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Information seeking behaviour patterns of family farmers and house-hold food security in Kisoga B village, Ntenjeru sub county in Mukono district, Uganda

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Abstract
The paper examines how information seeking behaviour impacts on household food security of family farmers in Kisoga B village found in Mukono District in Uganda. Data were collected from 25 family farmers who were purposively selected from a total sample population of 178 residents in Kisoga B village. The study employed focus group discussions and unstructured interview method to gather quantitative data, which was analysed using descriptive statistics and thematic analysis respectively. Findings revealed that the major farming occupations practised by farmers in Kisoga B include: animal keeping, courtyard gardening and keeping of local fowls. Animals kept included cows, pigs, goats, sheep and rabbits. The study indicated that farmers need information on weather patterns, good agricultural practices, agricultural seeds and market information and farming technologies. Farmers confirmed that they get information from fellow farmers, neighbours, close friends who are not necessarily neighbours, burial places, over the radios/ televisions while others get information from marketplaces as they go vending. Findings also reveal that information sought by farmers enables them to do timely planting, access improved seeds for planting, improve on land management, pest and diseases control and management, improved storage of seeds and other produce, improve on food processing methods, identify current prices for farm inputs among other needs. The study concludes that information is a key resource for all agricultural activities regardless of their locations, social, economic and cultural status.

Keywords: Information, seeking behaviour, family farmers, food security, Uganda.

Introduction
Agricultural information can be perceived as a fundamental element in any agricultural activity and it must be available and accessible to all farmers in order to bring the desired outcomes (Mahindarathne & Qingfei., 2018) and (Food and Agriculture Organisation, 2014). Oladele (2006) observes that the role of information in enhancing food security cannot be over emphasized as it is vital for increasing food production and improving marketing and distribution strategies. It is also an essential aspect in the practice of family farming and the basis for extension delivery (Demet-Soylu, Cevher, Schirone, & Medeni, 2016). Information also opens windows to sharing experiences, best practices, sources of financial aids and new markets for family farmers (World Vegetable Center, 2018). Additionally, family farming remains an important system of food production for mainstream people in developing

countries with a huge potential to develop further (Bates, 2018; Byamugisha, Ikoja-Odongo, Nasinyama, & Lwasa, 2008). This agricultural productivity model can improve access to food and decrease dependence on purchased food, hence ensuring stable and sustainable food supply (food security) for homes (Food and Agriculture Organisation, 2014).

In developing countries, agriculture remains central to food production, generating incomes and employment (Mahindarathne & Qingfei., 2018). However, for this farming model to thrive, farmers need the right information for them to be able to take the right decisions regarding the farming practices (Lwog, Ngulube & Stilwell, 2010). Unfortunately, there is a huge debate of how these farmers acquire useful information required for their home gardens. No wonder (Lwoga et al., 2010) note that farmers receive inaccurate information either late, biased, over or under exaggerated or even changed in meaning. As a result, family farmers end up making poor farming decisions which may lead to severe food shortages within the communities (Lwoga et al., 2010).

Agriculture entails complex decision-making that requires a vast amount of information to be gathered from various sources and channels (Mahindarathne & Qingfei., 2018). Furthermore, agricultural systems in the developing countries are becoming more knowledge-intensive than resource-intensive, thus the role of information becomes very crucial. In places where the economy is mostly based on agriculture, it is crucial to meet the information needs of farmers for national development (Meiteia & Purnima, 2009).

Although access to information by farmers is critical, many farmers in the developing world still lack access to the necessary information. For instance, according to (Meiteia & Purnima, 2009), daily information needs of farmers are not met due to several reasons like lack of infrastructure, limited manpower to disseminate information in remote areas, lack of an agricultural information centre and non-availability of proper information and communication network systems. Yet access to agricultural information influences the farming practices adopted by farmers (Thuo, 2018).

