The Perception and Usage of Weather Forecast Information by Residents of African Concrete Products (ACP) Estates and Farmers in Selected Communities Around Pokuase in the Ga West Municipality of Ghana

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ABSTRACT: The study was undertaken with the purpose of finding out if people paid attention to weather forecast segment of television news and whether those who did so could interpret the information including temperature, rainfall, humidity and cloud cover figures provided in it. It was also to find out what other information people wanted in weather forecasts. Questionnaires were administered to 240 people including 120 farmers in the Pokuase area of the Ga West district of the Greater Accra Region and 120 residents of Africa Concrete Products (ACP) estates in Pokuase. Results showed that except for less than one-in-ten (6.7%), all respondents had watched TV weather forecast. Out of the number less than half (43.8%) paid attention to it while a similar proportion (42.5%) paid attention to it sometimes. For interpretation of forecast figures, temperature was those respondents understood the most. In all, 70.1% of the people who said they understood the temperature figures also had tertiary education, only seven people (8.0%) of those that had the first cycle education understood confirming the hypothesis that the level of education of the viewer was likely to influence viewers' understanding of temperature figures.

KEYWORDS: Perception, Usage, Weather Forecast, Farmers, Ghana.

I. INTRODUCTION

All economic sectors and individuals are affected by weather conditions. Both improved weather forecasts and use of current forecasts can enhance personal safety, reduce property damage, increase economic efficiency, as well as save multiple lives and the loss of millions of dollars each year [15]. However, few studies of the benefits of weather information to the end user appear to have been conducted and much of the knowledge available on the use and value of weather information has generally been difficult to locate and utilize.

Most end users of forecasts are members of the general public [6]. Thunderstorms, rain and dangerous lightning strikes can lead to deaths, power outages and extensive damage by floods. Heavy rain can bring transportation and business to a stand-still. It can also cause flooding in low-lying areas. Droughts can also have a very big impact on water usage and destroy plant life. All of these go to affect the general public. [9] Advocates for "the need for a unique combination of skills to succeed in modern TV weather forecasting": the science of meteorology and communication skills which will help in communicating, effectively, accurate weather information to the general public.

Newspapers, television, and radio have been the primary outlets for presenting weather forecast information to the public. Increasingly, the internet is being used due to the vast amount of specific information that can be found there. In all cases, these channels update their forecasts on a regular basis [21]. Several countries also set up government agencies to provide forecasts to the public in order to protect life and property and to boost the economy. For this reason, awareness of what the end user needs from weather forecasts must be taken into account to present information in a useful and understandable way.

In Ghana, the Meteorological Services Agency (GMet) provides weather information to both the general public and specific institutions that depend on forecasts to operate. The prominent medium used is television (as part of the news package) and sometimes, radio.

Eric Ahianyo, a news producer of *Metro Television* believes that the general public, which includes farmers and fishermen, needs to be informed about how the weather is going to be and for that matter would decide when to set off on a journey. Ebenezer Ampabeng, also a news producer of *GTV*, a public service broadcaster, believes that the weather forecast is part of the news to make it a complete package. It is, therefore, not surprising that all the major television stations in Ghana have the weather report as part of the news package. Whether the public really wants weather information or whether it is serving the purpose for which it is aired is another matter.

The effectiveness of meteorological communication is determined, amongst other things, by the extent to which all persons involved in the communication transaction are capable of communicating and interpreting meteorological messages. A failure of communication means that there may be 'noise' in the communication transaction. The concept of noise refers to any factors which disturb the communication and interpretation of messages [14].

In spite of the fact that the weather forecast is part of our primitive news bulletins, one wonders whether people really understand what the meteorologist communicates. According to [14] meteorological services in many African countries have the responsibility of monitoring and sharing information on weather with potential users. Seasonal climate forecasts issued for many years have not had expected impacts on agricultural production, especially among resource poor small-scale farmers. Communication of weather information overall has not been effective. The meteorological services have not identified the characteristics of end users. At the same time, there is also a lack of skills among institutions responsible for communicating weather information, suggesting the importance of training personnel in communication skills [23].

