrini, 2006; Zahra et al., 2005; Zahra, Rawhouser, Bhawe, Neubaum, & Hayton, 2008). According to Zahra et al. (2008), social entrepreneurship

“encompasses the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner” (p. 118). The mission of social entrepreneurship is to create economic wealth but also *social wealth* (Elkington & Hartigan, 2008; Keohane, 2013; Lasprogata & Cotten, 2003; Mair & Noboa, 2003; Martin & Osberg, 2007; Zahra et al., 2008). It seeks to balance the relational and economic spheres of society (Elkington & Hartigan, 2008; Perrini, 2006). Social entrepreneurs operate in diverse fields such as education, environment, health care, and human rights, among others (Mack & Pützschel, 2014).

Recognition of Entrepreneurial Opportunities

Most research on entrepreneurship has been conducted in resource-rich contexts, and mainly in the so-called *developed countries* (Baron, 2004; Baron & Ensley, 2006; Singh, 2001; Timmons, Muzyka, Stevenson, & Bygrave, 1987; Zahra et al., 2005). However, multinational corporations have pursued social entrepreneurship opportunities in developing countries by linking local resources and people’s abilities (Pralhad, 2005), and by creating partnerships with local governments and non-governmental agencies to foster economic development (Zahra et al., 2008). In most cases, however, the aggregate contribution of these local businesses is far away from solving the endemic poverty found in their communities (Hahn, 2009).

Recognizing business opportunities based on perceived resources is the foundational phase of the entrepreneurship process (Baron, 2006). *Opportunity recognition* is conceived as a cognitive process (Baron, 2004), i.e., the moment in which the entrepreneur recognizes an

opportunity to create a new venture (Singh, 2001). “[O]pportunity recognition occurs in a single step: entrepreneurs observe various events or changes, and, upon examining them, recognize links or connections between them that then suggest new business opportunities” (Baron, 2006, p. 110). Understanding the phenomenon of *opportunity recognition* in regard to potential business ventures by local people in constrained socioeconomic conditions is vital to alleviating poverty.

Photovoice as a Participatory Diagnostic Tool for Understanding Social Phenomena

An approach for understanding social phenomena, such as community issues, is participatory diagnosis (Wang & Burris, 1997), e.g., local citizens collaborating with experts in formal meetings. However, participatory diagnosis has some limitations, including (1) people perceiving they are in a trusted environment and free to express their concerns without negative consequences, and (2) experts honestly listening, understanding, and considering people’s concerns (Wang & Burris, 1997). Using visual images such as photos as an aid in participatory diagnosis is viewed as more effective than traditional approaches by some researchers (Harper, 1988; Wang & Burris). Photos can enhance and enrich our understanding of social phenomena (Harper, 1988). In addition, a higher level of credibility can be expected in research involving photos compared with only words because photos are more about *showing* than *telling*, and their content may be more difficult to modify (Delgado, 2015; Tracy, 2010). Photovoice is a data collection method involving photography, which empowers people to more openly express themselves and allows the telling of their stories through photographic images (Wang, 1999; Wang & Burris, 1997; Wang, Yi, Tao,

& Carovano, 1998). Photovoice can equip people to consider making necessary changes according to their unique situations (Goodhart et al., 2006; Strack, Magill, & McDonagh, 2004). “It entrusts cameras into the hands of people to enable them to act as recorders, and potential catalysts for change, in their own communities” (Wang & Burris, 1997, p. 369).

Photovoice expands the genre of participatory needs assessment. From the people, their visions, and their words, we can begin to assess real local needs, in the hope that the divergent perspectives of . . . professionals and laypeople will converge to exert a more effective impact on a community’s well-being. (Wang & Burris, 1997, p. 385)

In a review of peer-refereed literature about photovoice, Catalani and Minkler (2010) concluded: “There is increasing evidence that photovoice can be used as a participatory tool for engaging communities as partners in a CBPR [community-based participatory research] process” (p. 447) and can help researchers “to reach hard-to-reach communities and engage them in a meaningful, action-oriented research process” (p. 448). To that aim, photovoice has been used effectively to involve people in participatory action research (Delgado, 2015; Findholt, Michael, & Davis, 2011; Strack et al., 2004; Wang & Burris, 1997), including the participation of youth.

