

Considering Homophily's Role in the Development of Successful Extension Programs in International Settings: Volunteer Effectiveness and Farmer Perceptions in Guatemala and Dominican Republic

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Abstract

Research on the educator-learner homophily effect in influencing educator credibility, learner attitudes, knowledge retention, and behavior change remains limited and inconclusive. This study investigated how educator-learner homophily influences small-scale farmers' willingness to adopt agricultural technologies. Using a multi-case study approach, focus groups and key informant interviews were conducted with 60 small-scale farmers in Guatemala and the Dominican Republic who received agricultural training from U.S. volunteers. Farmers' perceptions of learning and educator credibility were analyzed. Guided by the Moscarelli Model (2023), which theorizes that perceived educator credibility comprises subject matter expertise and trustworthiness—moderated by educator-learner homophily—findings revealed an unexpected dynamic. Farmers rated U.S. volunteers as more credible and reliable than local extension agents, despite lower sociodemographic homophily between the farmers and U.S. volunteers. These findings challenge traditional assumptions about the role of homophily in international extension systems. By illuminating how educator-learner homophily influences knowledge transfer and behavior change, this study offers insights for designing more effective extension programs. Volunteer program funders, administrators, and educators can leverage these insights to enhance program outcomes. This research advances the understanding of homophily's role in educator credibility and learner outcomes, calling for a reevaluation of its traditional conceptualization in international education contexts. It supports the conceptualization that homophily may shape the effectiveness of knowledge transfer and behavior change, particularly within programs relying on international volunteers.

Keywords: Farmer training, Motivation, Educator credibility, Knowledge transfer, Behavior change, Small-scale farmers

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Introduction

The inclination to trust and associate with others who share similar behavioral, intrapersonal, and sociodemographic characteristics is a social phenomenon known as homophily (Lazarsfeld & Merton, 1954). Much homophily research explores how homophilous characteristics, including values, ethnicity, attitudes, behavior, profession, social class, education level, geographic origin, and gender, among others, affect peer-to-peer knowledge transfer and consumer behavior (Bakshy et al., 2012; Brechwald & Prinstein, 2011; McPherson et al., 2001). However, little is known about how homophily influences educator credibility and knowledge transfer in agricultural extension and education settings, particularly in international development contexts.

Agricultural extension programs rely on educators, including local extension agents and international volunteers, to introduce innovative technologies and best practices to producers. However, the effectiveness of educators depends on how credible and trustworthy they are perceived to be by their learners (Andersen, 1972; Gomez & Pearson, 1990; Jiang, et al., 2018). Additionally, homophily builds upon the foundational concepts of working partnerships that include shared responsibility, internal motivations, and rapport with others (Waters-Bayer et al., 2004), and the willingness to collaborate (and continue to collaborate) on initiatives and projects (Santos et al., 2024).

Recent research by Moscarelli et al. (2023) revealed that educator-learner homophily affected the adoption of recordkeeping practices. Thus, evidence suggests knowledge transfer and behavior change may be, in part, affected by the level of homophily between an educator and learner (educator-learner homophily), particularly in agricultural settings. For example, a study conducted in Bhutan focused on labor-sharing revealed that homophily did impact the process (Tshotsho & Feuerbacher, 2023). The Moscarelli Model (2023) suggests that educator-learner homophily enhances credibility, which in turn improves knowledge retention and behavior change. If this holds, then agricultural organizations and universities preparing future extension professionals should prioritize homophilous educators when recruiting, training, and deploying agricultural advisors.

This study addresses this gap by investigating how small-scale farmers in Guatemala and the Dominican Republic perceive the credibility and expertise of local extension agents versus international volunteers. Through qualitative methods, including focus groups and key informant interviews, we examined whether homophily influences credibility, learning, and behavior change in agricultural extension settings.

Findings from this study have direct implications for both agricultural extension practice and academic preparation in agricultural education. Insights can inform how universities train future agricultural educators, ensuring that students understand how to build credibility across diverse contexts, leverage trust bridges, and enhance knowledge transfer in both local and international extension settings. For example, a study conducted in Bhutan focused on labor-sharing revealed that homophily did impact the process (Tshotsho & Feuerbacher, 2023). Understanding homophily influence allows administrators, educators, extension agents, and other capacity-building actors worldwide to use this research to improve their services' efficiency and effectiveness. Sustainable Development Goal 4 (SDG 4), established by the United Nations in 2015, aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (UNESCO, 2016). This research builds upon and seeks to contribute to the progress toward achieving SDG 4. The findings of this research lend to the idea that we must revisit held notions of practice and further investigate additional factors that influence the effectiveness of development initiatives.

An education and extension setting that may be affected by educator-learner homophily is international volunteerism. International volunteer initiatives, including the U.S. Peace Corps and United Nations Volunteers, have steadily grown in numbers of volunteers and funding allocations annually since the 1920s (Lough, 2015; Sherraden et al., 2008). However, international volunteers often differ from beneficiary populations regarding ethnicity, race, religion, social class, education, and occupation (Lough et al., 2011). For example, in the U.S. Peace Corps, volunteers skew heavily female (65%) and must complete an education at the university level to participate in the program (Peace Corps, 2019). By contrast, men in Guatemala are four times more likely than women to work in agriculture, and less than five percent of the population has a university degree (ILO Department of Statistics, n.d.).

If educator-learner homophily affects knowledge transfer and behavior change, there may be a natural limit on how effective international volunteers are in achieving educational goals. Understanding these limitations would help volunteer program funders, administrators, and educators design and deliver more efficient and effective programs. Insight into the nuanced relationship between educator credibility, homophily, and knowledge transfer can help agricultural education and extension programs maximize their impact.

Literature Review

There is limited recent literature examining the effect of educator-learner homophily on perceived educator credibility and learner attitude, knowledge retention, and behavior change. We reviewed the literature published between 2013 and 2019 (Moscarelli, 2021), analyzing 19 articles that evaluated the homophily effect on the variables of interest. The definitions of both “educator” and “learner” were applied broadly to include the homophily effect in relationships between the producers and consumers of products and entertainment. However, none of the studies focused on the context of international agriculture extension, and few explored the homophily effect in adult education.