If this is the case, then a very pertinent question to answer is whether farmers, who may have lower levels of education, understand weather information pertinent to their business and whether they use it at all and also to find out if the general public, whom television weather forecast is targeted at to the greater percentage, understand and use it in daily decision making.

II. OBJECTIVES OF THE STUDY

This research sought to find out:

- What's the typical television weather forecast is – its format and content
- If people paid attention to the weather forecast segment on television, could interpret forecast terminologies provided and whether this had a relationship with their level of education.
- Whether it helped people in making decisions and if they wanted other information in the weather forecasts.
- Why producers feature the forecast segment on prime time news.

III. RESEARCH QUESTIONS

The research questions that guided the study were:

- Are viewers able to process and understand televised weather forecast information?
- Do viewers wish for additional information in weather presentation?
- How much value does viewers place on the weather forecast information and does it influence the decisions they make?
- Are television forecast producers realizing their objectives?

IV. HYPOTHESIS

The study sought to test one hypothesis to provide categorical summaries drawn from the data.

H_1:The level of education of the viewer would likely influence viewer's understanding of temperature figures.

- **Rationale:** The knowledge gap theory posits that the dissemination of information in society is not evenly distributed to every member of society: people with higher socioeconomic status tend to have better ability to acquire information.

This, consequently, brings about two groups of people in society: a group of better-educated people

who know more about most things, and those with low education who know less. The lower socioeconomic status (SES) people, defined partly by educational level, have little or no knowledge about public issues, disconnect from news events and important new discoveries [22].

The theory predicts that persons of higher socioeconomic status will gain in knowledge the more because of the additional information as compared to persons of lower socioeconomic status. This will mean the relative gap in knowledge between the well-to-do and the less-well-off would increase [20]. [22] State that a knowledge gap is particularly likely to occur in such areas of general interest as public affairs or science news. Weather prediction is a specialized area with most of the terms being technical. Drawing from this, it can be assumed that persons of higher education would understand forecast figures such as temperature figures, whereas another group with less education, in this case farmers, are not likely to understand temperature figures.

V. SIGNIFICANCE OF THE STUDY

The ultimate goal of weather forecasts is to provide usable information for decision-making. For information to be usable, it needs to be scientifically sound, communicated effectively, interpretable, and actionable [25]. (National Centre for Atmospheric Research, United States, strategic plan 2009-2013). In order to realize the potential benefits associated with improved weather forecasts, we need to understand how individuals could use different types of weather information. In addition, it is important for forecasters know that users are primarily concerned with whether or not a forecast leads to beneficial outcomes in the context of their respective decision-making problems [15].

In other words, the user or viewer is more concerned with whether the forecast corresponds to reality. Also, in the face of climate change resulting in weather uncertainty, it would be important to find out if people rely on weather forecasts to make decisions. This research was undertaken to provide empirical data and a source of information to enable weather forecasts to meet information needs of the general public and those whose areas of work require weather prediction information.

VI. THEORETICAL FRAMEWORK

A. THE KNOWLEDGE-GAP HYPOTHESIS

The knowledge gap hypothesis was first proposed by [22] in an article titled "*Mass Media Flow and Differential Growth in Knowledge*" in the 1970s. They believed that knowledge, like wealth, is not distributed equally throughout society: people with higher socioeconomic status tend to have better ability to acquire information. This results in the division of society into two groups: the haves and have-nots with regard to information just as there are the haves and have-nots with regard to material wealth. That is, a group of better-educated people know more about most things; and those with low education who know less.

State that: as the infusion of mass media information into a social system increases, segments of the population with higher socioeconomic status tend to acquire this information at as a faster rate than the lower- status segments, so the gap in knowledge between these segments tends to increase rather than decrease. [22]

Define lower socioeconomic status (SES) partly by educational level, having little or no knowledge about public issues, being disconnected from news events and important new discoveries [22].

