

Competencies Needed by Graduates of Agricultural Communications in Mali: Implications for Developing Countries

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Abstract

Competencies needed by agricultural communications graduates to meet the needs of the agricultural sector are key factors for promoting agriculture and food security in a developing country such as Mali. Several studies have been conducted about agricultural communications curricula in North American higher education institutions but few findings exist that describe African universities. The aim of this study was to fill that gap and provide a basis on which policymakers and educational leaders could establish agricultural communications as a field of study at universities in the Republic of Mali and in similar developing countries. This study was done to determine the coursework and competencies required in preparing agricultural communications undergraduates in Mali. Using the Borich (1980) needs assessment approach, the construct with the highest Mean Weighted Discrepancy Score (MWDS), which indicated the most important area for curriculum development for an agricultural communications program, was “Layout and editing.” In contrast, “Malian agriculture” was rated the least important area for curriculum development. Based on the findings of this study, a curriculum of agricultural communications for universities in Mali should be developed in six areas: layout and editing, broadcasting, ethics, knowledge of agriculture, use of technologies, and writing.

Introduction/Conceptual Framework

The Republic of Mali is a landlocked country in West Africa. Agriculture is the backbone of Mali’s economy (Central Intelligence Agency [CIA], 2013). The Food and Agriculture Organization (FAO) (2011) reported Mali remains one of the poorest countries in the world. However, since 1992, the country has made

administrative, political and economic advances. At the political level, Mali changed from a dictatorial military regime to a successful democracy. Mali is undergoing significant economic reform currently, which is showing progress by increasing economic growth. Reforms in agriculture, food security, environment and education are also ongoing (Government of the Republic of Mali, 2013; USAID, 2003).

Of note, Mali underwent a military *coup d’état* in March of 2012 (Nossiter, 2012). Thereafter, significant military conflict occurred in the Northern regions primarily involving separatist Tuareg rebels and Islamic Jihadists (Leymarie, 2012). In January of 2013, military forces of France and several African countries entered Mali to assist its government with ending the conflict and reestablishing peace and stability (Hirsch, 2013). These events notwithstanding, Mali’s agricultural sector and its citizens still stand to benefit significantly from a well-prepared and professional cohort of agricultural communicators, as implied by this study.

The economic development of Mali is strongly dependent on agriculture, which constitutes the most important contributor to the country’s gross domestic product (GDP) (CIA, 2013). Agriculture engages more than 80% of Mali’s labor force; despite its vital role, however, agriculture in Mali remains poorly developed (CIA, 2013). Millions of rural Malians are vulnerable to severe poverty, hunger and food insecurity (CIA, 2013). The government recently passed legislation to promote agriculture in the framework of a poverty reduction strategy. This legislation includes investment in the agricultural sector, training of human capital, communications and community-based development programs (Ministère de l’Agriculture, 2013). However,

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formal preparation of agricultural communicators in Mali is nearly non-existent (Ouedraogo, 2008).

By contrast, agricultural communications (AGCM) is an essential education unit in many land-grant universities in the United States (Boone, et al., 2000). The Morrill Act of 1862 established the land-grant institutions in the United States (Herren and Edwards, 2002). The mission of land-grant universities encompasses teaching, research and extension to promote and advance the agricultural sector and this is due to the enduring impacts of the Morrill Act of 1862, the Hatch Act of 1887 and the Smith-Lever Act of 1914 (Herren and Edwards, 2002). These institutions of higher education aimed to provide individuals with access to higher education, regardless of a person's wealth or social status, by educating and training professionals for careers in the agricultural sector (Herren and Edwards, 2002).

In the United States, prior to the advent of agricultural communications, farmers received information solely by word of mouth (Boone et al., 2000). Boone et al. (2000) wrote that the first publications on agriculture appearing in the United States originated from Europe. The first American agricultural periodical, titled "The Agricultural Museum," was published in 1811 (Boone et al., 2000). The United States Congress published its first agriculture-related information in 1828 (Boone et al., 2000).

Tucker et al. (2003) asserted that the early professionals who pioneered agricultural communications were not only outspoken leaders within the new profession but were also national leaders of agriculture. Burnett and Tucker (1990) described that, in the 1900s, the agricultural communications craft evolved into a highly competitive industry requiring the knowledge of business and journalistic skills as well as farming. In 1983, Kearl stated agricultural communications had been a professional field in the United States for about 100 years.

In addition, early agricultural communicators worked to change the stereotypical image of agriculture by using public relations (Kearl, 1983). However, despite the growing changes in communications methods through word of mouth, courses in agricultural communications in the United States were not offered before the early 1900s (Buck and Paulson, 1995). Agricultural communications developed when scientists needed help in responding to questions and information requests from agricultural producers (Kearl, 1983).