Photovoice in Youth Research

Because youth represent the future, their perspectives are vital for a community’s well-being, especially regarding strategies to improve local economies and overcome poverty. Foster-

Fishman, Law, Lichty, and Aoun (2010) stated that “youth are both able and eager to think critically about their community and the data generated in a PAR [Participatory Action Research] process” (p. 82). Photovoice has been extensively used in research involving youth in a broad range of settings (Brazg, Bekemeier, Spigner, & Huebner, 2011; Catalani & Minkler, 2010; Chonody, Ferman, Amitrani-Welsh, & Martin, 2013; Delgado, 2015; Denov, Doucet, & Kamara, 2012; Findholt et al., 2011; Graham et al., 2013; Strack et al., 2004). It has the potential to explicate issues and conditions affecting youth and their communities. Brazg et al. (2011), who studied substance abuse, concluded that by using photovoice “youth explained the importance of factors that do not appear to have been included in the literature or in the local community assessment” (p. 508). Photovoice allowed Chonody et al. to understand nontraditional perceptions of violence from the viewpoints of youth:

... Interestingly, one of the themes that emerged from the discussion groups was love as a cause of violence. One of the obvious problems with such forms of behavior is that it merely perpetuates the cycle of violence as retaliation leads to additional reprisals and so on. (Chonody et al., 2013, p. 97)

Youth in urban Detroit used photovoice to document the need to address economic devastation in their community and created environmental degradation countermeasures as a result (Graham et al., 2013). Likewise, Denov et al. (2012) asserted that photovoice was a useful method for exploring and documenting post-war life and social reintegration of child soldiers in Sierra Leone. In their findings

about obesity from the views of high school students, Findholt et al. (2011) concluded that “the photographs and stories produced by the youth generated excitement and garnered attention in ways that our traditionally gathered data did not” (p. 189). Moreover, these authors highlighted the potential of photovoice to serve as a *catalyst for social change* by such an approach inviting the participation of different decision makers from their respective communities.

Poverty & Inequality in Nicaragua

As of 2014, about 30% of the population of Nicaragua lived in poverty (*Instituto Nacional de Información de Desarrollo*, 2015). Nicaragua’s average annual GDP per capita in 2014 was \$1,825 USD and its citizens averaged about six years of formal schooling (The World Bank, 2015). In the last few decades, the nation experienced a boom in emigration to Costa Rica and the United States, especially of its young people (Hobbs & Jameson, 2012). Youth in Nicaragua are at great risk, e.g., high rates of gang membership (Maclure & Sotelo, 2004; Rodgers, 2006), suicidal expression (Medina, Jegannathan, Dahlblom, & Kullgren, 2012), as well as substance abuse and HIV risk behaviors (Prado et al., 2007). Innovative approaches are needed to address these issues.

Nicaragua’s Agricultural Sector & Emprendedora Technical High School

In 2014, 42% of Nicaragua’s population was rural and agriculture represented about 20% of its national GDP (The World Bank, 2015). These numbers are relatively high compared to most nations of Latin America. Moreover, as of 2015, the agriculture value added per worker was \$3,762 USD (The World Bank, 2015). Entrepreneurial ventures involving opportunities in agriculture and the

environment exist in Nicaragua, including enterprises led by youth.

In 2012 the non-governmental organization Opportunity International created the *Emprendedora* Technical High School in Granada, Nicaragua to serve low-income rural youth (Opportunity International, 2017). The school is located in a rural area between the cities of Granada and Diriomo. *Emprendedora* is a five-year high school, including grades 7 through 11. All students take the same courses in grades 7, 8, and 9; during grades 10 and 11 they enroll in courses related to their technical interests. The goal of *Emprendedora* is to prepare leaders who can respond to the needs of their communities (Opportunity International, 2017). Students receive general and vocational education which includes learning entrepreneurial skills. Two technical strands or focus areas are available to the students: sustainable agriculture and sustainable tourism. In sustainable agriculture, *Emprendedora* focuses on the production and commercialization of certified organic fruits and vegetables mainly for the local market. For sustainable tourism, the school prepares students to start environment friendly tourist attractions featuring natural resources (D. Campos, personal communication, October 22, 2015).