One prediction from the knowledge-gap hypothesis is that people of higher socioeconomic status are more likely to be exposed to certain types of information (particularly that dealing with public affairs and science) than lower-educated people [20].

Communicators, should, therefore, bear this in mind when crafting persuasive and other forms of communication messages. The knowledge-gap hypothesis explains the increased gap between people of higher socioeconomic status and people of lower socioeconomic status. For example, the PR practitioner in designing communication kits for casual workers and senior management must customize the message to meet the understanding of the two groups.

Similarly, the weather forecaster when giving out information to the general public must consider that there are various groups in society, one of which is made up of farmers who require weather information to do their work. Some of the farmers may not be educated enough to understand all the terms used and even the language of communication. For this reason forecasters should consider a way of getting to these farmers by making information understandable to

them. While people from all strata may learn new information as a result of a mass media campaign, those with higher levels of education are likely to learn more than those with low levels of education, and the informational gap between the two groups will expand.

B. USES AND GRATIFICATIONS

The uses and gratifications theory of mass communication is deemed an appropriate framework for a study that involves the uses people put weather forecast information to. The theory is attributed to the work of Elihu Katz. He first described it in an article he wrote in 1959 in reaction to a claim by [2] that the area of communication research seemed to be dead. Katz's argument was that the field that was dying was the study of mass communication as persuasion. He indicated that most communication research up to that time centered on what the media did to people. [10] suggested turning to studying what people did with the media [20].

At the core of this theory is that individual members of the audience actively seek out mass media to satisfy their needs. Uses and gratifications theory goes beyond lists, however. In considering the concept of what uses are served by the media, two theoretical developments are particularly worth noting. Some scholars have suggested that the lists can be categorized into different types of gratifications. The distinctions include content versus process gratifications [5], cognitive versus affective or imagination gratifications [11], and instrumental versus ritual gratifications [19].

Two weather forecast researchers, discuss the weather forecast process as consisting of three parallel sub processes- prediction, dissemination, and use in decision making [14]. Based on the assumptions of the uses and gratifications theory, the present research sought to find out whether watching the forecast segment on television was born out of an intention of viewers to use the information and if the information provided to help them make decisions, such as, going ahead with outdoor activities, taking a decision to go out and even when to go out. People who watch television news could be seen as people who want to keep up with the latest happenings and probably make decisions based on them. For weather information to be incorporated into the major news package just as other segments like foreign news, entertainment and business, it is important to find out what producers' intentions are and whether those intentions are being realized.

VII. LITERATURE REVIEW

Very little research on the benefits, usage and value of weather information has been undertaken, especially in Africa, and much of the information available on the use of weather information has generally been difficult to find. There is little good, reliable, valid data-based knowledge about people's attitudes and behaviors regarding weather forecast information. It is not surprising that [8] wrote in his book, *Television Weathercasting*, that he was "appalled" at the extent to which television weather reporting was simply being ignored as a serious subject and [23] also observed that given the demands, visibility and potential impact of weather reporting, it is surprising how few scholarly articles appear in the traditional journals in that discipline. He also observed that, perhaps, "no other area of journalism reflects such a large disconnect between the academy and the profession".

A study was done in the United States by [16] to assess how people understood and used Probability of Precipitation (PoP) forecasts, that is, a statistical or numerical probability of precipitation (chance of rain) in a given forecast area in the time period specified. [16] study was to assess the US public's understanding of and preferences for PoP forecasts. They concluded that most people understood the probabilities well, wanted precipitation information conveyed probabilistically and preferred receiving numerical expressions of probability of verbal information. However, they also concluded that people had difficulty understanding the event of concern in PoP forecasts in that they confused area forecasts (weather condition over an area) with point forecasts (where forecasters are 100% sure of weather predictions).