The role of information in enhancing food security cannot be over emphasized as it is vital for increasing food production and food security (Oladele, 2006). It is also an essential aspect in the practice of family farming and the basis for extension services' delivery (Demet-Soylu et al., 2016). Information also opens windows to sharing experiences, best practices, sources of financial aid and new markets for family farmers (World Vegetable Center, 2018). However, the patterns through which farmers seek information for their agricultural activities are still questioned. It has been observed that family farmers in Kisoga B mainly depend on peers and neighbours for information access. According to (Meiteia & Purnima, 2009), such means of getting information cannot be fully trusted since most of the time; the information reaches the final consumer when it's distorted (IrajRadad, Behzadi & Zadehrahim, 2016). Farmers receive information either late, biased, over or under exaggerated or even changed in meaning. As a result, family farmers end up making poor farming decisions which may lead to severe food shortages within the communities (Lwoga et al., 2010). Unless these family farmers get the right agricultural information and in detail, some communities risk losing lots of information which is useful for their daily farming lives, leaving them prone to severe household and food insecurity.

This study there seeks to establish how the information seeking patterns of family farmers in Kisoga B village impact on house hold food security. The main aim of this study is to examine how family farmers in Uganda seek information and establish food security in Kisoga B. The study was guided by the following questions: What agricultural information is needed by farmers in Kisoga B village? how do family farmers in Kisoga B seek for information to satisfy their agricultural

information needs? what barriers do family farmers in Kisoga B face when acquiring relevant information and what are possible ways of enhancing family farmer's information acquisition?

Review of related literature

Information seeking behaviour is a broad term encompassing the ways individuals articulate their information needs, seek, evaluate, select and use information (Gebru, Yared & Gebremichael, 2017). According to Pettigrew (1996), information-seeking behaviour involves personal reasons for seeking for information, the kinds of information which are being sought and the ways and sources with which needed information is being sought. Information seeking behaviour is purposive in nature and is an outcome of a need to satisfy some objectives. In the course of seeking, the individual may interact with people, face to face or electronically. Thus, the individual recognizes an inadequacy in his/her knowledge that needs to be resolved in order to deal with a problem, which then results in information seeking behaviour (Wilson, 2000). Farmers search information to making an important decision, the farmer will devote time and effort to collect information, considering the alternatives and selecting the best option, in order to minimize the risk of getting it wrong; this process is known as complex decision making (Babu, Glendenning & Asenso, 2011).

There have been some studies on information-seeking behaviours in in the world. In an early study, Barron and Curran (1979) assessed the general information needs of residents in the rural South and produced guidelines for rural library personnel so that the planning of library services could meet the information needs of the users. Cheunwattana (1998) noted that the majority of the rural population in developing countries are poor and illiterate and are economically and socially disadvantaged and their information needs have not been receiving much attention. Still, a number of research studies have been carried out on the information needs of rural communities in these countries. In Africa, the first research attempt was made in 1982 when an experimental library project was set up in a village near Ibadan, Nigeria, for the non-literate community to gain insight into their perceived information needs and those of which they were unaware (Aboyade 1984).

Mchombu (1992, 1995) carried out two most notable studies on information needs for rural development in Malawi, Botswana, and Tanzania. These needs included information on income generation, community leadership, literacy support, basic economics, and government policies on rural development, soil conservation, fertility restoration, and soil erosion. In another study, Momodu (2002) studied the information needs and information-seeking behaviour of rural dwellers in Nigeria. He identified several information needs, i.e. agricultural information such as where to purchase fertilizer and how to use it; information on pesticides, processing of farm produce; health information as where one could obtain the best treatment and medicine for tuberculosis, cancer, etc.

Information has consistently been a significant element in the development of human society and has shaped over a long period of time the way in which we think and act (Meyer, 2005). Information is crucial for increasing agricultural production and improving marketing and distribution strategies (Oladele, 2006). It enables farmers to make informed decisions regarding production and marketing and managing their lives successfully to cope with everyday problems and to realize their opportunities (Matovelo, 2008; Idiegbeyan-ose Jerome and Theresa, 2009). As discussed by Aina et al (1995), information has a vital part to play in improving and sustaining agricultural production of any country or nation. Similarly, Ochieng (1999) asserts that access to information is vital for empowering individuals to make informed decisions or take action for them or for community development.

In a study by Ikoja-Odongo and Ocholla (2003) on information need and information-seeking behaviour of artisan fisher folk of Uganda, it came out that there were more men fisher folk than women and their education level was found to be low. Most of the fishermen in this study gained their skills through experience and apprenticeship. According to Ikoja-Odongo and Ocholla (2003), some 53.3% of the fisher folk kept records of their business activities. Those who did not keep records argued that it was unnecessary. They also argued that the fishing business was seasonal, that they earned little, and therefore there was no good reason to keep records. Some participants even questioned the rational of keeping records when one could rely on memory.