Available studies show contradictory results about the effect of educator-learner homophily on perceived educator credibility and learner attitude, knowledge retention, and behavior change. For example, Llamero (2014) found a positive correlation between educator-learner homophily and learners’ perceptions of educator credibility. By contrast, Shoulders and Smith (2018) found a negative correlation between educator-learner homophily and the learners’ perceptions of educator credibility. A plausible reason for the conflicting results is the different contexts and environments in which the studies were conducted. For example, Llamero (2014) studied how homophily mediated the perception of credibility for new clients exposed to reviews on travel websites. On the other hand, Shoulders and Smith (2018) researched the connection between educator-learner homophily and the perceived credibility of agriculture education teachers in an in-person classroom setting.

Several studies found that the educator-learner homophily effect correlates with increased behavior change and positive attitudes toward behavior change (Aubrey et al., 2014; Behm-Morawitz et al., 2019; Buller et al., 2018; Dozier et al., 2017). Furthermore, other studies found that the homophily effect influenced the persuasiveness of a fellow consumer’s product or service recommendation and mediated consumer behavior (Asada & Yong 2016; Morvinski et al., 2017; Shen et al., 2016).

Research indicates that sociodemographic, behavioral, and interpersonal homophilous characteristics affect attitude, knowledge retention, and behavior change more than other

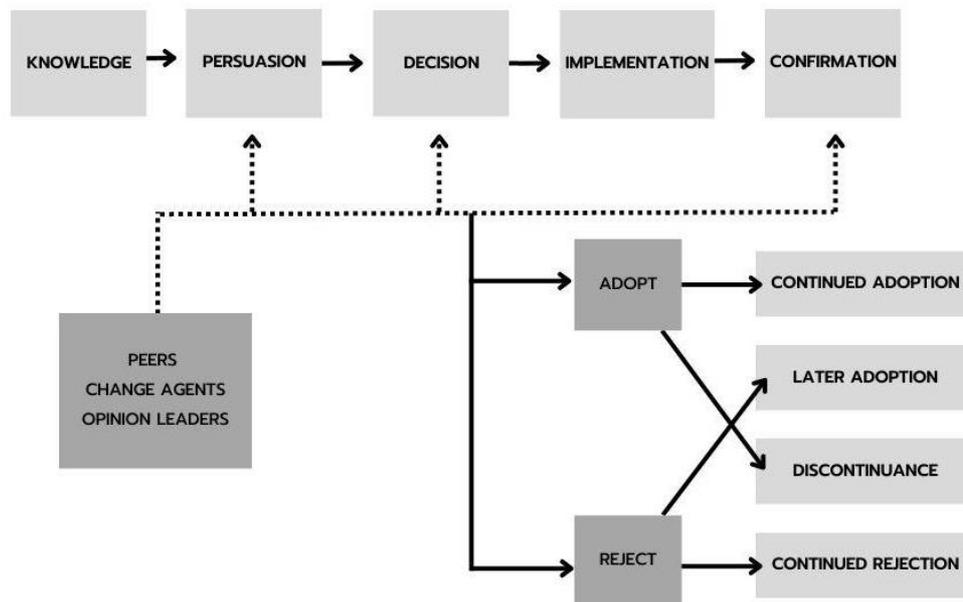
variables. For example, some studies found that homophilous characteristics based on one's identity (i.e., physical appearances such as weight, race, and ethnicity) had more potent effects on learners' attitudes than other domains of homophily (Buller et al., 2018; Dozier et al., 2017). Other research found that social status homophily (Bilgicer et al., 2015), geographic origin homophily (Meyners et al., 2017), and ethnic, educational, and career background homophily (Gompers et al., 2016) had the most noteworthy influence on learners' attitudes, knowledge retention, and behavior change.

Conceptual Framework

Our qualitative multi-case study explored educator-learner homophily influences on small-scale farmers' willingness to adopt recent technologies using a conceptual framework rooted in Everett Rogers' 1962 theory of diffusion of innovations (Rogers, 2003). Rogers (2003) adapted his work in homophily from the seminal work of Lazarsfeld and Merton (1954). Roger's framework provided a lens to understand the adoption process of innovative ideas and practices within social systems (see Figure 1). Rogers' theory details how innovations are introduced, considered, adopted (or rejected), and diffused through social systems. The theory highlights the importance of change agents, near peers, and opinion leaders in shaping adoption outcomes. These individuals serve as influential intermediaries by providing information, modeling adoption, and building trust within their communities.

Figure 1

Rogers' Adapted Innovation Adoption Process (2003) depicts how innovations are introduced, considered, adopted (or rejected), and diffused through social systems.