The forecasts meant different things to different people and that the interpretation of forecasts of the public did not always match what the issuing forecaster had in mind. It must be stated here that, just like [16], [4] did not apply basic survey techniques which may have resulted in a true random sample not being surveyed. Refusing to apply basic survey techniques could introduce biases in data which, however small, could prevent one from using the result of the survey to hypothesize how the public, either in one particular city or nation as a whole, thinks about the weather.

The findings were that nearly 65% of the sample got their weather information from local media sources,

namely radio and TV. In the survey, both radio and TV received a nearly equal percentage of responses. When asked about their primary source of weather information the interesting revelation was that more respondents chose "Looking out the window" more often than other options combined (Newspaper 4.3%, NOAA Weather Radio 3.4%, Telephone 1.6%, Another 0.9%). This could be as a result of doubt those respondents had in weather predictions.

On how respondents understood and used PoP, cloud cover and other forecasts it was found that only one respondent out of about 285 people knew the answer to what PoP was. From the results, most of the people surveyed paid attention to the forecast some time during the week. The top choice was seven days a week with second highest being 1-3 days, and very few respondents never paid attention to the forecast.

VIII. METHODOLOGY

The study was conducted to investigate how people perceived and used weather forecast information on television. The survey technique was adopted as the main method of data collection because it allows for the efficient gathering of information with relative ease from a relatively large number of people with diverse demographic details and characteristics. This method was also less expensive because the administration of questionnaires was simple requiring minimum support for respondents. This approach further eliminated observer subjectivity because using a questionnaire enhanced standardized of questions that made measurement more precise and high reliability easy to obtain.

Qualitative techniques in the forms of interviews and qualitative content analysis were adopted to encourage respondents give further details about viewpoints to help throw more light on the reasons behind the various perceptions held about the weather forecast. To achieve the objective of knowing why weather forecast was featured in prime time news, there were interviews with producers of news of two of the major television stations (*Metro TV and GTV*) through the purposive, non-probability sampling method. The use of both quantitative and qualitative approaches described by [1] as "triangulation" allowed the researcher to confirm, validate and remark on information from the survey.

A. SAMPLING

Modern audience research essentially relies on the concept of statistical references which allows for estimation of the characteristics of a population. This is obtained from data collected by sampling a cross-section of the population being measured. When a sample is carefully selected following valid statistical procedures, information can be projected confidently to the total population [24].

The simple random sampling method was used to select respondents for the survey. For ACP Estates residents, a frame making up a list of 136 households was acquired from the estate office. The sampling procedure involved putting folded sheets of papers with house numbers in a bowl out of which a total of 120 households was selected randomly for administering questionnaires. Farmers on the other hand, were selected with the help of Agricultural Extension Officers of the Ga West Municipal Agricultural Development unit of the Ministry of Agriculture (of which Pokuase is part) who had a list of farmers they made contacts with regularly as part of their duties.

Questionnaires were analyzed using Statistical Package for Social Sciences (SPSS). Chi-square was used to test hypotheses. For the interviews, data were analyzed based on notes and transcriptions of recordings. Similarities and differences in opinion between interviewees were noted and quotations were also used to bring out some strong feelings and views of interviewees.

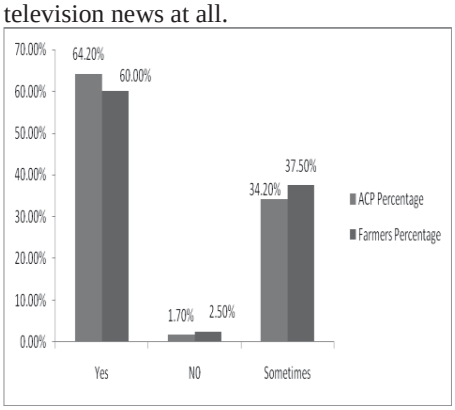
IX. FINDINGS/DISCUSSIONS

The weather forecast segment of television news, as observed in this study, was usually the last segment of major news bulletins of stations studied. There were two main presentation formats which included presentation of weather forecasts by a meteorologist (presenter) and one which was graphical but without a presenter.

