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Examination of Ugandan Educators' Cultural Preferences when Teaching Agriculture: A Q Methodological Study

Rebekah McCarty

New Mexico State University, rmccarty@nmsu.edu

Shannon Norris-Parish

New Mexico State University, norriss@nmsu.edu

Don Edgar

New Mexico State University, dedgar@nmsu.edu

See next page for additional authors

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Keywords

agricultural education, culture, curriculum development, Q methodology, Uganda

Authors

Rebekah McCarty, Shannon Norris-Parish, Don Edgar, Lacey Roberts-Hill, and Jeff Witte

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Rebekah McCarty, New Mexico State University
Shannon Norris-Parish, New Mexico State University
Don Edgar, New Mexico State University
Lacey Roberts-Hill, New Mexico State University
Jeff Witte, New Mexico Department of Agriculture

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Increasing human capital is a critical challenge of developmental aid. Secondary education is known to be the single greatest contributor to agricultural productivity in developing countries. Ultimately, as technology advances, researchers and curriculum designers must investigate variables influencing the successful transmission of agricultural information or the gap will widen. We used framing theory to examine the impact of culture on the adoption of educational resources in a developing nation. The purpose of this study was to investigate the cultural preferences of educators in Uganda when engaging with educational materials created by individuals from a developed nation. We used Q methodology to identify the cultural preferences of individuals from Uganda when engaging with Field of Hope's agricultural education teacher resources. Six dominant viewpoints emerged—philosophers, visionaries, harmonists, humanitarians, expressive symbolists, and traditionalists. These findings support previous studies that described culture as an individualized experience, even among individuals who shared close organizational and regional affiliations. Considering the role of framing in culture, the successful mobilization of educational resources is highly dependent on resources designed in the target audience's cultural context. For curriculum designers and practitioners, we recommend conducting a cultural analysis when designing materials for classroom instruction, especially if the resources are designed for a different cultural setting. Recommendations for educators include implementing an increased awareness of cultural differences in the classroom, as well as making a greater effort to integrate regional culture into routine instruction. Future research should explore the impact of culture on the adoption of agricultural practices in developing nations.

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Introduction

Increasing human capital through strengthened and widespread education is a critical challenge of developmental aid seeking to reduce poverty and support economic growth in developing nations (Damon et al., 2016). Historically, community-based programs, like the Cooperative Extension Service in the United States, have been offered as a solution for increasing agricultural education in developing countries (Appleton & Balihuta, 1996) because they provide local farmers with knowledge relevant to their area of production (Aker, 2011). Such programs have been credited with increasing global agricultural production at a faster rate than the world population by supporting the use of technology and modern inputs (Hazell & Wood, 2008). However, community-based programs often face challenges related to scale, sustainability, relevance, and responsiveness, leaving many parts of Sub-Saharan Africa, Central and Latin America, and Southern and Southeastern Asia behind the trends of modern production (Aker, 2011; Hazell & Wood, 2008). The resulting gap in agricultural productivity poses a significant threat in developing nations as the greatest future needs in human nutrition will largely occur in low-income, high-poverty countries (Hazell & Wood, 2008).

To analyze development on a global scale and provide exclusive access to international support measures, the United Nations (2021) categorized countries as developed or least developed. Least developed countries (LDCs) face significant challenges in economic development due to low national income. Consequentially, LDCs are characteristically susceptible to economic shock and generally have low levels of human assets (United Nations, 2021). Currently, 46 countries are recognized as LDCs by the United Nations, including Uganda, which has been classified as a LDC since 1971 (United Nations, 2021). Several organizations recognize the need to support development efforts and invest in the deployment of various programs focused on increasing sustainability, education, women and youth empowerment, and food security in developing nations (Farmer-to-Farmer, 2021; Field of Hope, 2021; U.S. Agency for International Development [USAID], 2021). These initiatives often work in alignment with the United Nations' Sustainable Development Goals which "are an urgent call for action by all countries - developed and developing - in a global partnership" (United Nations, n.d.b, para. 1) to end poverty, protect the planet, and improve quality of life for all people (United Nations, n.d.a).

Early studies show that the best way to narrow the gap in agricultural productivity between developed countries and LDCs is to invest in education and research (Hayami, 1969; Hayami & Ruttan, 1970; Nguyen, 1979). More specifically, Nguyen (1979) found that knowledge and productivity are best measured through secondary education systems, making the expansion of secondary education in developing countries the single greatest opportunity for increased agricultural productivity. However, education in developing nations faces unique challenges when compared to education in developed nations. Damon et al. (2016) found that high variations in teacher resources and student preparation upon enrollment hinder the efficiency of education in developing countries. In addition, standardized learning objectives have more recently been positioned as the primary focus of education (Smith, 2002), which inherently causes concepts that are critical for knowledge implementation, such as culture, to be overlooked in curriculum development (Smith & Sobel, 2010).