Other than only the traditional instruction, such as math and science, students in *Emprendedora* also learn business planning, sustainability, micro-finance, administration, marketing, and production and commercialization, among

other entrepreneurship topics. Their learning includes many hands-on activities in real-world settings. The school has an agricultural operation on site where students gain experience in growing and marketing its products. An eco-hotel was under construction in 2015, as supported by Opportunity International, where tourism students would learn and practice skills in the hospitality industry (D. Campos, personal communication, October 22, 2015).

Theoretical Framework

Ajzen's (1987, 1991) theory of planned behavior (TPB) served as the theoretical framework for this study. Ajzen hypothesized that behavioral beliefs, normative beliefs, and control beliefs play a critical role in influencing the intentions of individuals; and intentions antecede subsequent actions. An individual's behavioral beliefs, i.e., specific attitudes toward a given behavior, are expected to predict the likelihood of a person executing related actions. Normative beliefs refer to how members of a social system view the behaviors in question. Moreover, individuals' perceived abilities to successfully perform given behaviors precipitate their control beliefs (see Figure 1). For this study, Ajzen's TPB served to frame an understanding and interpretation of students' attitudes, views on subjective norms, and perceptions of control regarding opportunity recognition and, thereby, indicated their *intentions* to be entrepreneurs.

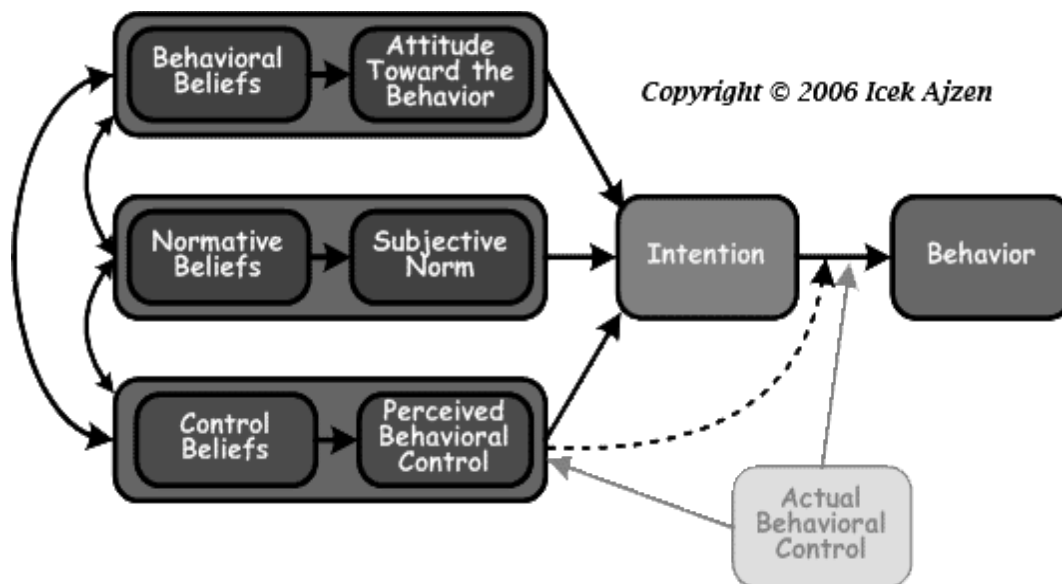


Figure 1. Theory of Planned Behavior Diagram.

Purpose & Research Questions

Although other studies have addressed the importance of exploring resources available for potential business opportunities in resource-rich contexts, less evidence exists about how entrepreneurship can be a successful approach to achieving prosperity under meager socioeconomic conditions (Seelos & Mair, 2007; Wennekers, Van Wennekers, Thurik, & Reynolds, 2005; Zahra, Gedajlovic, Neubaum, & Shulman, 2009). In addition, *opportunity recognition* is usually considered essential to successfully exploiting new business ventures (Baron, 2006; Baron & Ensley, 2006; Timmons et al., 1987). The purpose of this qualitative study, therefore, was to explore, through photovoice, the entrepreneurial opportunities Nicaraguan high school students recognized in their communities. Three research questions guided the study:

1. Which business opportunities were recognized by aspiring youth entrepreneurs as they considered existing resources in their communities?
2. What were the aspiring youth entrepreneurs' rationales for linking

existing resources to business opportunities?