Duncan (1957) indicated that the first courses of agricultural communications were offered at Iowa State University. Newly opened schools of journalism at some universities offered agricultural communications courses by journalists from the private media sector (Tucker et al., 2003). Agricultural communications

programs have continued to train professionals for communications and journalism careers and agricultural education departments typically host these programs (Reisner, 1990; Weckman, et al, 2000). Moreover, Cartmell and Evans (2013) concluded that agricultural communications curriculum should include learning experiences for students to master journalistic skills such as writing, broadcasting and reporting.

Agricultural communications programs continue to attract a relatively small but steady number of students interested in this field (Cooper and Bowen, 1989; Doerfert and Cepica, 1991; Wargo, 1993). Reisner (1990) stated that undergraduate degrees in agricultural journalism and agricultural communications were conferred at 26 universities across the United States in 1988. Doerfert and Cepica (1991) reported that more than 30 agricultural communications programs existed in the United States in the early 1990s. USDA (2011) reported that 1,500 students were pursuing agricultural communications degree-programs in land-grant universities in the United States. Among them, 130 students were seeking graduate degrees. Terry and Bailey-Evans (1995) found agricultural communications programs continued to emerge while both agriculture and new technologies were advancing. Today, more than 45 U.S. colleges and universities are offering agricultural communications/journalism programs (Cartmell and Evans, 2013).

Numerous Malian farmers are illiterate, yet they desperately need information and communication to organize, manage and market their enterprises (Ouedraogo, 2008). Despite the important role of agriculture in the economy (CIA, 2013), Mali does not have agricultural communications programs in its higher education institutions (Ouedraogo, 2008). According to Ouedraogo (2008), the lack of training of agricultural communicators in Mali results not only in the poor quality of media services to this sector but also a dearth of innovation in media programs for the same.

Agunga (1993) defined six major roles that communicators have to play in the developing world: advising governments on communication policy; assisting project managers in designing and implementing communication strategies; mobilizing and training community groups and individuals for participatory decision-making; training extension workers in communication skills; promoting coordination and linkages among development agencies; and producing of multimedia and audiovisual aids. Leaders of agricultural schools in higher education in Mali need to develop a curriculum appropriate for AGCM that meets the needs of and offers job opportunities to their graduates (Ouedraogo, 2008). Sprecker and Rudd (1997) asserted that determining the competencies needed by agricultural communicators

would help faculty design curriculum enabling graduates to be competitive in the market place and successful in their chosen careers. In addition, Cartmell and Evans (2013) recommended involving all partners in the teaching and development of curriculum, i.e., agricultural communications students, faculty, researchers and communication practitioners.

This study was based conceptually on the Human Capital Theory (HCT). Sampson (2001) defined HCT as an investment in people. van Loo and Rocco (2004) stated that the development of human capital “is an . . . investment in [the] skills and knowledge” (p. 99) needed by individuals such that they can contribute to society. This investment is used to build the capacity of employees with the expectation of increasing their productivity (van Loo and Rocco, 2004). Proponents of HCT maintain that education and training are the most valuable investments to make in people (Cornachione and Daugherty, 2008). “*Human resource development is the process of increasing the knowledge, the skills and the capacities of all people in a society*” (as cited in Cornachione and Daugherty, 2008, p. 17). Smith (2010) posited it is important to assist individuals in acquiring skills that are “sector specific, i.e., sector-specific human capital” (p. 42) to prepare people for specific jobs. Sweetland (1996) indicated human capital studies can be understood as three major methodological approaches, i.e., the production function approach, the measurement of return approach and the aggregate accounting approach. This study of how to prepare human capital in AGCM for the Republic of Mali exemplifies the “production function approach,” as described by Sweetland (1996, p. 353).

Purpose and Objectives of the Study

The study’s purpose was to determine the competencies needed by university graduates for employment in the AGCM sector of Mali, as perceived by media professionals. Two objectives guided this study:

1. Describe the personal and professional characteristics of media professionals in Mali;
2. Determine the competencies needed by university graduates of AGCM in Mali.

Materials and Methods

The study’s target population was media professionals in Mali. The researchers used the snowball sampling technique. In snowball sampling, the researcher asks respondents to identify others possessing the necessary attributes to become part of the sample (Creswell, 2008). The study’s online questionnaire was sent by electronic mail to a list of 27 media professionals who were asked to complete the questionnaire and forward it to their

journalist colleagues. Any journalist who completed the instrument became a part of the sample.