Culture can be defined as a complex system of beliefs, values, and norms that provide meaning and structure in a society (Schwartz, 2006; Stahl et al., 2010). Education has been identified as a cultural process because schools are the primary transmitters of knowledge, skills, values, practices, and norms to students (Kana'iaupuni et al., 2010). Both teachers and their curriculum play an important role in the successful development of students (Sianturi et al., 2018), but not all educational resources are created to support the transmission of culture (Smith, 2002). Failure to include elements of a region's or society's culture in curriculum and instruction can create distance between students' lived experience and the concepts they are taught in school (Smith, 2002), especially if the curriculum is created for LDCs from individuals in developed nations.

Legro (1996) compared the process of international cooperation to a delicate dance, stating, "International cooperation is more like a tango than a shuffle; its complexities make it difficult to follow" (para. 1). Further, Masambuka-Kanchewa et al. (2020) noted that efforts to communicate agricultural information in an international setting have "contributed to a failure by farmers to value local and indigenous knowledge... leading to the promotion of a mindset among farmers that only outsiders have and can provide answers to their problems" (p. 126). Much of this challenge can be attributed to culture, which is a hypothetical construct that cannot be observed directly, but rather is inferred from its manifestations (Schwartz, 2006). Ultimately, the gap in agricultural productivity will only continue to widen as technology advances and societies change unless researchers and curriculum designers investigate underlying constructs impeding the successful transmission of agricultural information among cultures.

Theoretical Framework

This study was guided by an interdisciplinary application of framing theory (Lam, 2020). Framing theory is foundational to the field of mass communication, where communicators seek to guide an audience to the focal point of their message by highlighting certain elements and presenting information in a specific context (Communication Studies, 2022). However, recent studies have positioned framing theory as "a multidisciplinary and multiparadigmatic 'metatheory' of sense-making through communication in general" (Lam, 2020, p. 169). In agricultural education, communications, and international development, framing theory can be employed to assess the impact of information sharing on behavior change and learning (Masambuka-Kanchewa et al., 2020; Tisenkopfs et al., 2014).

Framing and learning are both communicative and interactive social processes (Dewulf et al., 2004; Tisenkopfs et al., 2014). In education, framing can significantly impact the adoption of new information. Frames are often aligned to personal and societal identities (Benford & Snow, 2000) as individuals follow dominant ideology to make sense of events and maintain order in society (Lam, 2020). Incorporating cultural values, norms, and beliefs in collective learning experiences can foster frame alignment, which lays the foundation for collective action (Tisenkopfs et al., 2014). Chong and Druckman (2007) stated, "Individuals overcome collective action problems by developing shared frames about their predicament and agreeing on the best course of action" (p. 120). Thus, learning success could be measured as an increased ability to take collective action (Tisenkopfs et al., 2014).

The primary role of educators in advancing international agriculture is helping students think critically and operate efficiently with information (Doerfert et al., 2007). Thoughtful framing can influence student perceptions of agricultural information, as well as simplify complex societal issues by allowing individuals to interpret and organize new information based on personal experience (Goodwin et al., 2011). People are most likely to embrace information that fits into a frame they frequently use, such as through a frame created by their culture (Communication Studies, 2022). Therefore, in a classroom setting, teachers can fill an important role as communicators who focus messaging on what is important to the audience to capitalize on existing frames (Goodwin et al., 2011).

Purpose and Research Question

The purpose of this study was to investigate the cultural preferences of agricultural educators in a developing nation, primarily Uganda, when engaging with educational materials created by individuals in a developed nation, such as the United States of America. We used one research question and two research objectives to guide this investigation:

RQ1: What cultural elements are preferred among individuals of Ugandan cultures when engaging with Field of Hope teacher resources?

RO1: Describe the cultural preferences of Ugandan agricultural educators when engaging with Field of Hope teacher resources.

RO2: Identify personas that represent the cultural priorities of Ugandan agricultural educators.

Method

Leggette and Redwine (2016) identified the potential for Q methodological research to aid in the dissemination of relevant, targeted information to an audience by supporting individual perspectives with scientific analysis. Q methodology relies on operant subjectivity to yield a direct reflection of a participant's viewpoint through both quantitative and qualitative data (Watts & Stenner, 2012). Therefore, Q methodology can be used to measure data subjectively using a small number of participants to illustrate how individuals in a community differ from one another (Leggette & Redwine, 2016). We used Q methodology (Watts & Stenner, 2012) to identify the cultural preferences of individuals of Ugandan cultures when engaging with Field of Hope agricultural education teacher resources.

Instrumentation

Q methodological studies begin with concourse development. The concourse is the population of statements identifying the perceptions, opinions, or beliefs related to the topic under investigation (Watts & Stenner, 2012). In Q methodology, the concourse makes up the population of the study, not the participants; therefore, the quality and reliability of the study depend on accurate concourse development (Leggette & Redwine, 2016). We used a thorough review of literature and conversations with experts in the fields of international development, cultural communications, and community-based extension to develop the concourse of this

study. The experts engaged in concourse development worked in various locations as university faculty, industry researchers, or founders and stakeholders of international non-profits. Consulting these experts allowed us to identify the cultural factors most significantly impacting current efforts in international development and intercultural communication. The statements retained for use in the sorting process, known as the Q set, should be derived from the concourse and tailored to meet the needs of the investigation (Watts & Stenner, 2012). Therefore, we made note of key themes related to culture in education, communication, and agricultural and international development from the concourse. The most frequently occurring themes were retained in the Q set as statements to be sorted by the study participants (see Table 1).