3. What was learned about the use of photovoice as a data collection method in regard to aspiring youth entrepreneurs and opportunity recognition in a resource-constrained context?

Procedures

Recruitment of Study Participants

Emprendedora is a technical high school in Nicaragua where students receive general and vocational education. It was selected to conduct the study because of an existing relationship with faculty members of Oklahoma State University who had provided the institution technical expertise on entrepreneurship. Students in grade 10 from the two technical areas, sustainable agriculture and sustainable tourism, were purposively selected to participate in the study. Tenth grade students were chosen because of their expected higher knowledge of entrepreneurial skills compared to students in the lower grades. Because the school started in 2012, no students

populated grade 11 in 2015. The school's enrollment was 96 students during the study.

A meeting between researchers and students was arranged by the school's principal; 35 students attended the meeting from a total of 47 students in grade 10, or about three-fourths of the class. A comprehensive description of the research process was provided to the students, i.e., voluntary participation, risks associated with participation, no penalties or retaliation for not participating, their right to leave the study at any time, and protection of students' privacy. The need to gain parental consent for students willing to participate in the study was emphasized. The researchers were available to answer questions from the students or their parents, school staff, or Opportunity International staff. The students were provided assent and consent forms; those who assented also submitted their parents' consent before participating in the study. The time in the school year of data collection may have affected students' participation and the study's response rate because it occurred on a religious holiday weekend in Nicaragua. Further, when data were collected, the students had finished their school year; they met only for the purpose of the study on a Friday and were requested to submit their photos the following Monday. These conditions represent potential limitations of the study.

Data Collection

The study's research protocol was pilot tested with Spanish-speaking, Hispanic students in the United States before being administered to the students in Nicaragua; modifications were made, as warranted. Data collected thereafter included three types: (1) students' personal characteristics through a paper-based survey questionnaire; (2) students' written statements about their pre-existing business ideas using questions adapted from the SHOWeD guide; and (3)

students' photographs and answers to written prompts for such.

Students' personal characteristics and information about their business ideas were collected before the taking of photos (Delgado, 2015; Wang & Burris, 1997). For the written statements about business ideas, students were asked to consider their existing resources regarding potential entrepreneurial opportunities. A modified version of the SHOWeD guide recommended by the Metropolitan Area Planning Council (as cited in Delgado, 2015) was provided to students to frame the analysis about their business ideas. The SHOWeD guides youth "in articulating their thoughts and reactions" (Delgado, p. 139). The original guide consisted of five questions or prompts. A panel of experts on participatory research helped adapt the guide's questions to this study's context. The modified framing questions were included: (1) What motivates you to do this business idea? (2) What would be the impact of this business idea? (3) How does this business idea relate to your life? (4) Why should this business idea exist? and (5) What would you change in your surrounding environment for this to be a feasible business idea?

To collect visual data, students were asked to take 5 to 10 photos (Delgado, 2015) of resources in their communities they considered important for implementing achievable business ideas. The students had two options for taking the photos; either use their mobile telephones or use disposable cameras provided by the researchers. The students were asked to respond to a writing prompt for each photo, and to do that immediately after recording the images (Delgado; Wang & Burris, 1997). The writing prompt question was "Why is this photo important for your business idea?" They also numbered, dated, and named their photos. Training was provided on how to

use the disposable cameras. The students had two days to submit photos and answer the writing prompt. The digital photos taken with students' mobile telephones were copied to a data storage device, and the disposable cameras were collected for film development.