A panel of experts, consisting of five faculty members in the Department of Agricultural Education, Communications and Leadership at Oklahoma State University, reviewed the instrument for content and construct validity. The questionnaire was reviewed and modified according to the comments and suggestions made by the panel of experts. A pilot test was not conducted because of time constraints. However, a post hoc test was conducted to establish reliability of the instrument. The researchers calculated Cronbach’s alphas for the eight constructs (Table 1) and achieved an overall Cronbach’s alpha of .80. The Oklahoma State University Institutional Review Board approved the study’s protocol and all participants provided written informed consent prior to participation in the study.

The questionnaire included eight constructs consisting of seven items each. Media professionals rated their levels of importance and competence for the items. The scale included five anchors: “none,” “low,” “moderate,” “high,” and “very high.” An overall mean score was calculated for each skill construct. The Borich (1980) needs assessment model was employed to analyze the importance and competence skill constructs. This model determines the existence of discrepancies (Borich, 1980). First, a discrepancy score for each of the eight skill constructs was calculated by subtracting the mean importance rating from the mean competence rating. Then, a weighted discrepancy score was calculated for each of the skill constructs by multiplying the discrepancy score by the mean importance rating for each skill construct. Finally, a mean weighted discrepancy score (MWDS) was calculated for each skill construct by dividing the sum of the weighted discrepancy scores by the number of participants in the study (n=26). According to Borich (1980), the purpose of ranking of the constructs based on the MWDS was to determine which curricular areas were the most important for development and teaching; in this case, in university-level AGCM programs in Mali. Waters and Haskell (1989) stated the Borich model has the merit of adding validity to the process of assessing a program’s or content area’s participants’ perceptions regarding the importance of educational and training needs.

Results

Objective one sought to determine the personal characteristics of media specialists in Mali (Table 2). More than one-half (57.7%) of the media professionals in this study were mid-career and in the age range of 36 to 45; a large majority (73.1%) were male. More than one-half (61.5%) of the participants held a master’s degree. The

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Table 1. Cronbach's Alpha by Construct Regarding the Level of Competence and Importance

Constructs	Cronbach's Alpha	
	Level of Competence	Level of Importance
Malian Agriculture	.921	.908
Agriculture	.930	.915
General Communication	.794	.920
Layout and Editing	.925	.948
Writing	.934	.937
Broadcasting	.885	.882
Technology	.920	.935
Ethics	.961	.962

Table 2. Personal Characteristics of Media Specialists in Mali (n=26)

Variables	f	%	M
Sex			
Male	19	73.1	
Female	7	26.9	
Age			
18 to 25	1	3.8	
26 to 35	7	26.9	
36 to 45	15	57.7	
46 to 55	3	11.5	
Type of Academic Degree			
High School Diploma	1	3.8	
Bachelor's Degree	7	26.9	
Master's Degree	16	61.5	
Doctoral Degree	1	3.8	
Others	1	3.8	
Number of full-time journalistic jobs held			2.33
1	3	11.5	
2	7	26.9	
3	3	11.5	
4	5	19.2	
5	2	7.7	
More than 5	5	3.8	
Number of years of experience as a journalist			4.92

average professional experience for the study's participants was almost five years (M=4.92) (Table 2) and the average number of full-time journalistic jobs held by the participants was slightly more than two (M=2.33) (see Table 2). More than one-half (57.7%) of the respondents perceived their knowledge of the agriculture, food, fiber and natural resources industry as "good." None of the journalists chose "excellent" as a response. Nearly one-half (46.2%) of the participants completed at least three courses related to agriculture during their formal education. The same percentage (46.2%) of participants could speak at least three languages and almost all participants (96.2%) agreed that a journalist in Mali should speak multiple languages to be successful (Table 3).

Objective two sought to determine the competencies needed by university graduates of AGCM in Mali, as perceived by the media professionals. The constructs were ranked from the highest to the lowest based on the MWDS (Borich, 1980). Constructs with higher scores indicated those competencies were most in need of curriculum development for agricultural communications programs at the university level in Mali. Layout and editing had the highest score (MWDS=3.09) and the lowest MWDS was for Malian agriculture (MWDS=-.155). The other constructs ranked as follows:

broadcasting (MWDS =1.95); ethics (MWDS=1.57); knowledge of agriculture (MWDS=1.52); technology (MWDS=1.13); writing (MWDS=1.10); and general communications (MWDS=.95) (Table 4).