Table 1*Q Set Statements*

Statement	Statement
	Political Systems
	Religion
	Economy
	Customs
	Technology
	Human Environment
	Laws
	Leadership
	Traditions
	Community
	Manners
	Greetings
	Holidays/Vacation
	Inventions
	Entertainment
	Tools
	Jobs/Careers
	Personal Finances/Income
	Transportation
	Trade
	Natural Resources
	Language
	Symbols
	Knowledge
	Stories
	Family
	Social Class
	Ethics
	Housing

Q Set and Data Collection

Evaluating an average individual in a society fails to reflect the comprehensive scope of viewpoints present in a culture (Witte et al., 2020). Therefore, in this investigation, we sought to gain a more complete understanding of the cultural viewpoints prioritized by individuals of Ugandan cultures. We purposively selected 20 Ugandan educators who currently use Field of Hope resources for routine instruction in their agricultural education courses. First, we asked participants to complete a demographic survey with questions relevant to understanding the experience of teachers partnering with Field of Hope. We then provided participants with the Q set and asked them to pre-sort the statements based on high-, medium-, or low-importance to their culture when learning. After completing the pre-sort, participants ranked the statements from -4 (lowest priority) to 4 (highest priority) on a forced distribution (see Figure 1) using the condition of instruction: *“Please rank the following concepts in order of preference or importance to your culture when learning.”* While participants completed the Q sort, we asked open-ended questions to discover the logic behind their ranking of each item in the Q set (Watts & Stenner, 2012). Valenta and Wigger (1997) suggested keeping statements in the words of participants to build validity in Q methodology. Therefore, we kept detailed field notes to record participants’ responses to open-ended questions. These exemplary statements framed the direct quotes that were later included in factor descriptions.

Least Important					Most Important			
-4	-3	-2	-1	Neutral	1	2	3	4
1 card								1 card
	2 cards						2 cards	
		3 cards				3 cards		
			5 cards		5 cards			
				7 cards				

Figure 1. Q sort formboard.

Data Analysis

We analyzed the data using Q Method Software (Lutfallah & Buchanan, 2019) to identify variable groups based on viewpoint similarity. Q sort data analysis can be divided into three steps—factor analysis, factor extraction, and factor rotation (Watts & Stenner, 2012). We used Q Method Software to correlate the Q sorts, which yielded a correlational matrix for factor analysis. Next, we used a Principal Component Analysis (PCA) to isolate groups of variables from the correlational matrix based on statistically significant loadings (Watts & Stenner, 2012). This resulted in the distinction of factors, or viewpoints, that were extracted for further analysis. Finally, we used the Kaiser-Guttman Criterion (Kaiser, 1958) to identify six factors with Eigenvalues greater than 1 that warranted further investigation and used Varimax rotation to focus the viewpoints of various factors according to the data (Watts & Stenner, 2012). The factors retained from this process of quantitative data analysis are conceptual representations that describe the perspectives and preferences evidenced by the study participants (Watts & Stenner, 2012). We used this data to develop qualitative descriptions of each factor informed by participants' demographic surveys, factor arrays, factor intercorrelation, distinguishing statements, and exemplary statements from semi-structured interviews.

Because the goal of Q methodology is to uncover the unique perspectives of different groups of people related to a particular issue or topic, Watts and Stenner (2012) emphasized the importance of interpreting the rank of each statement both individually and holistically within each factor. We interpreted the six factors using factor arrays, which illustrated the unique perspective of each factor by arranging the Q set according to the factor scores. We considered the placement of each statement in the factor array individually, and then considered the collective arrangement of statements in the array to establish a wholistic interpretation of each viewpoint. Next, we assessed the distinguishing statements, or perspectives significant at the $p < .05$ level, to further determine the priorities of individuals aligning with each viewpoint. Finally, we considered the demographics of participants from defining sorts and triangulated their exemplary statements to validate the description of each factor.

Researcher Positionality

Birks and Mills (2015) stated that for a researcher to be “methodologically congruent” in their research design, they must be conscious of their philosophical position in the research (p. 52). The researchers acknowledge that their personal experiences may have influenced their interpretations and analysis of the data. The primary researcher was a graduate student at the time of the study but had professional experience developing Field of Hope resources. Before completing the data analysis, the researcher lived in Uganda and worked with Field of Hope to support teachers using Field of Hope's teacher resources. The supporting authors are professors and professionals in international agricultural and extension education who supported the primary researcher in the design and analysis of the study.

Validity and Reliability

The validity and reliability of research are highly dependent on the accuracy and consistency of methods employed by the researcher (Creswell, 2014). Triangulation, reflexivity, and prolonged time in the field build the validity of a qualitative study (Creswell, 2014; Neuman, 2014). Each of these strategies were employed to protect the validity and reliability of this study.