Methodology

This study employed a case study research design with a qualitative research approach. Kisoga B was selected because of its strategic location on the periphery on Mukono Town and its economic activities. Respondents were purposeful selected. This technique was deemed cost-effective and appropriate because only a part of the population that has vital knowledge and taking part in farming activities in the area of study were sampled. Using this technique, the local farmers were selected purposefully for the study because they are constantly seeking information for use in agriculture. Data were collected by engaging participants in two focus group discussions of seven participants in each group supplemented by two un-structured individual interview rounds of key informants who included agricultural extension officers, women leaders and elders. In respect of the ethical issues, permission to conduct the research was sought from the study site, in Kisoga B village. During the data collection, the principle of honesty was observed and whereby works of other people cited in the research have been properly be acknowledged and the finding reflected the originality of data collected from the field. The researchers also sought the respondents' consent to be part of the study by informing them what the study will be all about as well as assuring them of their right to participate or not to participate in the study. The respondents were also informed of their right to withdraw from the study before their responses in the study. The focus groups consisted of farming household heads who were purposively selected from a total population of 178 residents in Kisoga B village, Ntenjeru sub county, Mukono District. Focus group discussions were conducted in the evenings around the socialization places, particularly local drinking places. This was deemed appropriate because after a day's hard work in the gardens, farmers normally meet in local drinking places in the trading centre to socialize with their colleagues. The interviews were conducted in morning hours between 8:00 am to 12:00 noon with individual farmers either at their homes or in the gardens. The focus group discussions and interviews were developed to understand their feelings, beliefs, opinions and attitudes on information seeking and its barriers. The data were analysed thematically.

Research findings

Farming occupations practised by the farmers

Farmers were asked to mention the farming occupations they practised. Findings revealed that the major farming occupations practiced include animal keeping, courtyard gardening and keeping of local fowls. Animals kept included cows, pigs, goats, sheep and rabbits. Courtyard gardening included growing of mainly food crops like cassava, millet, matooke, maize, ground nuts, vegetables, rice, pumpkins, sweet potatoes, yams and sorghum as well as fruit plants such as oranges, mangoes,

avocadoes, guavas, water melons and lemons. Local birds kept included hens, turkeys, ducks, pigeons, jean fowls. Findings from the focus group discussion further revealed that the majority of the farmers practice both court-yard gardening and keeping of local fowls, while others carry out a combination of animal keeping, courtyard gardening and rearing of local birds. It was noted that it is very easy for farmers to carry out more than one farming activity on the same piece of land mainly because such a form of farming is strictly on a small scale. Some farmers do both animal husbandry and courtyard gardening while only two of the farmers reported that they do strictly courtyard gardening and animal husbandry. No farmer reported to be doing only local birds' keeping, meaning that poultry keeping is not entirely dependable in Kisoga.

Plate 1: Focus group discussions with family farmers in Kisoga Village.
Source: Field Survey, 2020

Types of Agricultural Information needed by farmers

According to the findings, farmers indicated that they need information on weather patterns. This is an indication that farmers plant crops according to the predicted weather patterns and climatic changes envisaged. Other categories in agricultural information needed by farmers include information on sensitization of good agricultural practices, information on both agricultural seeds and market information and for information on farming technologies. On the other extreme opposite of findings, two farmers noted that they seek information about weed control and management, soil fertility management, fertilizers, information on food processing and preservation and food produce transportation.

Plate 2: A section of elders participating in a focus group discussion.
Source: Field Survey, 2020

Source of Information obtained by farmers

According to the findings, farmers get information from fellow farmers, neighbours, close friends who are not necessarily neighbours, burial places, over the radios / televisions while others get it from marketplaces as they go vending. Some farmers noted that they obtained information from cooperative societies and health centres as they go for treatment. Farmers who got information from health centres conceded that they normally consult fellow patients when they go for treatment at the health facilities. This clearly means that farmers majorly acquire information through oral means.

Plate 3: A public radio set in a local drinking place in Kisoga trading centre
Source: Field Survey, 2020.