Summary

Programs such as agricultural communications, if established in one or more universities in Mali, would not only improve the relationships between researchers and consumers of research, such as Mali's agricultural producers, but also would inform, educate and entertain, both rural and non-rural Malians, especially if focused on radio broadcasting because of Mali's low rate of literacy. According to the African Farm Radio Research Initiative (AFFRI, 2011), due to high illiteracy and poverty, numerous people in rural areas relied on radio mainly to get their news and information. In most cases, only decision-makers and the elites in major African cities have the privilege of receiving their news from television and print (AFFRI, 2011). Moreover, according to Kerr et al. (2007), in sub-Saharan countries, television is limited mostly to urban centers.

Table 3. Knowledge of Agriculture, Courses Completed In Agriculture and Number of Languages Spoken (n=26)

Variables	f	%
Knowledge of Agriculture		
Good	15	57.7
Poor	9	34.6
Courses Completed In Agriculture		
2	7	26.9
3	12	46.2
4	1	3.8
5	1	3.8
More than 5	3	11.5
Number of Languages Spoken		
2	7	26.9
3	12	46.2
4	1	3.8
5	1	3.8
More than 5	3	11.5
Journalist in Mali should speak multiple languages to be successful	25	96.2

Table 4. Mean Weighed Discrepancy Score for the Study's Constructs (n=26)

Constructs ¹	MWDS ²
Layout and Editing	3.09
Broadcasting	1.95
Ethics	1.57
Knowledge of Agriculture	1.52
Technology	1.13
Writing	1.10
General Communications	.95
Malian Agriculture	-.155

¹Knowledge of agriculture refers to the understanding of the global context of agriculture, i.e., international food and agricultural systems, global agricultural and natural resources issues.

Malian agriculture refers to the understanding of the context of agriculture in Mali, i.e., Mali's food and agricultural systems, the country's agricultural potentials and strategies, and extension services.

²Note: Scale: 0=None, 1=Low, 2=Moderate, 3=High, 4=Very High

This study generated information on potential priority areas in agricultural communications from which an appropriate university curriculum could be developed. The study's findings indicated that emphasis should be placed on the areas of layout and editing, broadcasting, technology and ethics in particular (see Table 4). Previous researchers (Doerfert and Miller, 2006) supported the inclusion of writing, editing and technology in the curriculum for undergraduate students who study agricultural communications.

Overall, the findings of this study informed the researchers on the important agricultural communications curriculum areas to be emphasized in Mali. However, more information about this phenomenon may have been discovered if time in the field and involvement with more participants, such as representatives of farmers' organizations and governmental and non-governmental agencies, had occurred. For example, researchers could collect this qualitative data through personal interviews and focus group discussions. It is recommended that the findings of this study be used as a starting point from which to develop a program of study supporting a department of agricultural communications or a special program in a school of journalism in Mali; but, additional input should be sought from other stakeholders, e.g., farmers, providers of agricultural inputs and government officials.

Conclusions

Preparation for careers in AGCM should include a solid collegiate experience and professional preparation (Boone et al., 2000). However, this will require investments in higher education and human capital development (Sweetland, 1996), including faculty members, to prepare highly qualified agricultural communicators to serve the growing agricultural sector in Mali.

A university education is a new phenomenon in Mali. The first university in Mali opened its doors in 1995, i.e., the University of Mali (Ministère de l'Enseignement Supérieur et de la Recherche Scientifique, 2011). The Malian government should consider the passage of legislation similar to the Morrill Act of 1862 (Herren and Edwards, 2002), which led to the establishment of a land-grant university in every state to serve the needs of the common people and to teach practical skills resonating with the U.S. economy. The U.S. land-grant institutions promote research, provide instruction and extend outreach and service (Herren and Edwards, 2002); such a model should be considered by developing countries. To this point, Arnold Toynbee, a distinguished British historian asserted that, "the land-grant idea is the one original contribution of American higher education" (as cited in Bonnen, 1998, p. 4) to the landscape of academia worldwide.

The newly created University of Ségou in Mali comprises four colleges, including a college of agriculture and animal science that has the mission to promote agricultural productivity in the region of Ségou in particular and to Mali in general (Ministère de l'Enseignement Supérieur et de la Recherche Scientifique, 2011). The college of agriculture and animal science is the only one that is operational at the University of Ségou currently due to its important role in the economy of the Ségou region. Ségou is the "breadbasket" region of Mali (Office du Niger, 2005) and provides much of the country's food sustenance needs. Therefore, it is recommended that this college be an educational "pioneer" by founding the first department of agricultural communications in Mali to train professional agricultural communicators to meet the communication needs of the nation's agricultural sector and its people.

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