The primary researcher kept detailed field notes that included participants' narrative descriptions of their ranking decisions, participants' responses to open-ended questions, and general observations made during data collection. The primary researcher also maintained a reflexive journal with notes about external observations, in-country experiences, cultural reflections, and perceived conclusions while collecting and analyzing data. Triangulating field notes, participant statements, and reflexive journal entries allowed the researchers to cross-validate findings and adjust for personal bias.

Results

We interpreted the cultural preferences of Ugandan teachers who routinely engage with Field of Hope agricultural education teacher resources as *philosophers*, *visionaries*, *harmonists*, *humanitarians*, *expressive symbolists*, and *traditionalists*.

The six extracted factors had low-to-moderate correlation to one another, indicating that each factor represented a unique perspective of Ugandan culture. Factor 1 and Factor 5 had the strongest relationship, with a correlation of 0.54. Cumulatively, the six factors explained 78% of the total variance at the $p < 0.05$ level. Watts and Stenner (2012) stated that a composite reliability score above 0.80 is necessary to consider a factor reliable for further analysis. Each of the six identified factors individually yielded composite reliability coefficients ≥ 0.80 (see Table 2), indicating that the factors and their defining sorts had high reliability and low standard error.

Table 2
Factor Characteristics

Characteristics	Factors					
	1	2	3	4	5	6
No. of Defining Sorts	5	2	3	3	1	2
Average Reliability Coefficient	0.80	0.80	0.80	0.80	0.80	0.80
Composite Reliability	0.95	0.89	0.92	0.92	0.80	0.89
Standard Error of Factor Z Scor	0.22	0.33	0.28	0.28	0.45	0.33

Factor loadings > 0.50 are considered defining sorts for each factor (see Table 3). After rotation, 18 of the 20 sorts loaded the six rotated factors at the ± 0.50 significance level. Factor 5 loaded only one defining sort; however, after careful consideration of the placement of each factor and the exemplary statements of individual participants, we chose to maintain Factor 5 in the study because it represents a unique, exclusive perspective.

Table 3*Rotated Factor Solution*

Sort	Factor	Factor	Factor	Factor	Factor	Factor
1P1	0.62	0.31	0.22	0.04	-0.46	-0.19
1P2	0.10	0.38	0.02	0.71X	-0.05	-0.27
1P3	0.49	-0.10	0.23	0.62	-0.32	0.19
1P4	0.44	-0.05	0.10	0.12	0.81X	0.06
1P5	0.43	-0.02	0.65X	-0.05	-0.08	0.24
1P6	0.83X	0.10	-0.04	0.27	0.20	0.04
1P7	0.32	-0.27	0.61	0.51	-0.20	0.04
1P8	0.67X	0.06	0.26	0.21	-0.13	0.36
1P9	0.15	-0.20	0.78X	-0.04	0.05	-0.19
1P10	0.17	0.07	0.40	0.17	0.19	0.78X
1P11	0.90X	-0.03	0.10	0.19	0.16	-0.04
1P12	0.15	-0.37	-0.21	-0.11	-0.11	0.76X
1P13	0.34	0.06	0.31	0.48	-0.45	0.21
1P14	0.32	0.81X	-0.04	0.12	0.06	-0.09
1P15	0.15	-0.83X	0.22	-0.13	0.15	0.05
1P16	0.15	0.05	-0.11	0.87X	0.20	0.04
1P17	0.79X	0.15	0.25	0.18	-0.02	0.24
1P18	0.27	0.28	0.36	0.61X	0.08	0.26
1P19	0.05	0.02	0.81X	0.14	0.00	0.13
1P20	0.74X	-0.19	0.40	0.08	0.16	0.21
No. of Defin Sorts	5	2	3	3	1	2
% Variance Explained	36	14	9	7	7	5
% Variance Cumulative	36	50	59	66	73	78

Note. Factor loadings (> 0.50) are bolded and marked with an X to indicate defining for each factor.

A description of each factor viewpoint follows.

Factor 1: Philosophers

Factor 1 had an Eigenvalue of 7.24 and accounted for 36% of the variance. Five participants were statistically significantly associated with Factor 1. They were all males ranging from 25–54 years of age and had used Field of Hope resources in their classrooms for a variety of two to four years. Four resided in the Northern Region of Uganda, while one resided in the Eastern Region.

A person who aligns with the *philosopher* viewpoint prioritizes knowledge (24: +4) as the key to all success. They agree that “with knowledge, you can create anything” (1P6), including financial security (18: +3) and career success (17: +2). They also agree on the

importance of maintaining the religion (2: +3), language (22: +1), greetings (12: +1), traditions (9: 0), and customs (4: 0) of their culture when learning. *Philosophers* are realistic and practical; they see no sense in disrupting the learning process with unnecessary holiday leave (13: -4), entertainment (15: -3), or excessive stories (25: -2). They agree that politics are used for personal advantage rather than societal gain and, therefore, have low regard for the impact of political systems (1: -3) on culture or education (see Table 4).

Table 4*Distinguishing Statements for Factor 1: Philosophers*

N	Distinguishing Statement	Array Positi	z Sco
	Religion		1.38
	Language		0.74
	Stories		-1.41
	Political Systems		-1.79

Note. Distinguishing statements are significant at the $p < 0.05$ level, indicating that this factor represented a significantly unique perspective when compared to other factors.