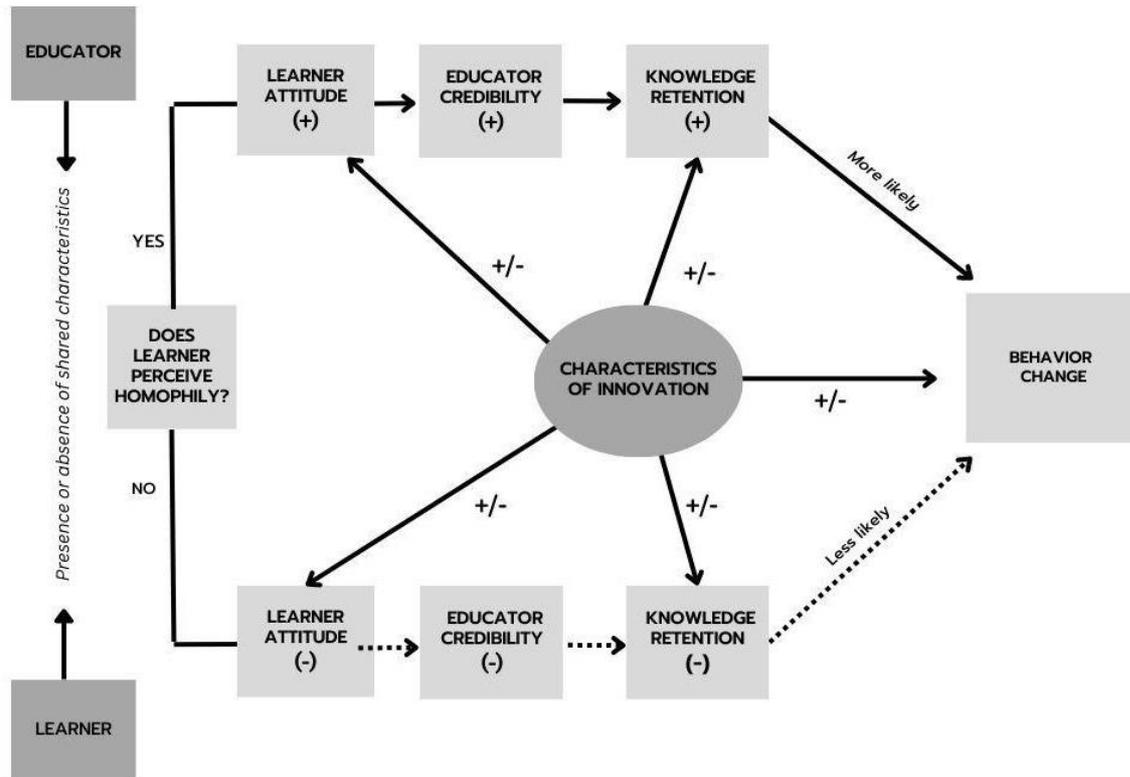
In our study, we considered the concept of homophily (Lazarsfeld & Merton, 1954; Rogers, 2003), the degree to which individuals who interact are similar in certain attributes, to examine whether shared characteristics between educators and learners foster trust, enhance communication, and ultimately influence small-scale farmers' adoption of new technologies. By situating homophily within the framework, we explored how the alignment of social and cultural characteristics between educators and farmers impacts their receptiveness to innovation and technology adoption. Rogers theorized that homophily

influenced the diffusion of innovations in peer networks and posited that when the change agent and receiver of information are homophilous, the change agent will more effectively convey information and promote behavior change (Rogers, 2003). Our study builds on Rogers' theoretical framework, elaborating on how perceived homophily influences outcomes in informal education settings.

The conceptual model, the *Moscarelli Model* (Moscarelli, 2023) (see Figure 2), states that perceived homophily correlates with credibility (Andersen, 1972; Gomez & Pearson, 1990; Jiang et al., 2018), and credibility correlates with learning outcomes and behavior change (Finn et al., 2009; Pogue & AhYun, 2006; Rogers, 2003). Credibility comprises subject matter expertise (i.e., competence credibility) and trustworthiness (i.e., safety credibility) as perceived by those receiving the message (Rogers, 2003). Perceived trustworthiness is influenced by language, accent, gender, and race, among others (Jiang et al., 2018). If the above premises are true, then the transitive property of equality (i.e., if $a=b$ and $b=c$, then $a=c$) implies that the learner's knowledge retention and behavior change is a function of educator-learner homophily. However, innovation adoption (i.e., behavior change) will also hinge on learners' perceptions of the recent innovation (Rogers, 2003). Professional adult educators often have high subject matter expertise but low homophily with the target population (Rogers, 2003). Conversely, paraprofessional adult educators often have lesser subject matter expertise but greater homophily with the target population (Rogers, 2003). Understanding the tradeoff between subject matter expertise and educator-learner homophily in adult education is important. Thus, we investigated how learners' perceptions of knowledge retention and behavior change affect adult educator-learner homophily.

Figure 2

Moscarelli Model (Moscarelli, 2023)



Purpose and Objectives

We explored the effect of educator-learner homophily on learners’ attitudes, perceptions of learning, and behavior changes. Specifically, we sought to: (1) identify and explore key international volunteers’ behavioral, intrapersonal, and sociodemographic characteristics that may affect small-scale farmer attitudes, knowledge retention, and behavior change; and (2) refine the conceptual framework to better describe educator-learner homophily effects on learning and behavior change.

Methods

As part of a larger study (Moscarelli, 2023), this research uses the framework of a multi-case study to develop an in-depth description of a phenomenon (Geertz, 2008; Lincoln & Denzin, 2000; Nije & Asimiran, 2014). Our qualitative study design illuminated the phenomenon of homophily and the rich context for international agricultural volunteer extension. Texas A&M University’s IRB (Institutional Review Board) approved the study design.

Sampling

We conducted the study in Guatemala and the Dominican Republic. The population of interest was small-scale farmers. We defined small-scale farmers as people who generate income primarily through agricultural activities (i.e., crop production, livestock production, etc.), rely on family labor, and have a household income of less than US \$3,000/year.

We used a purposive sample to include individuals with firsthand experience of the topic (Schutt, 2011). The sample consisted of Guatemalan and Dominican small-scale

farmers who received training from U.S. volunteers through an international agricultural volunteer program. Program staff in Guatemala and the Dominican Republic initially identified 13 eligible farmer groups to participate in interviews and focus groups. Participants were eligible and selected based on the length of time they had participated in the program (three or more years), the number of distinct U.S. volunteers who had trained their community (six volunteers minimum), and budgetary and logistical limitations.

Profile of Study Participants

Two groups (cases) consisting of four Guatemalan farmer groups and four Dominican farmer groups agreed to participate in the study, for a total of 60 participants. Table 1 contains the eight farmer groups' profiles, and Table 2 provides the key informant profiles. In Guatemala, we conducted four focus groups and two key informant interviews with 27 participants (14 male and 13 female). In the Dominican Republic, we conducted four focus groups and two key informant interviews with 33 total participants (19 male, 14 female). Six focus groups comprised six to eight participants each (Fraenkel et al., 2012), while two focus groups had 10 and 12 participants, respectively. All interviews and focus groups were conducted face-to-face and recorded in the participants' community. All participants provided informed consent.

