AUDIENCE ANALYSIS AND STAKEHOLDER INPUT FOR A NEW TYPE OF EXPERIMENT STATION RESEARCH REPORT IN OKLAHOMA

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CHAPTER 1

Introduction

Background

The Hatch Act of 1887, which established and funded state agricultural experiment stations in each state and territory in connection with the state's land-grant institution, called specifically for experiment stations to publish progress reports for dissemination to individuals engaged in farming (Kerr, 1987). According to agricultural experiment station histories (Knoblauch, 1962; Gilmore, 1967; Kerr, 1987), state experiment stations have used these reports for a variety of purposes, including sharing research findings among agricultural scientists, educating agricultural producers, and garnering public support for state experiment stations and their programs by demonstrating the value of their research.

In 1997, administrators and communications specialists at the Oklahoma Agricultural Experiment Station in Stillwater developed a new series of publications. This new series of progress reports was based on the century-old philosophy of the Experiment Station progress report, which was originally intended to share agricultural research findings with a variety of audiences, including producers who could apply the information to their work in the field (Kerr, 1987). The new series, called the Partners in Progress series, included commodity-specific annual progress reports that chronicled annual research progress related to wheat, beef, soybeans, and peanuts.

According to Oklahoma Agricultural Experiment Station Associate Director, D.C. Coston, the purposes of this new type of publication are (1) to provide scientific information to agricultural producers who can apply it in their work, and (2) to show accountability and impacts to stakeholders (particularly members of commodity groups who make checkoff payments, legislators, and funding agencies such as commodity group boards (D.C. Coston, personal communication, September 14, 1998). The Oklahoma commodity groups targeted include the Oklahoma Wheat Commission, the Oklahoma Beef Industry Council, the Oklahoma Peanut Commission, and the Oklahoma Soybean Board, each of which provide research dollars from checkoff funds to the Experiment Station.

Higher accountability from publicly funded research and development organizations is a necessity to the American public. Declining financial support for higher education, where the majority of agricultural research and development is conducted, supports this observation. Kelsey and Pense (2001) cited reasons for declining financial support in public higher education may be a perception of disenfranchisement and concern that public dollars spent on research and development only benefit a narrow segment of the economy.

One possible example of this feeling of disenfranchisement emerged among Oklahoma wheat producers in 1998. Eleven percent of Oklahoma wheat producers requested refunds of their checkoff contributions, a portion of which are used for wheat research at OSU (Tilley & Crowley, 1998). These same Oklahoma producers valued wheat research as a wise use of checkoff funds; nevertheless, they decided not to contribute toward more marketing and research efforts. Tilley and Crowley's (1998)

study confirmed the need for communication of the results of research to producers so informed decisions could be made. Enigmatically, the same research also indicated that reading publications about Oklahoma Wheat Commission activities (such as involvement in research) did not affect producers' decisions to request a refund of their checkoff contribution. This dilemma clearly demonstrates a problem for Oklahoma Agricultural Experiment Station administrators and agricultural communicators who work with them to disseminate research-based information. Producers need to read about ongoing research funded by checkoff contributions, but the publications they read do not effectively communicate the value of the checkoff.

Problem Statement

The Partners in Progress series of progress reports is targeted toward a more specific audience and is written for a more specific purpose than previous Oklahoma Agricultural Experiment Station progress reports, which historically have had broad audiences ranging from non-expert producers to expert agricultural researchers (Knoblauch, 1962). From the inception of the Partners in Progress series, decisions related to content, style, level of technicality, and functionality of design have been based on supposition at best, because no formal research has been done on audiences for this specific type of publication. As this new type of publication evolves, Oklahoma Agricultural Experiment Station administrators and the agricultural communicators working with them need research-based information about their audiences with which they can verify the need for such a publication and justify improvements in content, style, and design.

Purpose and Objectives

This investigation assessed the communicative effectiveness of one of the publications in the Partners in Progress series—Wheat Research at OSU. The conclusions of this study equip Oklahoma Agricultural Experiment Station communicators and administrators with research-based information gathered from stakeholders about how to improve the Partners in Progress series of publications as a communications tool.

Analysis of data collected from wheat researchers/authors and from other stakeholders in Oklahoma Agricultural Experiment Station research provided answers to the following research questions:

1. What type of readers comprise the groups of people who use the Partners in Progress reports as information sources?
2. For what purposes do people read the reports?
3. What are the audiences' needs and expectations regarding writing style, level of technicality, and design?
4. Do these reports effectively attain the Oklahoma Agricultural Experiment Station's goal of disseminating research results to producers for the purposes of sharing practical research-based information for producers to use?
5. Do these reports effectively attain the Oklahoma Agricultural Experiment Station's goal of disseminating research results to stakeholders for the purpose of demonstrating accountability?