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One respondent had this to note:

For me I use my own knowledge which I got from the seminary where I attended training. I also regularly listen to radio and watch television which has programs about farming and agriculture. This has helped me to learn new and recent farming practices. My friends in the community also provide me with what they acquire when they move to different places. Others have been in the agricultural sector for long so they have a lot of experience.

Therefore, the major information seeking behaviour of farmers in Kisoga is through oral means of communication. This is done through casual conversations they have with different people at different places such as burial places, markets, places of worship among others. Sharing experiences and practices in communication by the farmers is very democratizing in that participants gain a better understanding of the conservation because these dialogues are normally done and transmitted in local languages. For example, farmers who got information from health centres conceded that they normally consult fellow patients when they go for treatment at the health facilities. It was noted by a farmer that:

> *…we search this information from our friends and neighbours because the agricultural extension officers are very few in this area. But in most cases, we get the information from the radios using our phones or public speakers in a market or drinking place such as those speakers you see*

Plate 4: Farmers socializing in a local market in Kisoga village.
Source: Field Survey, 2020

Usefulness of information

Findings revealed that farmers the information sought has helped them to do timely planting, access improved seeds for planting, have improved land management, pest and diseases control and management, improved storage of seeds and other produce, improve on food processing methods, identify current prices for farm inputs while others have utilized it to improve on soil fertility management. Furthermore, another farmer noted that the information she obtains is used for irrigation purposes especially during the dry seasons. She noted that:

... Each season I plant vegetables such as sukuma wiki, carrots, tomatoes and egg-plants which require minimal labour. But the most disturbing time is when rains are scarce. I therefore endeavour to look for the necessary equipment for irrigation. I normally hire irrigation pumps from farmers who have them. However, I am planning to have my own irrigation pond dug so that i minimise the costs. I also look for information on access to and making of local fertilizers.

Another farmer noted that:

…carrying out irrigation of my plants has helped me to stay financially stable. I am assured of a good harvest throughout the year. Thanks for my good relationship with my fellow farmers. They normally help me with information about availability of irrigation equipment within our area.

Furthermore, farmers noted that the information sought has been useful in areas such as access to farm labour, ready markets, improving harvesting methods, access to credit facilities, improvement on their food security and food production.

I mainly use radio and television to get farming agricultural information. There are very informative programs like Omulimu, Nwyezaenkumbi, amakunkula aired on local Radio and Television. Sometimes I also consult my neighbours who practice different forms of farming and extension agents.

Barriers faced by farmers in accessing information

The farmers were asked to freely indicate any challenges they faced in accessing information. Findings reveal farmers mentioned lack access to public extension services, lack of awareness of information sources, lamented about poor locations either far or not easy to access, and have inadequate funds to buy the required farming in put while it was also noted that some farmers are still resistant to change. Furthermore, the respondents indicated that selfishness among the fellow farmers is still a barrier, the nature of small-scale farming they do is still a problem, lack trust in the information sources, lack of assistive technologies such as phones and radios while others noted that poor/low education levels hindered their ability to access information.

Discussion of findings

Major farming occupations practiced by the smallholder farmers in Kisoga B village

Responses from the farmers indicated that they prefer practicing the three farming activities of animal keeping, courtyard gardening and keeping of local fowls. Animals kept included cows, pigs, goats, sheep and rabbits. Based on the study findings, courtyard gardening is very common and farmers grow mainly food crops like cassava, millet, matooke, maize, ground nuts, vegetables, rice, pumpkins, sweet potatoes, yams and sorghum as well as fruit plants such as oranges, mangoes, avocadoes, guavas, water melons and lemons within the short distances from their houses. In addition, they also keep local birds such as hens, turkeys, ducks, pigeons and jean fowls.

Worth noting is that farmers prefer keeping local birds alongside other farming activities. It is believed that poultry keeping alone is not entirely dependable in Kisoga B. This finding is similar to Shehu et al., (2013) who noted that backyard gardening and animal keeping were common farming practices. However, Shehu et al., (2013) only note that a substantial number of farmers kept indigenous chicken while livestock mainly cattle, pigs, sheep and goats are, also, reared. They do not demonstrate the fact that poultry keeping is not really dependable and preferred by farmers. The rearing of indigenous chicken contributes significantly to food security of the rural livelihood.