Table 1

Profile of Focus Group Participants

#	Country	Department	Description of Producer Group
1	Guatemala	San Cristóbal, Totonicapán	Association of deciduous fruit growers in the highlands of Guatemala.
2	Guatemala	San Andrés Semetabaj, Sololá	Small farmers association dedicated to the production and marketing of fresh oyster mushrooms. This association focuses on female farmer empowerment and development.
3	Guatemala	Aldea Rincón Grande, Parramos, Chimaltenango	Members of a small company focused on dragon fruit production and value-added products. They also produce sweet potatoes, green beans, and chili peppers on seven acres of land.
4	Guatemala	San Pedro Las Huertas, Antigua	Members of a Guatemalan social enterprise specializing in superfoods, including kombucha, with production facilities for processing, labeling, and packaging.

#	Country	Department	Description of Producer Group
5	Dominican Republic	Juliana Jaramillo, Amina, San Isidro, Hatillo Palma y La Caída	Members of an organic banana growing association in the Dominican Republic's northeast region, one of the country's most impoverished regions.
6	Dominican Republic	La Vega	Subsistence farmers in the country's agricultural heart.
7	Dominican Republic	Santiago Rodriquez, Puerto Plata	Subsistence farmers that grow sweet potatoes and small livestock.
8	Dominican Republic	San Cristobal	Members of a bee-keeping association.

Table 2*Profile of Key Informants*

#	Country	Description of Key Informant
1	Guatemala	Male manager of an oyster-mushroom farming association.
2	Guatemala	Male leader in a social enterprise focused on superfoods.
3	Dominican Republic	Male farmer, member of an organic banana farming association.
4	Dominican Republic	Female leader of an association of subsistence farmers.

Semi-Structured Interview Protocol

Semi-structured interview protocols were used to guide interviews and focus groups (Krueger & Casey, 2009). Interviews were guided by 19 open-ended questions designed to elicit impressions and reflections about the role of international volunteers in participants' communities. Questions assessed: 1) farmer attitude toward U.S. citizens; 2) how effectively farmers learn from U.S. volunteers; 3) how willing farmers are to adopt recent technologies recommended by a volunteer; and 4) what would make training more effective.

We conducted the focus groups and interviews with the assistance of local program staff. The lead researcher was the primary interview and focus group facilitator, while local program staff helped clarify interview protocol questions, asked follow-up questions, and took notes. Each interview/focus group lasted 45-90 minutes. After each interview/focus group, the lead researcher conducted a one-hour debrief with the program staff to aggregate and digitize field notes for future analysis. Saturation of content is achievable within 4-10 focus groups. Guest et al. (2017) reported that "more than 80% of all themes were

discoverable within two to three focus groups, and 90% were discoverable within three to six focus groups” (p. 18). Our study included eight focus groups and achieved data saturation.

Data Coding and Analysis

Audio recordings of all interviews and focus groups were transcribed and translated into English. Data analysis occurred following these steps: 1) thorough reading of interview transcripts; 2) identifying, defining, and focusing concepts articulated by research participants; 3) coding the identified concepts and grouping them in thematically linked categories; and 4) identifying similarities and differences across the data set and naming the recurrent themes emerging from the data. Triangulation was accomplished by using both interviews and focus group sessions across two unique geographic groups and two unique roles (i.e., farmers and agricultural leaders). The use of various sources and methods improved the credibility of findings (Lincoln & Guba, 1985).

To maintain confidentiality, participant codes were assigned. The participant code was used instead of names when coding and analyzing participant responses. To further organize the data set and identify themes specific to each country or gender, each farmer was assigned letters and numbers based on their country and identified gender. Thus, the Guatemalan participants were coded G1- G27 with M or F for male or female. Similarly, Dominican participants were coded DR1- DR33 with M or F.

Limitations

Given the study’s focus and potential implications, it is important to note several factors that may have produced biases by participants and researchers, thus affecting credibility and confirmability. Key informant interview and focus group participants receive free technical assistance through the international volunteer program being discussed. Participants were assured that their responses would not affect their eligibility to continue receiving technical assistance through the program. However, despite that assurance, they may have hesitated to express negative views if they feared it could impact their ability to continue receiving technical assistance.

Researcher subjectivity also presents a notable limitation. The primary researcher’s background as a former Peace Corps volunteer and current employee of a U.S.-based nonprofit that manages similar government-funded agricultural volunteer programs may have shaped how data was interpreted and prioritized. This deep professional and personal investment in international volunteerism brings valuable insight, but may also create unconscious bias, particularly a tendency to view volunteer-based development models more favorably. The researcher’s insider perspective may have subtly influenced which themes were emphasized, how conflicting narratives were resolved, or how success and impact were defined. While steps were taken to maintain analytical distance, such as triangulating findings and engaging in peer debriefing, complete objectivity is not possible in qualitative research. Therefore, the findings should be read with positionality in mind.

Finally, the local research teams were program staff for the same international agricultural volunteer program. Given that their current and future employment hinges on the program’s continuation, it is possible that biases in questioning and note-taking occurred. For example, they may have been concerned that if our results demonstrated that U.S.-based volunteers were less effective than local extension agents, the funding agency for the program might consider terminating the program and reallocating its resources. However, it

was communicated to staff and study participants that the funding agency did not commission this study and would not use the results to determine future program funding.

Together, these dynamics reflect the complex interplay between positionality, power, and perception in international development research. Transparency about these factors is critical in interpreting the results and in encouraging future studies to adopt more reflective, multi-perspective approaches to minimize bias.

Results

Three themes emerged from the focus groups and interviews: 1) participants considered international volunteers to be highly credible due to their reliability and their good past performance; 2) speaking Spanish improved a volunteer's effectiveness; and 3) participants felt connected to the international volunteers based on shared experiences, which superseded the differences between their respective countries of origins. Additional topics discussed elicited inconsistent responses across focus groups and therefore are not included in the results, although their absence is addressed in the discussion section.