The latter format was usually in the form of display of temperature figures of the weather condition for the next 24 hours. The news anchor sometimes introduced the segment with a little information about what to anticipate within the next 24 hours in terms of temperatures. This was followed by a table with range of minimum and maximum temperature figures to be expected for the next 24 hours, and then another table describing weather conditions for various regions. *GTV* had the weather forecast presented by a meteorologist which was more detailed in explanation.

Audience's exposure to and patronage of television news The chart illustrates responses given to a

question to find out whether respondents watched television news at all.



The highest responses pointed to the positive. Close to two-thirds (64.2%) of ACP residents responded in the affirmative and about the same number of farmers (60%) also said they watched television news. Even though some did not watch television news regularly, they admitted watching the news sometimes. Such respondents constituted about 71.7% of both ACP residents and farmers. Only 1.7% of ACP residents and 2.5% of farmers were not watching television news.

A. RESPONDENTS' PREFERRED NEWS SEGMENT

Television news broadcast has various segments ranging from local news stories for entertainment. With the motive to find out how weather segment compared to others in terms of what respondents liked most, respondents were asked to mark their most preferred segment of the news. Responses pointed to local news as the most preferred. About three-out-of-ten of ACP residents (29.9%) liked the Local News most, while a little more than one out of five (22.3%) of farmers also preferred the same. Local News got the highest number of responses from both farmers and residents of ACP. The weather forecast was the least checked by residents of ACP estates (11%) while Business News was the least checked by the farmers (9.6%).

B. RESPONDENTS' EXPOSURE TO THE WEATHER FORECAST SEGMENT

Almost all of ACP residents and farmers sampled (95% and 91.7% respectively) admitted having seen the weather forecast on television while as little as 5% of farmers and 8.3% of ACP residents had not. The majority of respondents had, at least, seen that segment of the news.

C. CONFIDENCE IN PREDICTIONS MADE IN FORECASTS

In answer to how much confidence they had in weather predictions, respondents had to choose among a list of options. These options were very low, low, medium, high and very high. The highest selected option was "medium". Although the highest, it made up a little less than half of the overall sample (49.2%). The second highest choice was "high", 23.8% of the overall sample. There was, however, a noteworthy choice of "very high" which was less than one fifth (17.5%), coming from farmers as compared to the 5% choice of that option by residents of ACP. Whereas only six (5%) of the respondents from ACP estates chose "very high", 27, making up 17.5% of farmers studied opted for that.

D. USE OF WEATHER FORECAST INFORMATION IN MAKING DECISIONS

On whether respondents based their daily decisions on the information provided in weather forecasts, more than three-quarters (74.2% and 80.8%) of ACP residents and farmers respectively said "Yes", while 25.8 % of ACP residents and 19.2% of farmers studied responded in the negative.

E. RESPONDENTS' ATTENTION TO THE WEATHER FORECAST

One of the objectives of the study was to find out whether respondents paid attention to weather forecast communication. For answers provided in the survey, more farmers (50.8%) paid attention to weather forecasts than residents of ACP (36.7%). However, putting the two groups of respondents together, the number of people who paid attention to weather forecast was not even up to half of the sample. About four out of ten (43.8%) paid attention to weather forecasts. The possible reason for farmers paying attention to weather forecast more than ACP residents could be attributed to the fact established earlier that the weather forecast is very pertinent to Agriculture. This finding is contradictory to what [3] found in his study. In his research, most of the US public surveyed paid attention to the forecast some time during the week. Only 5.3% of a sample of 285 said "Never".