Channels where the farmers seek their information

Evidence from the study findings show that the majority of the farmers prefer obtaining their information from fellow farmers especially those who carry out the same agricultural activities. This is done throughout the season and information is sought regarding all farming activities. Additionally, the farmers seek information from the neighbours and friends who are not necessarily neighbours are vindicating the fact that information is sought from trusted sources. Little information is obtained from extension workers and cooperative societies. This has been attributed to the fact that there is scarcity of extension services to the farmers and demise of cooperative societies. The findings differ from those of Adebayo and Oladelf (2013) who indicated that the chief sources of information for farmers are extension agents. However, Adebayo and Oladelf (2013) agrees with the rest of the findings which indicate that family farmers contact their neighbours, farmers' organization and friends.

Results also show that the respondents' information seeking behaviour is largely informal. Furthermore, these findings are in line with a study by (FAO, 1997) which revealed that fellow farmers, neighbours and farmers' cooperative society are used as preference sources of information used by farmers in accessing agricultural information. Ogboma (2010) also noted the sources of information used by farmers were personal experience, workshops and seminars, training, friends and neighbours, Ministry of Agriculture, magazines of agriculture and extension workers.

Mobile phone usage in third world countries is playing a vital role for the enhancement of farmers' business towards agriculture. Farmers in Kisoga B appreciate mobile phones as an easy, fast and convenient way to communicate and get prompt answers of their respective information needs. This finding is in line with Chhachhar and Salleh (2013) who noted that nowadays, the mobile phone has generated an opportunity for the farmers specially to get the information about marketing and weather. Through this important technology, farmers directly keep in touch with market personals and offer their produce with reasonable prices. The use of mobile phones also keeps them aware of weather forecasts for agriculture input applications like fertilizer and pesticides which might be affected by unforeseen seen disasters as communicated by the meteorological department. This device has given new direction and approach to farmers to communicate directly and share about recent advances with each other. The findings also show that mobile phones have saved energy and time of farmers and ultimately improved their income. Mobile phones have provided an opportunity to the farmers to communicate directly with market brokers and customers to sell their product at a good price.

Perceived usefulness of the information obtained by the farmers

According to the study findings, farmers' most immediate needs range from ensuring timely planting, access to ready markets, identification of ready and current prices of farm inputs, finding pest and

disease control measures as well as us fertilizing the land. These are believed to be short term issues prioritized by farmers. However, with access to more information relating to the above needs and other long term issues such as land and soil management, improved storage and preservation methods, weather patterns and proper irrigation forms, more efficient farming and climate-smart practices in agriculture will be realized and many farmers will be able to reach its potential in agricultural returns. This is probably because information is required by all groups of people in making decisions about their daily farming activities. The findings agree with that of Idiegbeyan-Ose and Theresa (2009) who argues that information enables farmers to make informed decisions regarding production, management and marketing of their farm products.

Information seeking barriers faced by farmers

Tologbonse et al. (2008) found out that the challenges facing farmers in accessing agricultural information were outdated information, language barrier, lack of awareness on existence of different information sources, lack of funds to acquire information and poor format of information carriers.

This finding is similar to Kaddu, Nanyonga and Haumba (2021) who found out that delivery of the information to target group is crucial (timeliness) otherwise the information may be stale by the time the beneficiary receives it. The absence of a systematic structure that ensures proper gathering of information, appropriate avenues of dissemination of information in the district hampers timely and accurate dissemination of information among farmers (Kaddu, Nanyonga & Haumba, 2021). Moreover, the study by Daudu (2009) in Nigeria pointed out some of the problems encountered by farmers in accessing agricultural information include financial problems, inadequacy of facilities/professional, incomplete or irrelevant information. Byamugisha et al. (2008) also pointed out that lack of cooperation from fellow farmers in sharing agricultural information and language barriers as some of the major challenges encountered by farmers in Kisoga.

These challenges are similar to challenges unveiled by Matovelo (2008); Babu et al. (2012); Mtega and Bernard (2013) and Benard, Dulle and Ngalapa (2014) who note that farmers are faced with low number of extension officers, low income levels to buy inputs such as information resources and devices, poor extension infrastructure, low funding by county government, illiteracy among farmers hence low use of tech, low rate of information dissemination and lack of libraries and resource centres as the major drawbacks to access of agricultural information among farmers.