Scope and Limitations

Case study research involves the study of a specific phenomenon in a bounded system (Merriam, 1988). The subjects involved in the study represent the authors and intended readers of one specific Oklahoma Agricultural Experiment Station progress report in the Partners in Progress series: Wheat Research at OSU, which had been in existence for four years at the inception of this study.

As with any qualitative research, transferability of the results, conclusions, and recommendations of this case study are limited to very similar situations. Particularistic in nature, the benefits of this case study are exemplified by Merriam's (1988, p. 13) statements regarding case study research:

- It can suggest to the reader what to do or what not to do in a similar situation.
- It can examine a specific instance but illuminate a general problem.

Some limitations are inherently linked to these benefits. Merriam (1988, p. 33) warned that qualitative case studies can "tend to masquerade as a whole, when in fact they are but a part—a slice of life" as seen through one observer's eyes. The findings are, without question, influenced by the researcher's biases. Therefore, the findings of this study hold great value intrinsically among communicators and administrators in the Oklahoma Agricultural Experiment Station, but generalization to other situations is limited because of the particularistic nature of qualitative case study research.

Definitions

Communicative effectiveness: The ability of an intentional communicative act to affect the receiver's behavior (adapted from Littlejohn, 1992)

Audience analysis: Gaining an understanding of the purpose and background of an audience (Houp & Pearsall, 1984, p. 20).

Demographic characteristics: information that describes the groups to which audience members belong. Such information includes data related to age, gender, educational level, religious affiliation, occupation, economic status, and cultural identification of audience members (Trenholm, 1995).

Stakeholders: persons affected by, or perceiving themselves to be affected by, a proposed governmental action, including policy initiatives, research and development programs, information programs, grants, and joint ventures with industry (Babiuch & Farhar,1994, p. 2). Stakeholders can also be defined as people whose lives are affected by the university and whose decisions can affect the future of the university (Gold, 1983). Stakeholders can be divided into three categories for the purpose of the Partners in Progress study: agents, beneficiaries, and underrepresented.

Agents: program planners, funders, managers and staff who are associated with the program (Guba & Lincoln, 1989). Agents of the Partners in Progress: Wheat Research at OSU report include Oklahoma Agricultural Experiment Station and Cooperative Extension Service faculty, staff, and administration. The term is not to be confused with Extension Service "county agents," who are not subjects in this study.

Beneficiaries: members of the community who benefit by the services provided by the agents (Guba & Lincoln, 1989)

Underrepresented Citizens: people who have suffered or lost opportunities as a result of the actions of the agents (Guba & Lincoln, 1989). Kelsey and Pense (2001) prefer the term "underrepresented" rather than Guba and Lincoln's term--"victims."

Triangulation: A method of ensuring dependability and confirmability of qualitative research findings. Triangulation involves employing two or more data collection methods (e.g., interviews, field observations, and surveys). Triangulation occurs when data resulting from both or all the methods employed support the qualitative findings.

Rationale for the Study

Traditionally, Oklahoma Agricultural Experiment Station progress reports have attempted to share the results of agricultural research with a broad audience, ranging from agricultural researchers to rural agricultural producers. Obviously, such an audience would have widely diverse uses for the information. This important pitfall of this type of publication was identified early in Experiment Station history and has persisted over time. In 1909, A.C. True, Director of the Office of Experiment Stations, speaking at the annual meeting of the Experiment Station Committee on Organization and Policy (ESCOP), noted his awareness of agricultural research publications that failed to communicate clearly (Knoblauch, et al., 1962, p. 62):

> ...the scientific workers naturally want to present the matter so that it will be acceptable to scientific men. Thus they have in mind as they write these publications the necessities of the scientific presentation of the subject. The result is that they do neither one thing nor the other, and the material is not put in scientific form or in good popular form.

This ambiguous form, which can be interpreted as an inclusive term referring to characteristics such as writing style, level of technicality, and functionality of design, is

related to a lack of audience analysis and the absence of a clearly defined purpose (Houp & Pearsall, 1984).

The Partners in Progress series of progress reports were intended to be targeted toward a more specific audience and was written for a more specific purpose than previous Oklahoma Agricultural Experiment Station progress reports. Informal feedback from known members of the audience to Oklahoma Agricultural Experiment Station Associate Director, D.C. Coston, indicated that the publications were well-received and effective in accomplishing their communicative task (D.C. Coston, personal communication, September 14, 1998). Still, decisions related to style, level of technicality, and functionality of design had been based on supposition at best, because no formal research had been done on audiences for this specific type of publication. As this type of publication evolved, Oklahoma Agricultural Experiment Station administrators and the agricultural communicators working with them needed research-based data about their audience with which they could justify decisions regarding content, style, and design.