Establishing Credibility

According to the *Moscarelli Model* (Moscarelli, 2023), knowledge transfer hinges on the learner perceiving the educator as credible, and credibility is established through subject matter expertise and trustworthiness. Focus group participants from both countries indicated that they viewed U.S. volunteers as subject matter experts and trusted the volunteers' technical advice. In addition, participants across all focus groups identified two critical elements of credibility: volunteers are reliable, and taking their advice resulted in demonstrable improvements.

Participants compared international volunteers to local extension agents as the basis for asserting volunteer credibility. Participants consistently viewed U.S. volunteers as more reliable and, in some cases, more effective than local extension agents. For example, one oyster mushroom producer from Guatemala, stated, "The international volunteers are formal and punctual... our local extension agents are not reliable... there is one agent this month, but four months later, it is a different agent, and you start over" (G2M). Across all focus groups and interviews, participants consistently described volunteers as fulfilling their commitments.

Further, the perceived reliability appeared particularly significant given a larger pattern of broken trust between farmers and local extension systems. Multiple participants described frustration with agents who rotated frequently, missed appointments, or delivered programming that felt generic and disconnected from community needs. Over time, the inconsistency seemed to erode confidence in local services. In contrast, international volunteers were praised not only for showing up, but for tailoring content, following through on promises, and being attentive to feedback; actions that aided in rebuilding trust that had previously been strained.

In addition to demonstrating reliability, U.S. volunteers were described as having a level of flexibility that made workshops more relevant and helpful. Participants explained that local extension agents have a set program they replicate in each community, and the program design is not tailored to each community's context. By contrast, a farmer who received training from a U.S. volunteer in climate-smart agriculture practices mentioned that

“volunteers were more responsive,” analyzing the situation and “[adapting] their teaching” to the identified needs (G18M).

A consistent theme in all interviews and focus groups was that volunteers established credibility by giving recommendations that resulted in demonstrable improvements. One farmer who received cacao pruning and grafting training said, “We have 100 percent confidence in the volunteers. They brought knowledge that we did not have. They helped us improve our varieties. They brought a variety [of cacao] we did not have before... We are still growing [that variety]” (DR19F). A vegetable farmer said, “We trust them because, for example, the seeds they recommended were successful. They showed us how to make compost. A month later, we saw that it was good compost” (G15F).

Similarly, one peach producer described how a volunteer established credibility with a pruning technique that resulted in noticeable gains:

When he [the volunteer] came, there were many workshops and visits to different orchards. At first, we did not know what to expect, but then he took out his pruning shears and pruned a tree in front of us... and now, seeing the fruit that the tree gives, we pruned all our trees that way. (G3F)

Participants also ascribed credibility to volunteers based on their expertise. Participants again used local extension agents as the basis for comparison. A female farmer who received training in swine production noted that volunteers often had greater expertise than local agents: “Sometimes the volunteer has different expertise to share. Often, the [local extension agents] are still completing their education. People might trust the volunteers more because they have greater specialization” (DR20F). However, education was not the only—or even the primary—driver of expertise. For example, several farmers agreed that volunteers had “practical experience, not just theoretical” (DR24M). The fact that the “volunteers were farmers themselves” gave them more credibility in the workshop attendees’ eyes (DR23M).

In summary, overall data indicated agents were not consistent in meeting farmers’ needs resulting in decreased stakeholder trust in extension. Trust is a necessary attribute in farmer-centric extension and advisory relationships leading to programmatic impact (Pappa & Koutsouris, 2025). Though homophily is important, fostering an environment that does not cultivate stakeholder trust is detrimental to extension and advisory services optically, programmatically, and politically (Mulkerrins et al., 2025).

Language and its Effect on Learning

In both countries, participants discussed how language differences affected learning. Several farmer groups noted that they felt more comfortable with Spanish-speaking volunteers. In Guatemala, this was a practical concern. Because many community members speak Indigenous languages, workshops conducted in English required translation from English to Spanish and then from Spanish to another language, such as Kaqchikel. One producer from Guatemala, noted, “Of course, language is important—for many people here, even Spanish is difficult for them. Many people do not even speak Spanish. So, we need a double translation. A one-hour workshop will end up taking two hours” (G15F). A mushroom producer also noted the possibility that translation hampered training in other ways: “[With the language barrier] it is possible you lose something else... for example, that understanding gets lost in the translation” (G14F). Another participant expressed frustration, desiring to interact more directly with the volunteers. “Sometimes, when the volunteers explain something, we want to respond, but because we do not understand each other, we must wait for the translator” (G11F).

Given the language barriers, many participants emphasized nonverbal communication's importance in conveying both practical information and effect. For example, a farmer pointed out that the workshop's hands-on nature helped: "[the teaching] was effective because even if we did not understand what he said, we could see what he did. That is how one learns best. To say something is not the same as to do something" (G18M). Another farmer noted that she could discern the volunteers' attitudes despite the language barrier: "Although I do not understand English, I can see from their manner whether they speak to me with respect" (G15F).

Participants who dismissed the language barrier's importance were from remote areas that did not receive assistance from local extension agents. For example, a livestock farmer in a remote area of the Dominican Republic said, "A volunteer is welcome whether they speak Spanish or not... we do not get any technical assistance from the government" (DR21M). A sweet potato farmer echoed these sentiments, especially given that translation was effective: "They brought a translator here, and it was very clear" (DR19F).

Perceptions of People from the U.S.

Across focus groups and interviews, there were consistently positive perceptions of people from the U.S. and a tendency to emphasize shared experience over differences. Participants were asked to share their impressions of Americans, not just the volunteers. Some groups, such as a peach grower association and a small superfood business in Guatemala, have regular contact with Americans and other foreigners because they live near popular tourist destinations. Others, such as the oyster mushroom association in Guatemala, live in more rural settings and rarely meet U.S. citizens. Participants throughout all focus groups repeatedly described Americans as "good people," "joyful," or "happy."