Factor 2: Visionaries

Factor 2 had an Eigenvalue of 2.76 and accounted for 14% of the variance. Two participants were statistically significantly associated with Factor 2. They were both males ranging from 35–44 and 45–54 years of age. Both participants were teachers residing in the Northern Region of Uganda and had used Field of Hope resources in their classrooms for a variety of two to three years.

A person who aligns with the *visionary* viewpoint prioritizes career success (17: +4) in learning. They believe that “with no job or skill to perform, you are not meeting human needs” (1P14), so they seek to integrate modern technology (5: +3) and inventions (14: +1) into their instruction. *Visionaries* take concern for the way exclusive processes work together and tend to focus on the global impacts of laws (7: +3), economies (3: +2), and trade (20: +1). *Visionaries* recognize the role of customs (4: 0) in creating a learning environment that is relevant to students, but they do not go out of their way to bring cultural elements such as language (22: -4), greetings (12: -3), or traditions (9: -3) into the classroom. While they are not regarded as critically important to the learning process, entertainment (15: 0) and holidays (13: 0) are still recognized to have a place in education by *visionaries* (see Table 5).

Table 5*Distinguishing Statements for Factor 2: Visionaries*

N	Distinguishing Statement	Array Positi	z Sco
	Holidays/Vacation	0	0.38
	Entertainment	0	0.00
	Traditions	-3	-1.79
	Greetings	-3	-1.79
	Language	-4	-2.38

Note. Distinguishing statements are significant at the $p < 0.05$ level, indicating that this factor represented a significantly unique perspective when compared to other factors.

Factor 3: Harmonists

Factor 3 had an Eigenvalue of 1.84 and accounted for 9% of the variance. Three participants were statistically significantly associated with Factor 3. They were one female, ranging from 45–54 years of age, and two males, ranging from 25–34 years of age. All three participants were teachers who had used Field of Hope resources in their classrooms for a variety of one to three years. They resided in the Northern and Central Regions of Uganda.

A person who aligns with the *harmonist* viewpoint prioritizes collectiveness as a value for learning. They place high importance on building community (10: +2) and a supportive human environment (6: +3). They view greetings (4: +4) as “the genesis of everything” (1P19) and believe that knowledge (24: +3) is best acquired through unified, positive interactions. The communal mindset of *harmonists* can be further observed in their acknowledgment of family (26: +1), leadership (8: 0), and social class (27: 0) impacting the learning process. While they hold the functions of community in high regard, they do not focus their educational efforts on the restriction of laws (7: -2) or political systems (1: -4) because they agree that “everyone is the same in the community” (1P5) no matter their political affiliation. Additionally, *harmonists* recognize the potential for careers (17: 0) to improve an individual’s quality of life, but they do not emphasize personal finances or income (18: -3) when learning (see Table 6).

Table 6

Distinguishing Statements for Factor 3: Harmonists

N ^o	Distinguishing Statement	Array Positiv	z Score
	Greetings	4	2.31
	Laws	-2	-0.81
	Personal Finances/Income	-3	-1.51
	Political Systems	-4	-2.51

Note. Distinguishing statements are significant at the $p < 0.05$ level, indicating that this factor represented a significantly unique perspective when compared to other factors.

Factor 4: Humanitarians

Factor 4 had an Eigenvalue of 1.46 and accounted for 7% of the variance. Three participants were statistically significantly associated with Factor 4. They were one female, ranging from 25–34 years of age, and two males, ranging from 25–34 and 45–54 years of age. All three participants were teachers who had used Field of Hope resources in their classrooms for a variety of two to four years, and they resided in various regions of Uganda.

A person who aligns with the *humanitarian* viewpoint prioritizes initiatives that bolster the human environment (6: +4). Their regard for natural resources (21: +3) demonstrates their commitment to the sustainability and longevity of practices that integrate technology (5: +2) and inventions (14: 0) into modern practices. *Humanitarians’* consideration of the environment is not tied only to nature, but also to larger national and global environments. They place emphasis on

the impacts of economy (3: +3), political systems (1: +1), and leadership (8: +1) when learning. While they recognize the power of storytelling (25: -1) to aid the learning process, they do not stay tied to the concepts of the past. Their naturalistic mindset leads them to agree that all things take place in their own time, so they seek to learn outside the margins of symbols (23: -4), customs (4: -3), religion (2: -2), and manners (11: -1; see Table 7).

Table 7*Distinguishing Statements for Factor 4: Humanitarians*

N	Distinguishing Statement	Array Positi	z Scoi
	Human Environment	4	1.9
	Natural Resources	3	1.8

Note. Distinguishing statements are significant at the $p < 0.05$ level, indicating that this factor represented a significantly unique perspective when compared to other factors.

Factor 5: Expressive Symbolists

Factor 5 had an Eigenvalue of 1.30 and accounted for 7% of the variance. One participant was statistically significantly associated with Factor 5. They were male, in the range of 25–34 years of age. They were a teacher who had used Field of Hope resources in their classrooms for four years and resided in the Northern Region of Uganda.