Previous agricultural communications research indicated that for the publications to be most effective, the audiences for the new series of Oklahoma Agricultural Experiment Station progress reports need to be characterized and categorized according to their needs and preferences in order for publications staff to develop the most usable publications possible (Tucker, et al., 1997). If the audience were to confirm that the publications have merit, this information could then be incorporated into guidelines for a new publication. The new publication could be tailored more closely to the audiences'

needs and preferences because design changes will be based on research grounded in research and theory rather than on supposition.

This project grew from the theoretical framework placing an importance on gathering stakeholder input (Ayers, 1987; Bryk ,1983; Fine, 1994; Kelsey & Pense, 2001). This term, normally used in discussions of university research agendas, also has meaning in the agricultural communications realm. The idea that public monies, such as commodity checkoff funds, earmarked for research, should be allocated according to a democratic process also applies to determining how the results of the research should be communicated. Stakeholder input seems equally valuable to the agricultural communications process as it is to the agricultural research agenda-setting process.

Because of the need for democratic input into the dissemination process, gathering stakeholder input may best be accomplished through qualitative research, which has an inextricable tie to democratic decision-making. Kelsey and Pense (2001), drawing upon the premises of qualitative research methodologists Guba and Lincoln (1989), proposed a modified methodology for collecting stakeholder input, one that included gathering information not only from agents and beneficiaries of university programming, but also underserved citizens who have not benefited from university programming.

This theoretical framework, including the need for stakeholder input and the use of qualitative research methods to gather it, works well with the long-standing notion of the need for thorough audience analysis in communication situations. The qualitative methods employed in this study provided an excellent way to gather thick, rich data on

various types of audience members as well as detailed feedback on the communicative quality of the publications.

The information resulting from this project will provide Experiment Station administrators nationwide with data to guide their allocation of resources to communications efforts. It also will provide authors, editors, and designers of Experiment Station research publications like the Partners in Progress wheat research report with justifications for decisions involving writing, editing, and design of similar publications, based on analysis of stakeholder input, which equates to audience analysis.

CHAPTER 2

Review of Literature

Overview

The purpose of this chapter is to review the pedagogical, investigative, and theoretical works that provide the basis for this study. A clear understanding of the history of Experiment Station publications and an overview of both stakeholder input and audience analysis are necessary to fully understand the reasoning behind this study and its methodology.

Therefore, the first section of the literature review is a short history of Experiment Station publications. The second section is devoted to works related to stakeholder input. The third section reviews the theoretical basis for audience analysis. Also, to demonstrate how this study fits in with similar audience studies in the agricultural communications field, a review of works related to agricultural publication planning and assessment is presented. A short review of the theoretical framework of qualitative investigation follows, explaining the theory-base for using qualitative methods to collect audience-related data. A summary of the literature review clarifies the framework for this study, which incorporates paradigms from three academic fields.

History of Experiment Station Publications

Studies of Experiment Station history at the national level (Knoblauch, 1967; Kerr, 1987) and state (Oklahoma) level (Gilmore, 1967; Holley, 1980) place some emphasis on the important role that publications have played in state Experiment Stations' efforts to disseminate research-based information to the public. The Experiment Stations' defining document, the Hatch Act of 1887, in Section 4, clearly states the requirement of periodic bulletins or progress reports (Kerr, 1987, p. 209):

> Sec. 4. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit. Such bulletins or reports and the annual reports of said stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster General may from time to time prescribe.

Even in the first year of the existence of agricultural Experiment Stations, communications were a vital part of each station's responsibility (Holley, 1980). The United States Department of Agriculture, in its history of research policy and procedures, supports Holley's assertion, quoting from E. Lewis Sturtevant, director of the New York Agricultural Experiment Station (Knoblauch et al., 1962, p. 143):

> The duties of an agricultural Experiment Station comprise dissemination as well as investigation. To bring its experiments before the public, not alone through its

> annual report, but as well in other ways, is a duty that could not be neglected... Publications matters early divided themselves into two principal problems. As institutions that could not survive without public support, communication with the main supporting group of the general public, the farmers, was essential. To communicate with scientists at the various stations, and with other members of the scientific community, there soon emerged also a need for the precise, carefully documented kind of publication later to be known as the technical bulletin.