Many described Americans in terms of their motivation to help others. For example, a male snow pea farmer from Chimaltenango said, "Americans help Guatemalans. We have many family members there. When Guatemalans need help, Americans lend a hand" (G16M). Another small-scale farmer in Guatemala expanded on this sentiment, saying:

I think U.S. citizens are very cordial and polite, organized, and disciplined, used to achieving their goals. When they have an idea of personal or professional development, in general terms, if they know something, they are eager to share it. In every place, some people are honest and want to help others. (G10F)

In all interviews and focus groups, participants stressed that the interaction's substance and the person's character mattered more than the country of origin. For example, an individual interviewed articulated, "We do not see a difference between foreigners and Guatemalans...everyone is welcome. What we are interested in is the knowledge, what we can learn" (G2M).

Discussion

The findings from this study challenge assumptions about the role of homophily in shaping the perceived credibility of agricultural educators and their ability to influence knowledge transfer and behavior change. While the Moscarelli Model (Moscarelli, 2023) suggests that learners should perceive local extension agents as more credible due to higher levels of cultural, background, and geographic homophily, our findings indicate the opposite. In our research, focus group participants and key informants perceived that international volunteers have higher subject matter expertise than local extension agents. Furthermore, participants

overwhelmingly described international volunteers as more credible and reliable than local extension agents.

There are several explanations for this finding. First, multiple assumptions about the variables could account for the discrepancy between the results and the conceptual model. The theoretical model holds that perceived credibility is a composite of competence credibility and perceived trustworthiness. Participants may have attributed greater competence credibility to U.S. volunteers relative to local extension agents because the U.S. volunteers had significantly higher levels of education and greater familiarity with technological advances. A survey by Berg et al. (2020) highlights the challenges affecting the implementation of Farmer Field Schools, thereby reinforcing the argument that technical knowledge is a crucial competency. This competency facilitates the continuation of effective relationships and the transfer of knowledge between practitioners and advisors. If the gap in competence was so wide between the volunteers and local extension agents, any homophily effect on the perception of trustworthiness could be rendered irrelevant. This raises the question for more research and exploration: if local agents and international volunteers had similar subject matter expertise, would homophily increase perceived credibility?

Likewise, it is possible that the local extension agent's level of cultural, background, and geographic origin homophily was insufficient. For example, a rural, small-scale farmer in Guatemala or the Dominican Republic may not perceive homophily with individuals who live in the capital city. Therefore, a small-scale farmer may not perceive homophily with the local extension agent or the international volunteer. Alternatively, a small-scale farmer in Guatemala may perceive greater homophily with a volunteer from rural Iowa than an extension agent from Guatemala City. Background homophily or another dimension of homophily may have a more substantial effect on overall homophily than broad geographic origin homophily.

Another possibility is that the trustworthiness of local extension agents and international volunteers is not gauged individually but is generalized on a group level. Participants explained that they assigned credibility to volunteers based on tangible results. Participants noted that extension agents are funded through local government, making their services subject to sudden funding interruptions and politicians using their programs as a political tool. Therefore, participants may be more likely to trust a U.S. volunteer, despite a lack of homophily, if that individual hails from a group associated with being reliable, consistent, and high-quality.

Additionally, trustworthiness can be conferred to an individual through a trusted source, as with opinion leaders in innovation diffusion theory (Rogers, 2003). For example, while international volunteers are often new and do not share sociodemographic, behavioral, and intrapersonal characteristics with the target population, the local translator has worked with the participants for years. Therefore, participants may establish trust with the translator because of a longstanding relationship, and that translator serves as a "trust bridge" between the international volunteers and participants.

While the translator may serve as a trust bridge between participants and volunteers, participants emphasized the challenges of working with monolingual English-speaking volunteers. They described the logistical challenges of translation and the impediments to interaction and learning when the volunteer could not speak Spanish. The preference for Spanish-speaking volunteers may reflect a preference for homophilous volunteers, as language is an element of cultural homophily (Jiang, 2000).

The *Moscarelli Model* (Moscarelli, 2023) posits that educator credibility, learner attitude, knowledge retention, and behavior change are functions of educator-learner homophily. However, participants in this study contradict this assertion, consistently emphasizing that volunteers' superior competence credibility (i.e., subject matter expertise) is the most critical factor. Additionally, familiar translators may have conferred trust between volunteers and participants. Suppose the volunteer and local extension agent's subject matter expertise were similar and the translator was not present (i.e., the volunteer could speak Spanish). Would participants still view volunteers as more credible? By controlling subject matter expertise and language, we might better understand if perceived homophily – and specifically which dimensions of educator-learner homophily – affects credibility, attitude, learning, and behavior change.

Academia must equip future agricultural educators with the skills to recognize that credibility is multi-faceted and not solely dependent on shared characteristics with learners. By integrating theories of homophily with practical experience in international or underserved communities, agricultural education programs can better prepare students to work in diverse extension settings. This would involve creating experiential learning opportunities such as service-learning projects, internships with international organizations, and interdisciplinary coursework that blends agriculture with fields like communication, sociology, and international development.

Our study contributes to the broader field of knowledge transfer and behavior change. It suggests that the effectiveness of development initiatives may depend not only on the technical competence of educators but also on their ability to build trust and credibility through the strategic use of homophily and other social dynamics. For example, even in settings with low homophily between educator and learner, trust bridges (such as local translators or community intermediaries) can foster collaboration and help overcome potential credibility gaps.

Moreover, our research highlighted the need for further studies on the balance between homophily and expertise. If educators with similar subject matter expertise were placed in more homophilous environments, would the perceived credibility shift? What other factors, such as language proficiency or community relationships, might influence the effectiveness of extension services in agricultural settings? These questions warrant further exploration, particularly through quantitative research that controls various confounding variables, such as volunteer experience, technical knowledge, and community engagement.