A person who aligns with the *expressive symbolist* viewpoint prioritizes modes of communication as the synthesis of learning. They recognize language (22: +1) as the foundation of education because “without language, learning cannot take place” (1P4). *Expressive symbolists* also take a uniquely supportive stance on the importance of symbols (23: +2) as a cultural tool for learning. While their delight in human expression might hint at a collectivist mindset, they view community (10: -2), customs (4: -1), traditions (9: -1), and ethics (28: -1) as having a diminished impact on the learning experience. *Expressive symbolists* place low emphasis on luxuries when learning, as indicated by their low prioritization of entertainment (15: -4), holidays (13: -3), and inventions (14: -3; see Table 8).

Table 8*Distinguishing Statements for Factor 5: Expressive Symbolists*

N	Distinguishing Statement	Array Positi	z Scoi
	Technology	0	0.00

Note. Distinguishing statements are significant at the $p < 0.05$ level, indicating that this factor represented a significantly unique perspective when compared to other factors.

Factor 6: Traditionalists

Factor 6 had an Eigenvalue of 1.07 and accounted for 5% of the variance. Two participants were statistically significantly associated with Factor 6. They were one male, ranging from 35–44 years of age, and one female, ranging from 25–34 years of age. Both participants were teachers who had used Field of Hope resources in their classrooms for two years, and both resided in the Northern Region of Uganda.

A person who aligns with the *traditionalist* viewpoint prioritizes the fundamentals of conventional Ugandan culture. They view family (26: +4) as the ultimate priority and motivation in learning. They believe knowledge (24: 0) rests in the middle of modernization and traditional culture. *Traditionalists* honor culture through their emphasis of community (10: +3), traditions (9: +2), customs (4: +2), and manners (11: +2), while placing less emphasis on modern movements for trade (20: -1), political systems (1: -1), and technology (5: -2). While *traditionalists* hold fast to their conventional beliefs, they place low priority on religion (2: -3) in the classroom because of the diversity of religious practices across cultures. Symbols (23: -4) are also held in low regard by *traditionalists* because they are viewed as a detectable but low-impact mode of learning (see Table 9).

Table 9*Distinguishing Statements for Factor 6: Traditionalists*

N ^o	Distinguishing Statement	Array Positi	z Scoi
	Traditions	2	1.2
	Knowledge	0	-0.3
	Technology	-2	-1.2

Note. Distinguishing statements are significant at the $p < 0.05$ level, indicating that this factor represented a significantly unique perspective when compared to other factors.

Similarities Among Factors

In Q methodology, consensus statements are items ranked similarly across multiple factors and, therefore, do not distinguish between any specific pair of factors (Watts & Stenner, 2012). Therefore, similarities in factor viewpoints can be observed through the ranking of consensus statements in the factor arrays (see Table 10). While the six factors described above were maintained because each represented a unique perspective held by individuals of Ugandan culture, four of the 29 statements were identified as statistically significant consensus statements. In this study, the consensus statements indicate general agreement among different factors, with all six factors generally agreeing on the neutral priorities of leadership (8) and housing (29), two factors agreeing on the neutral priority of transportation (19), and two other factors agreeing on the neutral priority of trade (20).

Table 10*Consensus Statements*

Statement	Statement	F	F	F	F	F	F
8	Leadership	0	0	1	1	0	0
29	Housing	0	-1	0	1	1	0
19	Transportation	-1	1	0	-1	-1	0
20	Trade	-1	1	-1	0	1	-1

Conclusions

Six dominant viewpoints emerged by Ugandan agricultural educators when engaging with Field of Hope teacher resources and can be described as *philosophers*, *visionaries*, *harmonists*, *humanitarians*, *expressive symbolists*, and *traditionalists*. Similarities among the six viewpoints can be observed through their rankings of leadership, transportation, and trade, although not all six factors held consensus with each of these statements. Therefore, we conclude that each of the six factors represented a unique perspective, each with its own set of cultural priorities.

The emergence of unique factor perspectives supports Schwartz's (2006) observation that culture is a construct that cannot be directly observed. Rather, culture is a complex construct that informs and transforms society over time. As one participant stated, "Culture is the norms that bind a group of people, or tribe, to each other. Each group has a unique culture that informs everything from their behavior to their language" (1P4). Therefore, this study supports previous research that describes the evaluation of an average individual in a society as an insufficient approach to studying culture (Witte et al., 2020). In this study, no two participants sorted the Q set in the same way, indicating that individuals of a seemingly similar culture can carry different perceptions of cultural priorities. Additionally, this suggests that there is no "average" member of any given society because viewpoints can vary greatly, even across individuals who share close organizational and cultural affiliations.

Teachers played a role in conveying cultural beliefs, norms, and values to the next generation. Several teachers described the actions they have taken to modify Field of Hope's resources to match the experience of their students, which included telling stories, using local (tribal) language, and referencing regional agriculture. This supports previous research identifying education as a cultural process (Kana'iaupuni et al., 2010) and emphasizes the importance of educators in the successful development of students (Sianturi et al., 2018).

