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*Tools of the Profession*

**Barrier Analysis as a Tool to Inform Extension Activity Planning:  
Insights from Guatemala**

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**Abstract**

*Over the past decade, renewed emphasis has been placed on extension services in developing countries to reduce rural poverty and improve food security. Despite this emphasis, complex physical, political, and socioeconomic environments in developing countries pose significant difficulties to extension agents' success rates of adoption of new practices and/or behavior change among rural populations. In addition, agents have meager resources at their disposal. Development programs in the health sector have had success with employing behavior change theories for program design, driven by the Barrier Analysis as a method for gathering data about target populations. Theory and research suggest this method provides key information about why a target population might adopt new practices. If extension agents in developing countries such as Guatemala had access to such information, they might intentionally design interventions that lead to adoption. This paper provides an examination of examples from the field in Guatemala that illuminate ways in which extension agents can gain formative data that when analyzed, may shape how they encourage adoption of new practices. The implications of this paper suggest that using formative data gathering for planning interventions can lead to the behavior change extension agents and their governments seek.*

*Keywords:* program planning, formative research, Barrier Analysis, behavior change, extension, international development, Guatemala

**Introduction**

Research on the factors influencing adoption of new agricultural practices or behavior change in developing countries typically takes place after intervention and adoption have occurred. However, extension agents would be better served by identifying factors that influence adoption prior to interventions being implemented. Barrier Analysis (BA) (Kittle, 2017), as a

tool for gathering data about target populations, used in conjunction with the Design for Behavior Change Framework (DBCF) for program design, holds promising possibilities to inform extension activity planning. Development programs in the health sector have had significant success with this tool and research suggests adapting it for use in the agriculture sector (Davis, 2012). Further,

implementation examples from Guatemalan projects reveal positive results. The use of BA as a tool for planning agriculture projects in developing countries has great potential.

### **Determinants of Adoption in Developing Countries**

Various studies identified determinants (also known as barriers and enablers) of the adoption of new practices in agriculture within the context of developing countries such as Haiti, Uganda, Thailand, Indonesia, Zimbabwe and India (Albert, Roberts, & Harder, 2017; Moyo & Salawu, 2017). These studies support utilization of strategic planning through the identification of determinants for impactful interventions and program investments; however, in each example, the factors affecting adoption were identified *after* interventions had been implemented and adoption occurred. It would be more valuable to identify factors *before* program implementation. Formative research can be used during the intervention-planning phase to understand the attributes of a target audience that may determine their potential behavior with an intervention. The information gained would aid in the strategic development of culturally acceptable and effective activities to change behavior.

#### **Design for Behavior Change**

##### **Framework and the Barrier Analysis**

Adapted from the Academy of Educational Development's *BEHAVE* tool and refined by professionals in international development, the DBCF combines four complementary psychological theories involved in the behavior change process to inform program design processes (Food Security and Nutrition Network Social and Behavioral Change Task Force, 2016): Health Belief Model (Hochbaum, 1958); Ajzen's (1991) Theory of Planned Behavior; Bandura's (1986) Social

Cognitive Theory; and, Prochaska, DiClemente, and Norcross' (1992) Stages of Change Model. The DBCF guides the organization of existing information and gathering new information needed to design more effective behavior change strategies. Implementers conduct a BA to measure the strength of association between the determinants of behavior and the behavior to be adopted. The determinants found to be significant from the BA can then be used to design activities for the priority group to reach a change in behavior.

### **Examples from Guatemala**

Non-Government Organizations (NGOs) have utilized the BA since 2013 and some of those projects are now reporting higher behavior change results. One evaluation conducted by the CORE Group's Social and Behavior Change working group (2010) compared projects that successfully boosted behavior change for different practices (e.g., exclusive breastfeeding) with those that did not. The results of this evaluation concluded that projects with the highest levels of behavior change had relied on formative research tools such as the BA in developing interventions (CORE, 2010). In 2012, a Catholic Relief Services soil conservation project was administered differently in two departments in Guatemala, one that used BA and one that did not. The use of BA saw significant adoption of the desired practices compared to the sites that did not use BA (Davis, 2012). More recently, Mercy Corps Guatemala approached the study of determinants for adoption of agricultural practices that would reduce risk of mycotoxin contamination in corn with the BA Survey. They found that they could target low-cost practices to gain higher adoption of improved practices (Jackson, Ramirez, Janssen, & Lorenzana, 2015). Drawing on the success of these studies, in 2015 Peace Corps Guatemala and the Guatemalan Ministry of Agriculture designed the "Rural Extension

Project,” a partnership that includes the DBCF with an adapted version of BA that accommodates the diverse contexts of local extension agents.

### Implications

The “Rural Extension Project” has implications beyond Guatemala. Using formative data gathering for planning interventions can address the various difficulties agricultural extension agents face and lead to desired behavior changes. Research indicates there are opportunities to increase success of extension services by focusing on formative research, similar to BA, to inform planning. The theory, methods, and research presented here suggest the BA may be a significant tool in initial formative research for planning effective projects and interventions by extension agents. Equipping extension agents with the BA as a means to predict the intent to adopt specific agricultural innovations will ground practice in data. Research shows this would lead to higher rates of behavior change, and thus, greater potential for food security.

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