F. RESPONDENTS' ABILITY TO INTERPRET FORECAST TERMINOLOGIES AND FIGURES

Communication has to do with relaying information to share meaning in order to reach mutual understanding. Mefalopulos puts it as:

> ... a horizontal, two-way interaction in which parties actively participate in, and consensually determine priorities through the processes of assessing risks, exploring opportunities, and facilitating the sharing of knowledge, experiences, and perceptions. [12]

For this reason, it is vital to find out whether the information conveyed by meteorologists (through the television medium, with the motive to help viewers make informed decisions) is creating a shared meaning for the end users. The findings clearly show that the majority of respondents did not understand the terminologies used in forecasts which calls for great concern. Especially for farmers who need weather information to know when to spray their farms and carry out other farming activities, it is important to find a way of getting such vital information to them in a clear and accurate manner. From findings, these farmers paid attention to weather forecasts more than those in formal employment. It was quite apparent that they considered weather forecasts important to their enterprise. A chat with two of them buttressed this point.

Emmanuel of Kojo Ashong village who also happened to be the best okra farmer for the Ga West District in 2009, said weather forecasts should be interpreted into other prominent local languages such as, Twi and Ga, so that it would be useful to farmers who are usually not highly educated. Generally, most people, however, understood temperature figures better than other figures presented in forecasts.

Naa Ayeley, also a farmer living at Ardeyman, corroborated this by informing the researcher she understood figures when they were accompanied by symbols. The sight of the symbol of sunshine or drops of rain on particular parts of the map during forecasts made her know whether it would rain or not in specific regions. But she complained this had, at the time of the research, changed to only written forecast figures on the map, making it difficult for her to understand what is communicated without her husband, who has a higher level of education, around.

On the other hand, a very interesting discovery was that although most of these farmers could not understand forecast figures, they thought weather forecasts were easy to understand. More than three quarters of farmers (72.5%) thought it was easy to understand- Table 7. Less than half of ACP residents (43.3%), however, thought it was not easy to understand. As gathered from conversations with them, most farmers, on the other hand, spoke about radio forecasts as being better than television forecasts since they were presented in local languages on local radio stations. They, for that reason, preferred radio to television forecasts. They had the option of listening to *Obonu fm*, a predominantly Ga radio station, or any of the many Akan radio stations for weather information in Twi. Indeed, farmers living in villages that are cut off from the national grid essentially had the only option of listening to the breakfast show on any of the local radio stations for weather forecasts. They thought radio forecasts were more understandable and met their informational needs because of the language of communication.

This finding is comparable to a study in the US by [13] and another by [3] which revealed that most people in the US could not interpret chance of rain correctly.

> Overall, we found that even today, in the U.S., most members of the public do not know the meteorologically correct interpretation of PoP forecasts. The interpretations of PoP that lay people have are diverse..." [13].

With illiteracy rates being higher in Ghana as compared to the US, the situation could be worse. The findings of this research revealed that except for temperature figures, the rest (humidity, rainfall, cloud cover) had the highest response rate of "not really".

G. WEATHER FORECASTS AND DECISION-MAKING

Although they claimed not to understand terminologies used, most people studied confirmed using weather forecasts in making decisions. Among the most decisions made based on weather forecasts by farmers was planning farming activities. Farmers were mostly concerned with when to spray their farms. They revealed that rains falling after spraying only resulted in wasting meager resources since chemicals used lost their efficacy making it necessary

to spray again. The need to know whether it would rain (which would help them decide whether to spray or not) was a paramount reason for looking out for weather forecasts. Radio forecasts in the mornings have now become very useful to them.

Some of them also said they were used to looking out for whether it would rain or not by themselves. Certain signs such as misty air made them know whether it would rain or not consequently, helping decide to spray farms or not. For such farmers whether they watched weather forecasts or not, could not have any effect on them.

Most (74.2%) residents of ACP also said weather forecasts helped them decide whether to hang their laundry outside, open or close windows when leaving the house. It further helped residents to make travel arrangements. This is the opposite of the findings by [7]. In their study the highest ranked choice of how often respondents used weather forecast for certain activities were simple to know what the weather will be like.