Implications, Recommendations, and Discussion

With the expansion of secondary education offering the greatest opportunity for increased agricultural productivity in developing nations (Nguyen, 1979), we recommend that scholars, practitioners, and educators working in international development tailor their resources to fit the culture of the audience they hope to reach. Considering the role of both framing and culture in the adoption of new information (Communication Studies, 2022; Lam, 2020; Masambuka-Kanchewa et al., 2020), the successful mobilization of educational resources in developing nations is highly dependent on framing resources in the cultural context of the target audience. This is evidenced in the exemplary statements of teachers who agreed that they used Field of Hope teacher resources because they are relevant to the values, beliefs, and lifestyle of Uganda. In doing so, teachers transmit both societal culture and their personal cultural preferences to students through their unique teaching style and understanding of their culture.

For curriculum designers and practitioners in similar roles, we recommend conducting a cultural analysis when designing materials for classroom instruction, especially if the resources are designed for use in a cultural setting different from where they were developed (Kana'iaupuni et al., 2010). International educators should tailor their instruction to share local

knowledge through relevant stories, language, and resources. These educators should also consider the impact of “outsider” knowledge on the implementation of regionally relevant practices (Masambuka-Kanchewa et al., 2020) to ensure new knowledge does not hinder sustainable agricultural development. Entities seeking to increase agricultural productivity in developing countries should perform needs assessments that consider regional cultures and resources prior to project implementation. Similarly, being the primary benefactor in this study, we recommend Field of Hope continue to explore the actions necessary to provide partnering teachers with culturally relevant materials. Additionally, we recommend Field of Hope consider training teachers on the benefits of integrating relevant culture into learning as indicated by the literature (Kana’iaupuni et al., 2010; Sianturi et al., 2018) and offer practical methods for culture-based classroom instruction. Educators should be aware of the diverse cultures represented in their classrooms and should take the initiative to integrate regional culture into routine instruction.

Future research should continue to explore the impact of culture on the adoption of agricultural resources and practices in developing nations. Additionally, future research should evaluate the impact of Field of Hope teacher resources on increasing human capital, adult literacy rates, and/or student enrollment in post-secondary programs for youth in Uganda. Future research should also explore the impact of generational differences between students and teachers on culture-based education. Finally, Chong and Druckman (2007) observed that people are most susceptible to framing in early stages of learning, so future research should consider the impact of culture on early frame formation in an educational setting.

References

- Aker, J. C. (2011). Dial “A” for agriculture: A review of information and communication technologies for agricultural extension in developing countries. *Agricultural Economics*, 42(6), 631–647. <https://doi.org/10.1111/j.1574-0862.2011.00545.x>
- Appleton, S., & Balihuta, A. (1996). Education and agricultural productivity: Evidence from Uganda. *Journal of International Development*, 8(3), 415–444. [https://doi.org/10.1002/\(sici\)1099-1328\(199605\)8:3%3C415::aid-jid396%3E3.0.co;2-9](https://doi.org/10.1002/(sici)1099-1328(199605)8:3%3C415::aid-jid396%3E3.0.co;2-9)
- Benford, R. D., & Snow, D. A. (2000). Framing processes and social movements: An overview and assessment. *Annual Review of Sociology*, 26(1), 611–639. <https://doi.org/10.1146/annurev.soc.26.1.611>
- Birks, M., & Mills, J. (2015). *Grounded theory: A practical guide*. SAGE Publications, Inc.
- Chong, D., & Druckman, J. N. (2007). Framing theory. *Annual Review of Political Science*, 10(1), 103–126. <https://doi.org/10.1146/annurev.polisci.10.072805.103054>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications, Inc.

- Communication Studies. (2022). *Communication theories*.
<http://www.communicationstudies.com/communication-theories>
- Damon, A., Glewwe, P., Wisniewski, S., & Sun, B. (2016). *Education in developing countries: What policies and programmes affect learning and time in school?* Elanders Sverige AB.
<https://www.oecd.org/derec/sweden/Rapport-Education-developing-countries.pdf>
- Dewulf, A., Craps, M., & Dercon, G. (2004). How issues get framed and reframed when different communities meet: A multi-level analysis of a collaborative soil conservation initiative in the Ecuadorian Andes. *Journal of Community & Applied Social Psychology*, 14(3), 177–192. <https://doi.org/10.1002/casp.772>
- Doerfert, D., Evans, J., & Cartmell, D. (2007). Developing an international framework and agenda for agricultural communications research. *Journal of Applied Communications*, 91(3), 7–21. <https://doi.org/10.4148/1051-0834.1245>
- Farmer-to-Farmer. (2021). *Where we work*. <https://farmer-to-farmer.org>
- Field of Hope. (2021). *What we do*. <https://www.fieldofhope.org>
- Goodwin, J. N., Chiarelli, C., & Irani, T. (2011). Is perception reality? Improving agricultural messages by discovering how consumers perceive messages. *Journal of Applied Communications*, 95(3), 21–33. <https://doi.org/10.4148/1051-0834.1162>
- Hayami, Y. (1969). Sources of agricultural productivity gap among selected countries. *American Journal of Agricultural Economics*, 51(3), 564–575. <https://doi.org/10.2307/1237909>
- Hayami, Y., & Ruttan, V. W. (1970). Agricultural productivity differences among countries. *The American Economic Review*, 60(5), 895–911. <https://www.jstor.org/stable/1818289>
- Hazell, P., & Wood, S. (2008). Drivers of change in global agriculture. *Philosophical Transactions of the Royal Society B*, 363(1491), 495–515.
<https://doi.org/10.1098/rstb.2007.2166>
- Kaiser, H. F. (1958). The varimax criterion for analytic rotation in factor analysis. *Psychometrika*, 23(3), 187–200. <https://doi.org/10.1007/bf02289233>
- Kana'iaupuni, S., Ledward, B., & Jensen, U. (2010). *Culture-based education and its relationship to student outcomes*. Kamehameha Schools, Research & Evaluation.
https://www.ksbe.edu/assets/research/collection/10_0117_kanaiaupuni.pdf
- Lam, Q. K. H. (2020). Framing theory for higher education research. In Huisman, J., & Tight, M. (Ed.), *Theory and Method in Higher Education Research* (pp. 167–184). Emerald Publishing Limited. <https://doi.org/10.1108/s2056-375220200000006011>