Data Coding & Analysis

The analysis of photos was facilitated with supporting data about the students' personal characteristics, written statements regarding business ideas, and written responses to the prompt for each of their photos (Delgado, 2015; Emerson, Fretz, & Shaw, 1995). The written data were transcribed verbatim and translated from Spanish to English by the lead researcher. Data analysis followed qualitative guidelines, including open coding to identify significant statements and patterns supporting the visual evidence (Creswell, 2013; Saldaña, 2009). The principle that "coding is not just labeling, [but] it is linking" (Saldaña, 2009, p. 8) was followed. Similarities, differences, frequencies, sequences, correspondence, and causation were among the criteria considered when looking for patterns in the information from the different sources of data (Saldaña, 2009). During the open coding process, patterns emerged that led to the creation of themes to answer research question two (Creswell, 2013; Patton, 2002; Ryan & Russel Bernard, 2003; Saldaña, 2009; Yin, 2009). Data were analyzed several times and presented to knowledgeable researcher colleagues for confirmation of the emergent themes (Bloomberg & Volpe, 2008; Chenail, 2011).

Considerations for Quality Qualitative Research

The eight *big-tent criteria* recommended by Tracy (2010) for achieving excellent quality in qualitative research were followed in this study. Some of the criteria

were embedded throughout the study such as *worthy topic*, *significant contribution*, and *meaningful coherence* (Tracy, 2010). To ensure *rich rigor*, both interpretivist and constructivist theoretical perspectives supported the understanding of opportunity recognition by the study's aspiring youth entrepreneurs (Delgado, 2015). Information was gathered from several sources to interpret and construct reality, including the students' and the researchers' viewpoints (Bloomberg & Volpe, 2008). The main postulation was that the observations were related, and interdependent, to the observers and their contexts in regard to interpreting and constructing the *study's reality* (Crotty, 1998). Therefore, the researchers' realities influenced the meaning of the study's purpose, research questions, and procedures; likewise, the students' realities were reflected through the data they provided and their related interpretations of such. Regarding *sincerity*, the investigators were *facilitators of the research process* (Delgado, 2015; Wang & Burris, 1997), i.e., as Schoorman and Bogotch (2010) stated: "[R]esearch is not done on members of the community but [rather] with them" (p. 262).

Ongoing communication between researchers and stakeholders was maintained throughout the research process. At the end of data analysis, a debriefing meeting (Delgado, 2015; Wang & Burris, 1997) occurred between the researchers and stakeholders, which included the school's principal and a local staff member of Opportunity International. Findings of the study were presented to and discussed with the stakeholders. This practice is particularly important in photovoice which has as its ultimate goal *change to occur from and within the community* (Delgado, 2015; Wang & Burris, 1997). To address *credibility*, triangulation occurred by comparing and contrasting the various data (Lincoln & Guba, 1985). Further, having multiple

researchers allowed collaboration in analysis, member reflections, and checking for inter-coder reliability, i.e., *multivocality* (Tracy, 2010). Regarding *resonance*, we aimed to provide sufficient and detailed information about the study for readers to draw their own conclusions (Lincoln & Guba, 1985) about *transferability* of the study's findings.

An Institutional Review Board (IRB) protocol observing Oklahoma State University's and Nicaragua's laws and regulations was submitted and approved before data collection to address *ethical concerns*. The study's consent and assent forms were prepared in English and translated to Spanish at an appropriate reading level for students and their parents. The students were assigned numeric identities to maintain their anonymity and the confidentiality of the students' responses.

Researchers' Reflexivity

"One model [of reflexivity] is to include a separate section in which authors declare their position . . . [however, i]ntegrating your reflexive commentary within the analysis may be a better way of demonstrating how the researcher's involvement affected the research process" (Shaw, 2010, pp. 241-242). Reflexivity was embedded during the study which elucidated the research process and helped to ensure that a reflexive approach was followed (Shaw, 2010). The lead researcher's reflexivity requires unique explanation because of his background and involvement in data collection. In contrast to the other researchers, the lead researcher's culture is similar to the students, e.g., mother language and diet. He is also a Latin American and from a rural part of Mexico and has worked to deliver extension services to agriculturists there. In addition, he had previous

professional and personal relationships in Nicaragua. This background may have influenced how he interacted with the study's participants and introduced bias into the research process by influencing the study's design, results, and interpretations. One co-author taught Hispanic students as a teacher of high school agriculture in Texas and has mentored two Hispanic doctoral students working to earn doctoral degrees in agricultural education; one student whose study involves aspects of entrepreneurship development. His work in Latin America has been rather limited. The other co-author is an associate professor of entrepreneurship, leads an institute for global social entrepreneurship, and provided professional development for teachers and school leaders at *Emprendedora* technical high school in Nicaragua prior to the study.