Although barriers are mostly believed to negatively impact information seeking, they do not always result in unfavourable results. It can be noted that individual farmers are sometimes frustrated by over dependence on the information which may not be very reliable, time constraints and too much information. These barriers are specific to this area but could be applicable in places with similar demographic characteristics.

Information seeking behaviour of the family farmers

The information seeking behaviours of the family farmers include oral discussion with age cluster memberships, the elderly who are the custodians of information kept in their brains, neighbours, friends, farmers' groups. Although they align more to information acquired informally, the study observed that there was overweight discontent with the informal medium largely because of the technological progression in agricultural sectors. As for the formal media, the planning and execution is not achieved with the interest of the farmers because of the cost, and by this means discouraged them from the use.

Furthermore, the study observes that the farmers seem not to make use of text based agricultural information sources and as a result lose out on useful scientific based information which

most probably is not available in the collective memory of the community. It was observed that there is no single resource centre in the entire village and even the six neighbouring villages.

This corresponds with Odini (1990) findings that rural farmers often get information from friends/ relatives/neighbours and oral communication. In addition, Ofuoku (2008) found that sources of information for rural farmers include other farmers, farmers' groups and extension agents. In the same vein, Olabode (2008), and Okwu and Dauda (2011) said that farmers seek information through interpersonal communication channels, relatives, friends, neighbours, extension agents, traditional rulers, billboards, posters and magazines.

Although this information is central for short term gains, farmers also need information for long-term improvements such as land management and weather patterns. It is also evident that different forms of information are needed at different stages in farming but the farmers tend to attend to the most pressing information needs at a given time.

This study has several implications for the family farmers. First, individual farmers' information needs were often very specific and situational. For example, farmers needed information about improved variety of seeds, pesticides, agricultural equipment, weather conditions, harvest and post-harvest technology. This left an impression that farmers were desperate and would easily take in any information they got however unreliable and meaningful it is. They often wished to openly consult people who are knowledgeable of a subject matter. However, such experts were not readily available in their networks.

This presents an opportunity for designing systems that can accurately match information seekers to people who have the knowledge and the willingness to help in a timely manner. Secondly, family farmers should be fed with information about innovative technology in their farming. Secondly, it can be reasoned that agricultural information is in high demand by family farmers in the area under study. Farmers know the types of information they need.

However, this information is not readily available in their regions. They also seek specific information that is relevant to their day to day farming practices but rarely go further to seek information on weather conditions, government policies and credit facilities. Thirdly, family farmers have a positive attitude towards searching for agricultural information. However, there are individual factors that hinder information access. These are lack of exposure, lack of confidence, illiteracy, lack of funds and technical difficulties in information access.

Information seeking behaviour and food security

If the right information is sought by the farmers, they will be able to utilize the information for the right cause within their daily farming activities. This noble practice in farming can help smallholder farmers to address an important social determinant of life by identifying areas vulnerable to food production and insecurity. In addition, this would be critical in enhancing effective and timely decision making amongst the local and smallholder farmers so that there is sustainable food security.

Conclusion and recommendations

Information can be seen as a fundamental component of any development activity and it must be presented and accessible to all farmers in order to bring the desired development. The role played by information in enhancing food security cannot be over emphasized as it is vital for increasing food production and improving marketing and distribution strategies. The majority of the farmers need information particularly in the areas of productive resources and crop management activities from

planting to storage. Furthermore, since the major sources of information were informal, its reliability is not guaranteed. This study therefore underlines the significance of a formal and well organised institutional information dissemination system that farmers can exploit to access information. The current patterns of information seeking in Kisoga B do not enhance food security despite widespread access to information. The information is not acquired through the informal channels remains untrusted, distorted and out-dated. This has led to significant errors being made by farmers and this has affected the farming activities leading to constant food insecurity in Kisoga B. The study recommends that: local authorities in Kisoga B should set up a resource centre within the area with qualified information providers. Furthermore, since friends/neighbours and other farmers were the most important, close and frequently used sources of information for family farmers, it is recommended that policy makers, extension agents, NGOs and related organizations should consider the impact and influence of informal sources of agricultural information and as such they should be viewed as essential sources of information and trained so as to disseminate information effectively.

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