Understanding the potential impact of dimensions of homophily on learning and behavior change could prove critical in designing effective, responsive international volunteer programs. In alignment with SDG 4, understanding how individuals (and communities) engage and learn is not simple, but rather complex, and multidimensional. To achieve this goal, international volunteers and practitioners should, as results suggest, revisit previously held conclusions about the impact of their programs and practices. Ultimately, by embracing a nuanced understanding of homophily and its implications, international volunteer programs (and extension programs) can better support the goals of both the organizations, but also SDG 4. This approach not only enhances educational quality and accessibility but also promotes a more profound and lasting positive impact on communities worldwide.

Recommendations

Addressing SDG 4 requires multidimensional inquiries respective to small-scale farmers in developing areas of both the Global North and Global South. Therefore, further research should attempt to address the limitations discussed. This could include recruiting participants who no longer receive technical assistance or replication of the study in countries where the local extension offices have a positive reputation. Further research can increase understanding of how to prioritize subject matter expertise and homophily to increase credibility, attitude, learning, and behavior change. Knowledge is only knowledge for the sake of knowledge unless scholars and practitioners can enhance knowledge transfer resulting in behavior change and subsequent impacts by leveraging homophily attributes (Mulkerrins et al., 2025).

References

- Adamsone-Fiskovica, A., & Grivins, M. (2021). Knowledge production and communication in on-farm demonstrations: Putting farmer participatory research and extension into practice. *The Journal of Agricultural Education and Extension*, 28(4), 479–502. <https://doi.org/10.1080/1389224X.2021.1953551>
- Andersen, P. A. (1972). The effects of homophilous hair and dress styles on credibility and comprehension. Paper presented at *International Communication Association Annual Convention*, Atlanta, Georgia. <http://files.eric.ed.gov/fulltext/ED061748.pdf>
- Asada, A., & Ko, Y. J. (2016). Determinants of word-of-mouth influence in sport viewership. *Journal of Sport Management*, 30(2), 192–206. <https://doi.org/10.1123/jsm.2015-0332>
- Aubrey, J. S., Behm-Morawitz, E., & Kim, K. (2014). Understanding the effects of MTV's 16 and pregnant on adolescent girls' beliefs, attitudes, and behavioral intentions toward teen pregnancy. *Journal of Health Communication*, 19(10), 1145–1160. <https://doi.org/10.1080/10810730.2013.872721>
- Bakshy, E., Rosenn, I., Marlow, C., & Adamic, L. (2012, April). The role of social networks in information diffusion. *Proceedings of the 21st International Conference on World Wide Web* (pp. 519–528). Association for Computing Machinery. <https://doi.org/10.1145/2187836.2187907>
- Behm-Morawitz, E., Aubrey, J. S., Pennel, H., & Kim, K. B. (2019). Examining the effects of MTV's 16 and pregnant on adolescent girls' sexual health: The implications of character affinity, pregnancy risk factors, and health literacy on message effectiveness. *Health Communication*, 34(2), 180–190. <https://doi.org/10.1080/10410236.2017.1399506>
- Berg, H., Phillips, S., Poisot, A., Dicke, M., & Fredrix, M. (2020). Leading issues in implementation of farmer field schools: A global survey. *The Journal of Agricultural Education and Extension*, 27(3), 341–53. <https://doi.org/10.1080/1389224X.2020.1858891>

- Bilgicer, T., Jedidi, K., Lehmann, D. R., & Neslin, S. A. (2015). Social contagion and customer adoption of new sales channels. *Journal of Retailing*, 91(2), 254–271. <https://doi.org/10.1016/j.jretai.2014.12.006>
- Brechwald, W. A. & Prinstein, M.J. (2011). Beyond homophily: A decade of advances in understanding peer influence processes. *Journal of Research on Adolescence*, 21(1), 166–179. <https://doi.org/10.1111/j.1532-7795.2010.00721.x>
- Buller, M. K., Andersen, P.A., Bettinghaus, E. P., Liu, X., Slater, M. D., Henry, K., Fluharty, L., Fullmer, S., & Buller, D.B. (2018). Randomized trial evaluating targeted photographic health communication messages in three stigmatized populations: Physically disabled, senior, and overweight/obese individuals. *Journal of Health Communication*, 23(10–11), 886–898. <https://doi.org/10.1080/10810730.2018.1536731>
- Dozier, D. M., Beach, W.A., Gutzmer, K., & Yagade, A. (2017). The transformative power of authentic conversations about cancer. *Health Communication*, 32(11), 1350–1357. <https://doi.org/10.1080/10410236.2016.1220045>
- Finn, A.N., Schrodtt, P., Witt, P.L., Elledge, N., Jnberg, K.A., & Larson, L.M. (2009). A meta-analytical review of teacher credibility and its associations with teacher behaviors and student outcomes. *Communication Education*, 58(4), 516–537. <https://doi.org/10.1080/03634520903131154>
- Fraenkel, J., Wallen, N., & Hyun, H. (2012). *How to design and evaluate research in education* (7th ed.). McGraw-Hill.
- Geertz, C. (2008). Thick description: Toward an interpretive theory of culture. *The cultural geography reader* (p. 41–51). Routledge.
- Gomez, C.F.R., & Pearson, J.C. (1990). Students' perceptions of the credibility and homophily of native and non-native English-speaking teaching assistants. *Communication Research Reports*, 7(1), 58–62. <https://doi.org/10.1080/08824099009359855>
- Gompers, P.A., Mukharlyamov, V., & Xuan, Y. (2016). The cost of friendship. *Journal of Financial Economics*, 119(3), 626–644. <https://doi.org/10.1016/j.jfineco.2016.01.013>
- Guest, G., Namey, E., & McKenna, K. (2017). How many focus groups are enough? Building an evidence base for nonprobability sample sizes. *Field Methods*, 29(1), 3–22. <https://doi.org/10.1177/1525822X16639015>
- Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge.
- ILO Department of Statistics. n.d. *Country profiles*. ILOSTAT. <https://ilostat.ilo.org/data/country-profiles/>
- Jiang, W. (2000). The relationship between culture and language. *ELT Journal*, 54(4), 328–334. <https://doi.org/10.1093/elt/54.4.328>