Findings & Discussion

Fifteen females and five males provided photos; 12 in tourism and eight in agriculture. The mean age of students was 16 years, and the median annual family income was \$3,210 USD for an average family of six members. The students' family incomes ranged from \$622 to \$7,778 USD (see Table 1). Female participation was higher than males even though the class ratio was almost evenly divided. Family incomes were higher for students who opted to use their mobile telephones to take photos than for those who used disposable cameras, i.e., \$4,226.29 versus \$2,419.55 (see Table 1). Students taking photos with disposable cameras reported either not owning a mobile telephone with photo capabilities or not owning a mobile telephone at all. In addition, the participation rate was higher for students who used disposable cameras to take their photos than of those who used personal mobile telephones, i.e., 11 versus 9 (see Table 1).

Table 1
Selected Personal Characteristics of Aspiring Youth Entrepreneurs in Nicaragua

Student Number	Business Idea	Age	Sex	Technical Option	Family's Annual Income	Family Members	Photo Device
1	Crafts (wood scraps)	15	F	Tourism	No answer	6	Mobile
2	Crafts (woven plastic)	16	F	Tourism	\$4,444	5	Mobile
3	Bakery	16	F	Tourism	No Answer	5	Disposable
4	Juice bar	15	M	Tourism	\$1,333	3	Mobile
5	Paintings (panel)	15	F	Tourism	\$2,222	5	Disposable
7	Crafts and paints	16	F	Tourism	\$7,778	4	Mobile
8	Organic fertilizer prod.	16	F	Agriculture	\$622	3	Disposable
9	Pineapple prod.	17	M	Agriculture	\$2,000	6	Disposable
11	Coconut oil prod.	15	F	Agriculture	\$622	9	Mobile
13	Organic fertilizer prod.	16	F	Agriculture	\$1,600	7	Disposable
14	Hibiscus prod.	15	F	Tourism	\$5,333	5	Disposable
21	Sale of fresh fruits	16	F	Tourism	\$2,222	6	Disposable
22	Bakery	15	M	Tourism	\$1,481	5	Disposable
23	Lamb prod.	16	M	Agriculture	\$889	5	Disposable
24	Chiltoma pepper prod.	16	F	Agriculture	\$3,556	4	Mobile
27	Library	16	F	Tourism	\$5,407	6	Disposable
28	Butterfly farm	15	F	Tourism	No Answer	6	Mobile
30	Dragon fruit prod.	17	F	Agriculture	No Answer	4	Disposable
32	Juice bar (smoothies)	15	F	Tourism	\$4,444	6	Mobile
33	Chicken meat prod.	16	M	Agriculture	\$7,407	9	Mobile

Note. "F"= female; "M"= male. Income is shown in USD: \$27 *Nicaraguan Cordobas* = \$1 USD.

Research Question #1. Which business opportunities were recognized by aspiring youth entrepreneurs as they considered existing resources in their communities?

Tourism students presented ideas such as craft shops, bakeries, juice bars, a library, and a butterfly farm. Agriculture students indicated business ideas about

organic fertilizer, pineapple, coconut oil, chicken, lamb, and chiltoma pepper, a local bell pepper (see Table 1 & Figure 2).



Figure 2. Photos representing business opportunities recognized by aspiring youth entrepreneurs in Nicaragua. Tourism: a) crafts (carpentry-scrap); b) crafts (woven plastic); and c) a juice bar. Agriculture: d) coconut oil production; e) chiltoma peppers; and f) chicken meat.

Recycled materials were among the resources students considered relevant to their business ideas. Student #1 identified carpentry scraps as one of the most important resources for her business idea. In response to the prompt – “Why is this photo

important for your business idea?” – in one of her photos (see Figure 2a.), Student #1 stated: “It’s important because these are the carpentry-scrap with which we can work to make crafts.”