H. RESPONDENTS' QUEST FOR ADDITIONAL INFORMATION

There was a need to find out from respondents if they required modification or additional information in forecasts. An opportunity was given to them in the form of an open-ended question. Various suggestions were put across. The prominent ones are discussed in this section.

There was a call by farmers surveyed for accurate forecasts and this, coincidentally, was what most residents of ACP also appealed to. The farmers, especially, complained about inaccurate forecasts that had somehow affected their production.

Most (91.3%) respondents wanted detailed presentations which would include the likely effects of weather patterns on a daily basis. They wanted specific information as to whether there was a possibility of threats like flooding so preventive measures could be put in place. The farmers also wanted information on what to plant at specific times. Yet another request was for long-term forecasts. The farmers would like to have weekly, if possible, monthly forecasts so they could plan farm activities ahead of time. For this reason, they asked for detailed forecasts instead of the usual five-minute (or less) forecasts. Most respondents also preferred to have weather forecasts presented by a forecaster. That was preferred because it was thought to bestow authenticity of the information and made it more interesting to watch than a mere display of forecast figures on television without any proper commentary.

I. REALIZATION OF OBJECTIVES OF PRODUCERS

Interviews with the two news producers of *GTV* and *Metro TV* showed weather forecasts were part of the news to make it a complete package. The survey, on the other hand, proved it was not enough to make it a part of the news just to make it a complete package but important consideration should be given to what information end users would need and how this information was assimilated by viewers- end users [7].

Field studies on the impact of climate forecasts in southern Africa suggested there was a considerable gap between information needed by farmers and that provided by meteorological service [14]. This particular research has also revealed that farmers, especially, needed and wanted more information to the extent that, some, in answer to an open-ended question to find out from them any additional information they required, suggested making weather forecasts separate from the news.

They expressed that weather forecasts were essential to what they did since it helped them decide what to do on their farms on a daily basis. It is therefore, important to make weather forecast presentations comprehensible, lively and usable to viewers. Terms used could also be broken down further for people to know exactly what they actually meant, for example whether it will rain, shine or drizzle. One respondent actually said forecasters should tell viewers in simple terms what temperatures meant. He went on to say, "... for example they could tell viewers what temperature like 23℃ means... hot or cold or in between...''

J. PERCEPTION OR VALUE OF FORECAST INFORMATION

Respondents' perceptions of forecasts were ascertained by asking two questions: a closed-ended question asking how much confidence respondents had in forecasts and an open-ended one which asked why they thought forecasts were important or otherwise. Almost all respondents (ACP residents and farmers- 92.9%) said weather forecasts were important.

Various reasons were provided by both farmers and ACP residents including, simply knowing the weather condition. Majority, however, said it aided in

planning several other activities but, the farmers, particularly, said it helped them in planning farming activities such as when to grow particular crops, when to spray farms and whether to till the land or not. The minority (7.1% of the overall sample) who thought weather forecasts were not important expressed the view that predictions were not reliable and therefore made weather forecasts worthless. Some also said they did not have electricity to watch forecasts so for them forecasts were not important since they had their traditional way of looking out for what the weather would be like by themselves.

It could be deduced that, people's confidence in forecasts would likely relate to their perceptions of the forecast but not directly parallel. The confidence viewers had in forecasts was rated on a scale ranging from "very low" to "very high". Results showed that nearly half of respondents reported medium confidence even though close to the overall sample (92.9%) considered forecasts to be very important.

X. TESTING OF HYPOTHESIS

H_1The level of education of the viewer would likely influence viewer's understanding of temperature figures.

From the data gathered, ACP residents had higher levels of education than farmers sampled with almost half (47.5%) of residents having tertiary education. More than half (53.3%) of the farmers only had the first cycle education. The test was, therefore, to find out whether there was a relationship between the level of education of a viewer and the understanding of forecast information and in this case, temperature figures which could be assumed to be the most basic of all figures presented in forecasts.