- Leggette, H. R., & Redwine, T. (2016). Using Q methodology in agricultural communications research: A philosophical study. *Journal of Applied Communications*, 100(3), 57–67. <https://doi.org/10.4148/1051-0834.1230>
- Legro, J. W. (1996). Culture and preferences in the international cooperation two-step. *American Political Science Review*, 90(1), 118–137. <https://doi.org/10.2307/2082802>
- Lutfallah, S., & Buchanan, L. (2019). Quantifying subjective data using online Q-methodology software. *The Mental Lexicon*, 14(3), 415–423. <https://doi.org/10.1075/ml.20002.lut>
- Masambuka-Kanchewa, F., Rodriguez, M. T., Buck, E., Niewoehner-Green, J., & Lamm, A. J. (2020). Impact of agricultural communication interventions on improving agricultural productivity in Malawi. *Journal of International Agricultural and Extension Education*, 27(3), 116–131. <https://doi.org/10.4148/2831-5960.1102>
- Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Pearson Education Limited.
- Nguyen, D. (1979). On agricultural productivity differences among countries. *American Journal of Agricultural Economics*, 61(3), 565–570. <https://doi.org/10.2307/1239449>
- Schwartz, S. H. (2006). A theory of cultural value orientations: Explication and applications. *Comparative Sociology*, 5(2-3), 137–182. <https://doi.org/10.1163/156913306778667357>
- Sianturi, M., Chiang, C. L., & Au Hurit, A. (2018). Impact of a place-based education curriculum on indigenous teacher and students. *International Journal of Instruction*, 11(1), 311–328. <https://doi.org/10.12973/iji.2018.11122a>
- Smith, G. A. (2002). Place-based education: Learning to be where we are. *Phi Delta Kappan*, 83(8), 584–594. <https://doi.org/10.1177/003172170208300806>
- Smith, G. A., & Sobel, D. (2010). *Place- and community-based education in schools*. Routledge. <https://doi.org/10.4324/9780203858530>
- Stahl, G. K., Maznevski, M. L., Voigt, A., & Jonsen, K. (2010). Unraveling the effects of cultural diversity in teams: A meta-analysis of research on multicultural work groups. *Journal of International Business Studies*, 41(4), 690–709. <https://doi.org/10.1057/jibs.2009.85>
- Tisenkopfs, T., Kunda, I., & Sumane, S. (2014). Learning as issue framing in agricultural innovation networks. *Journal of Agricultural Education and Extension*, 20(3), 309–326. <http://doi.org/10.1080/1389224X.2014.887759>
- United Nations. (2021). *Least developed countries (LDCs)*. Department of Economic and Social Affairs. <https://www.un.org/development/desa/dpad/least-developed-country-category.html>

- United Nations. (n.d.a). *The sustainable development agenda*.
<https://www.un.org/sustainabledevelopment/development-agenda/>
- United Nations. (n.d.b) *The 17 goals*. <https://sdgs.un.org/goals>
- U.S. Agency for International Development (USAID). (2021). *Feed the future*.
<https://www.feedthefuture.gov>
- Valenta, A. L., & Wigger, U. (1997). Q-methodology: Definition and application in health care informatics. *Journal of the American Medical Informatics Association*, 4(6), 501–510.
<https://doi.org/10.1136/jamia.1997.0040501>
- Watts, S., & Stenner, P. (2012). *Doing Q methodological research: Theory, method and interpretation*. Sage Publications. <https://doi.org/10.4135/9781446251911>
- Witte, E. H., Stanciu, A., & Boehnke, K. (2020). A new empirical approach to intercultural comparisons of value preferences based on Schwartz’s theory. *Frontiers in Psychology*, 11(1), 1–18. <https://doi.org/10.3389/fpsyg.2020.01723>