- Jiang, X., Sanford, R., & Pell, M.D. (2018). Neural architecture underlying person perception from in-group and out-group voices. *NeuroImage*, *181*, 582–597. <https://doi.org/10.1016/j.neuroimage.2018.07.042>
- Krueger, R., & Casey, M.A. (2009). *Focus groups: A practical guide for applied research* (4th ed.). Sage Publications.
- Lazarsfeld, P. F., & Merton, R.K. (1954). Friendship as a social process: A substantive and methodological analysis. *Freedom and control in modern society*, *18*(1), 1866.
- Lincoln S. Y., & Guba E. G. (1985). *Naturalistic inquiry*. Sage.
- Lincoln, Y.S., & Denzin, K.K. (Eds.). (2000). *The handbook of qualitative research*. Sage.
- Llamero, L. (2014). Conceptual mindsets and heuristics in credibility evaluation of e-word of mouth in tourism. *Online information review*. <https://doi.org/10.1108/OIR-06-2014-0128>
- Lough, B. J. (2015). The evolution of international volunteering. Bonn: *United Nations Volunteers*. <http://dx.doi.org/10.13140/RG.2.2.21006.92484>
- Lough, B. J., McBride, A.M., Sherraden, M.S., & O'Hara, K. (2011). Capacity building contributions of short-term international volunteers. *Journal of Community Practice*, *19*(2), 120–137. <https://doi.org/10.1080/10705422.2011.568921>
- McPherson, M., Smith-Lovin, L., & Cook, J.M. (2001). Birds of a feather: Homophily in social networks. *Annual review of sociology*, *27*(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Meyners, J., Barrot, C., Becker, J.U., & Goldenberg, J. (2017). The role of mere closeness: How geographic proximity affects social influence. *Journal of Marketing*, *81*(5), 49–66. <https://doi.org/10.1509/jm.16.0057>
- Morvinski, C., Amir, O., & Muller, E. (2017). Ten million readers can't be wrong!, or can they? On the role of information about adoption stock in new product trial. *Marketing Science*, *36*(2), 290–300. <https://doi.org/10.1287/mksc.2016.1011>
- Moscarelli, M. B. (2023). *Perception of knowledge retention and behavior change: A function of adult educator-learner homophily*. [Doctoral dissertation, Texas A&M University].
- Moscarelli, M. (2021). The effect of educator-learner homophily on learner attitude, knowledge retention, and behavior: A review of literature. *Unpublished manuscript*. Department of Agricultural Leadership, Education, and Communications. Texas A&M University.
- Moscarelli, M., Wingenbach, G., & Strong, R. (2023). Educator–Learner homophily effect on participants' adoption of agribusiness recordkeeping practices. *Agriculture*, *13*(12), 2180. <https://doi.org/10.3390/agriculture13122180>

- Mulkerrins, M., Strong, R., Kilboyle, J., Egan, C., Holohan, C., Russell, T., Flannery, S., & Curley, E. (2025). The influence of digital knowledge exchange on advancing Irish students knowledge and adoption of sustainable grassland management innovations. *Journal of International Agricultural and Extension Education*, 32(1). <https://doi.org/10.4148/2831-5960.1490>
- Njie, B., & Asimiran, S. (2014). Case study as a choice in qualitative methodology. *Journal of Research and Method in Education*, 4(3), 35–40. <https://dx.doi.org/10.9790/7388-04313540>
- Pappa, E., & Koutsouris, A. (2025). The agronomist to trust as my advisor: A Greek case study. *The Journal of Agricultural Education and Extension*, 31(1), 29–45. <https://doi.org/10.1080/1389224X.2024.2314782>
- Peace Corps. (2019). Make the most of your world: 2020 factsheet. Retrieved January 20, 2023, from https://files.peacecorps.gov/multimedia/pdf/about/pc_facts.pdf
- Pogue, L. L., & AhYun, K. (2006). The effect of teacher nonverbal immediacy and credibility on student motivation and affective learning. *Communication Education*, 55(3), 331–344. <https://doi.org/10.1080/03634520600748623>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Rogers, E. M., & Shoemaker, F.F. (1971). *Communication of innovations: A cross-cultural approach* (2nd ed.). Free Press.
- Schutt, R. K. (2011). *Investigating the social world: The process and practice of research*. Pine Forge Press.
- Shen, X.-L., Zhang, K. Z., & Zhao, S. J. (2016). Herd behavior in consumers' adoption of online reviews. *Journal of the Association for Information Science and Technology*, 67(11), 2754–2765. <https://doi.org/10.1002/asi.23602>
- Sherraden, M. S., Lough, B., & McBride, A. M. (2008). Effects of international volunteering and service: Individual and institutional predictors. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 19(4), 395. <http://dx.doi.org/10.1007/s11266-008-9072-x>
- Shoulders, C. W., & Smith, L. (2018). Impact of teacher attire on students' views of teacher credibility, attitude homophily, and background homophily within school-based agricultural education programs. *Journal of Agricultural Education*, 59(2), 275–288. <https://doi.org/10.5032/jae.2018.02275>
- Santos, J. M., Horta, H & Feng, S. (2024). Homophily and its effects on collaborations and repeated collaborations: A study across scientific fields. *Scientometrics*, 129(3), 1801-1823. <https://doi.org/10.1007/s11192-024-04950-3>
- Tshotsho, L., & Feuerbacher, A. (2023). Organic agriculture, labour exchange, and social networks: A case study of smallholder farming in Bhutan. *Organic Agriculture*, 13(1), 83-98. <https://doi.org/10.1007/s13165-022-00416-z>

UNESCO. (2016). *Unpacking sustainable development goal 4 education 2030 guide*.
<http://unesdoc.unesco.org/images/0024/002463/246300E.pdf>

Waters-Bayer, A., van Veldhuizen, L., Wettasinha, C., & Wongtschowski, M. (2004).
Developing partnerships to promote local innovation. *The Journal of Agricultural
Education and Extension*, 10(3),143–50. <https://doi.org/10.1080/13892240485300211>