Table 1. Level of education and understanding of temperature figures

	Do you understand the temperature figures?			
Level of education.	Yes	No	Not really	Total
First cycle	7	22	35	64
	8.0%	37.3%	37.2%	26.7%
Second cycle	19	11	26	56
	21.8%	18.6%	27.7%	23.3%
Tertiary	61	25	28	114
	70.1%	42.4%	29.8%	47.5%
No formal education	0	1	5	6
	.0%	1.7%	5.3%	2.5%
Total	87	59	94	240
	100.0%	100.0%	100.0%	100.0%

X^2=40. 35 df= 6 p=0.00

The level of significance of the test was set at 0.05 and the null hypothesis was:

H0:There would be no relationship between the level of education of a viewer and the understanding of temperature figures.

The table above shows that 70.1% people who understood temperature figures also had tertiary education. The lowest level of education was a first cycle (elementary school) and only seven people representing 8.0% of those with that level of education understood temperature figures whereas none of those with no formal education understood temperature figures. A cursory look at the raw results shows a relationship and the statistical test of a relationship actually confirmed this. The chi-square test produced a chi-square value of 40.357 with an accompanying probability of .000. This was lower than the significance level which was set at 0.05 ($p \leq 0.05$). This means the null hypothesis that, there would be no relationship between the level of education of a viewer and the understanding of temperature figures was rejected. The research hypothesis which states that the level of education of the viewer would likely influence viewers' understanding of temperature figures is thus supported by data collected for the study. The phi (0.410) measure suggests a 41% relationship between the level of education of respondents and their understanding of temperature figures which was very strong.

XI. PRACTICAL IMPLICATIONS

It is clear from findings that a relationship existed between education and understanding of forecast figures. More importantly, the finding that one's level of education had a role to play in understanding of forecast information is a cause for concern in the dissemination of important information about how the weather would be like which, in the long run, affects every living creature on the planet: educated or not.

It must also be stated that, although weather conditions affect everyone, some people, by virtue of the nature of their vocations, such as farmers, fishermen, pilots and market women need information about weather the most. Even among the two groups of people in this study, it was clear that

there were social, economic and educational differences. For this reason, if these people of varying socioeconomic backgrounds do not equally have varying sources of obtaining weather information to meet individual needs, it is obvious that the breakdown of this information would be problematic among a number of sections of the public.

It is important for communicators to always consider the differences in audience demographic and educational or intellectual backgrounds in giving out certain vital information meant for a wide range of audiences. Communication must, if possible, add to knowledge, remove doubts and questions on the minds of people and not create uncertainty. Communication must not merely make a complete package as was gathered from the producers but must accomplish a purpose.

XII. CONCLUSION

The following, among other things, were requests put forward by respondents as to additional information they needed in the weather information. They wanted accurate and timely weather presentations spelling out the activities that people could engage in and those that must be avoided for that period. Respondents were also interested in an effort to translate forecasts into major local languages which would afford a vast majority of Ghanaians, who may not have the intellectual capacity to understand what is put on air but require weather forecasts, to help them in their chosen vocations.

The possibility of having long-term forecasts such as weekly, monthly or quarterly forecasts to help farmers, especially, to plan farming activities ahead of time was also mentioned. There was also a call for enough time to be allocated to the forecast so that it would be more detailed enough for the benefit of all who require weather forecasts. In doing so, specific names of towns which would be adversely affected by the weather should be mentioned and not just the capital towns. There should also be a comparison of forecast figures with those of previous years so that people would know the exact change in weather patterns.

This work also raises several issues for future research. First, the results lead to questions about how best to disseminate weather forecast information to the public since there are audiences with different backgrounds. A variety of interesting questions remain to be addressed. For example, do people like television forecasts because they can get a more in-depth sense of forecast uncertainty or different weather scenarios, because they prefer receiving forecasts communicated by a presenter through voice and video or for other reasons? Do people have confidence in and trust communication from some sources more than from other sources? [25]. These are other areas worth researching into.

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