Although the exercise of taking photos stressed the importance of students considering existing resources in regard to their business ideas, they were not prevented from documenting other potential raw materials or inputs. However, in general, students did not photograph large companies or well-known brands, but instead documented locally available assets and materials. A majority described their ideas as production-oriented enterprises, and a few emphasized marketing or advertising. A small number indicated exporting to other countries or creating large companies. Student #30 said: “The dragon fruit has great potential for exports, and for making dragon fruit jelly.” In response to the prompt – “Why is this photo important for your business idea?” – Student #9 stated: “I need the product (pineapple) to start my commercialization and sell it in the markets of my country, and then export to other countries.” The opportunities were related to the students’ study options (see Table 1). Student #8 expressed: “What motivates me for this business idea is that I’m studying agriculture and I know the importance of compost and I like doing that.” These findings support Zahra et al. (2009) results on the influence of immediate context in the exercise of *opportunity recognition* by entrepreneurs. This conflation of what students learned in school with the recognition of income-generating opportunities in their communities is important for Nicaragua with much of its population rural and agriculture about 20% of the nation’s GDP (The World Bank, 2015).

Research Question #2: What were the aspiring youth entrepreneurs’ rationales for linking existing resources to business opportunities?

Four themes emerged from students’ rationales for linking their local resources to

potential business ideas. Data from the modified questionnaire, supported by students’ personal attributes and written prompts for the photos, revealed the themes.

Theme #1: Motivated to help themselves and their families by exploiting the need for a service or product in their communities. This theme emerged from students’ answers to “What motivates you to do this business idea?” Student #27 stated: “To help my family financially and learn to self-sustain me.” Student #4 said: “personal growth, help my family, income, support of my parents.” And Student #22 replied: “[I]t would be very important because it would bring prosperity to my family and I will take this product to people.”

Theme #2: Meet the needs of producers and consumers by providing a quality service or product for their communities. To arrive at this theme, students’ responses were analyzed to the question “What would be the impact of this business idea?” Comments included: “my business would be an easier access to organic fertilizer for big farmers” (Student #8); “producer[s] connected to the country’s markets and offer a quality product to the public” (Student #9); “satisfaction of consumer needs, and generate income for the country and owner” (Student #14); “this idea would be good for the community because of the provision of work; it will have a good impact on the consumer because there is no company [now] that is responsible for production” (Student #24); and “the product will provide vitamins to people” (Student #33).

Theme #3: Identification with products and services through personal experiences. Students’ responses from two questions supported this theme: a) “How

does this business idea relate to your life?” and b) “Why should this business idea exist?” Regarding how the ideas related to their lives, students said: “because I can paint and it is an art for me, it is a gift that God has given me and I would like everybody to know what I do” (Student #5); “I have lived in a family that practiced their own businesses and I know where and how to negotiate” (Student #22); “because it is something that I have some knowledge about and it’s something of easy access” (Student #27); “[i]t relates to my life because my family use to have a beef business and while delivering I noticed that buyers demanded more chicken than beef” (Student #33). Regarding rationales for the existence of their business ideas, several students explained: “it should exist because youth and people eat junk food every day and they stop[ped] eating healthy food” (Student #21); “because this product is highly demanded in my area and if it exists people will buy it and they will not have to get it from a far distance” (Student #22); “it should exist because the product I will offer is very viable and demanded by Nicaragua” (Student #24); and “because it is a viable way to contribute to the household and national economy” (Student #33).

Theme #4: Recognition of the need for change if their entrepreneurial goals are to be achieved. Students insights to the question – “What would you change, in your surrounding environment, for this to be a feasible business idea?” – supported this theme: “offer products in the communities, where they need to improve their yields and quality of their crops” (Student #13); “[w]hat I would change is the demand that exists in Nicaragua, if not increasing demand elsewhere and create greater publicity of this hibiscus product” (Student #14). Creating social wealth via *social entrepreneurship* also emerged from the

rationales. For example, Student #28, an aspiring butterfly farm owner, said: “What I would change is the culture, the way of life of the people in the community, as I would recycle and help nature.” Student #21 saw the need to provide children with fresh fruit, and contended that a child she photographed “will not be healthy since he does not consume fruits because they are not at his fingertips.”

Research Question #3: What was learned about the use of photovoice as a data collection method in regard to aspiring youth entrepreneurs and opportunity recognition?

Guidelines for taking the photos caused some anxiety because the students wanted examples of resources they could photograph for their business ideas, but Delgado (2015) warned about *conditioning expressibility*, i.e., limiting students’ creativity to a given example. Therefore, instead of examples, the students were encouraged to think deeply about existing resources and then take photos of *what they considered important*. In this way, everything was a possibility; so, the collection guidelines for photovoice should be clear but not restrictive. The pilot test aided in *focusing* but not *narrowing* the exercise’s guidelines for collecting data and students taking photos of business opportunities and complementary resources (Chenail, 2011; Delgado, 2015). Having a facilitator, the school’s principal, who understood the local context (Wang & Burris, 1997), aided in overcoming potential obstacles such as building trust with the participants. Providing disposable cameras to facilitate photo collection allowed some students to participate in the study who might not have due to lacking mobile telephones capable of taking photos.

Conclusions, Implications & Recommendations

Opportunity recognition demonstrated the students' behavioral intentions to become entrepreneurs (Ajzen, 1987, 1991; see Figure 1). This intention was shaped by their behavioral, normative, and control beliefs toward entrepreneurship. Behavioral beliefs included aspects of social entrepreneurship as represented by the attitudes of some students who perceived their business ideas were good actions to take while also improving their communities. As for normative beliefs, the students perceived that members of the social system, such as family members, positively valued their business ideas. Concerning control beliefs, the students expressed the confidence to execute business ideas, and perceived themselves to be knowledgeable about entrepreneurship and capable of relying on local assets to execute their aspirations.

These positive attitudes, views on subjective norms, and perceptions of control regarding opportunity recognition indicated a *strong intention* from students to become entrepreneurs. The more favorable a person's attitudes and perceptions of subjective norms, and the greater an individual's perceived control, the stronger his or her intentions are to perform a given behavior (Ajzen, 1991). Photovoice allowed the researchers to gain in-depth information from students who expressed in images what may have been difficult to convey in words (Delgado, 2015). Having multiple sources of data also provided a triangulated understanding of the phenomenon's complexities (Emerson et al., 1995; Patton, 2002). In addition, the students showed a high capacity to identify opportunities and how to pursue such, and they were able to *connect the dots* (Baron, 2006). Aspiring young entrepreneurs in Nicaragua identified opportunities on which to capitalize and

recognized a variety of entrepreneurial possibilities being linked to their situational contexts (Baron, 2006; see Table 1). Some also expressed strong interests in doing *social good* suggesting a more societal improvement than traditional, profit-oriented view (Zahra et al., 2009).

The poor are able to recognize business opportunities in concert with their economic conditions, and do not need to be *super humans* (Banerjee & Duflo, 2012; Williams & Nadin, 2013) to do that. Opportunity recognition (Baron, 2004; Singh, 2001) may be one of the more promising ways to overcome poverty; its facilitation holds implications for agricultural, tourism, and rural development curricula and educational programming, especially regarding youth education and their learning experiences. For instance, Bell (2015) described improved development of skills when students actively participated in the entrepreneurial process. Moreover, Elert, Andersson, and Wennberg (2015) found a significant and positive impact of high school students' entrepreneurship education experiences on their long-term entrepreneurial performance. This study's results suggest support for Elert et al. findings. By aiding students' in recognizing *context-appropriate businesses*, such may become important economic lifters of communities with endemic poverty.

Additional research should be conducted on how the recognition of income-generating opportunities leads to the establishment of businesses by high school students in Nicaragua and in similar contexts. The study's higher female participation supports the recommendation by Wang and Burris (1997) about using photovoice in action research with the aim of empowering women. Having a local research facilitator is recommended in studies involving photovoice. It is also recommended to provide participants with

the research materials needed for a study, e.g., disposable cameras, when their economic status may limit participation. Although the study's findings should not be generalized beyond the sample, some transferability may exist to similar settings (Creswell, 2013). In that regard, social entrepreneurship warrants consideration for agricultural as well as tourism education and rural development, especially for youth in resource-constrained communities.

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