In 1909, A.C. True, Director of the Office of Experiment Stations, remarked that station publications failed to fully satisfy anybody because they failed to target a specific audience. Such reasoning helped bring about the Journal of Agricultural Research, a publication intended for agricultural researchers to use to share detailed scientific information with their counterparts in agricultural research. The journal lasted until 1949 and was discontinued due to lack of funds (Knoblauch et al., 1969). Agricultural Experiment Station researchers were again forced to use bulletins and progress reports, which also were disseminated to popular audiences, as media to share detailed scientific information.

Meanwhile, a 1940 report by Fred Griffee, director of the Maine Agricultural Experiment Station, proposed that publications be limited to eight types: annual reports, bulletins, technical bulletins, special reports, regulatory bulletins, miscellaneous bulletins, journal articles, and periodical articles (Knoblauch et al., 1962). As a result of Griffee's report, agricultural communications was accepted as an important area of research among Experiment Stations.

The research that followed repeatedly turned up the same findings—Experiment Station publications were extremely important as public relations tools. At the state level in Oklahoma, Gilmore (1967, p. 286) noted that

> Although the Oklahoma Agricultural Experiment Station had contributed much to the prosperity of the state ... the general public were not aware of direct effects of research on the consumer's standard of living.

In summary, problems related to the audience and purpose of Experiment Station publications have been of much concern over the last century. Though research and expert opinion has, for nearly a century, indicated the need for a solution, arriving at such a solution apparently has been no small task.

Stakeholder Input

The Primary Purpose for Stakeholder Input: Accountability

Lechtenbert (1998), as chair of the National Agricultural Research, Extension, and Economics Advisory Board, wrote in his advisory board's budget advisement to the Secretary of Agriculture that for every tax dollar invested in research and development, the return was at least $1.35 (35 percent), with variations as high as 60 percent. In spite of these impressive statistics the American public is demanding higher accountability for publicly funded research as evidenced by declining financial support for higher education, where the majority of agricultural research and development is conducted (Altschuld & Zheng, 1995). Lechtenbert (1998, p.4) noted the "overarching" priority for the U.S. agriculture system of "public communication and outreach," highlighting that rates of return should be reported for every Federal dollar spent. The Oklahoma

Agricultural Experiment Station, according to its Plan of Work (1999 Draft), acknowledged the need for accountability and for gathering stakeholder input, and rightfully so. Support for, and utilization of, university products and services could be enhanced with meaningful stakeholder input (Greene, 1988).

Benefits of Stakeholder Research: Democracy

Active engagement of multiple stakeholders promotes a holistic approach to determining the direction of an organization. Multiple interests and needs create the content and structure of priority setting, which is an invaluable tool for organizational transformation. Soliciting stakeholder input creates a democratic base that requires resource and power sharing among participants. Ultimately, mutual understanding of perspectives leads to increased understanding and reconstructions of constructs that people initially hold. The constructivist goal of this type of qualitative research is to build consensus (Guba and Lincoln, 2000).

The participatory process of obtaining stakeholder input is envisioned as a democratic conversation where members of the community at stake actively negotiate a research agenda with the university (Mathie & Greene, 1997). This participatory process should adhere to core values of equity, parity, and justice and is a prerequisite to transformative change (Guba & Lincoln, 1989).

Identifying and Defining Stakeholders

Guba and Lincoln (1989) suggest three categories for defining stakeholders: (1) "agents," such as program planners, funders, managers and staff who are associated with

the program, (2) "beneficiaries," or members of the community who benefit by those services, and (3) "victims," who have suffered or lost opportunities as a result of the program. Kelsey and Pense (2001) prefer the term "underrepresented citizens" rather than "victims."

Kelsey and Pense (2001), in an effort to improve stakeholder involvement in research and extension program planning in the Division of Agricultural Sciences and Natural Resources at Oklahoma State University, proposed an expanded methodology for collecting stakeholder input from a diverse group of stakeholder, one that includes both agents and beneficiaries as well as underrepresented citizens who have suffered as a result of university programming (Guba & Lincoln, 1989).

Defining appropriate stakeholders for participation in priority setting should be based on (a) legitimate stakeholders (b) who have sufficient program knowledge to contribute to the process in meaningful ways, and (c) whose self-defined stake in the university is also high (Greene, 1988). Kelsey and Pense (2001) conceptualized and designed a four phase iterative process to promote dialogue and cooperation among the constituencies at all levels of the process (Table 1). This process is a simplification of Guba & Lincoln's (1989) proposed process and is modified to fit the needs of the OSU Division of Agricultural Sciences and Natural Resources, which encompasses the Oklahoma Agricultural Experiment Station.

Table 1

Kelsey and Pense's (2001) Proposed Process for Collecting Stakeholder Input

Phases	Descriptions
Phase I	Identification and selection of stakeholders who fall into "agent," "beneficiary," and "underrepresented" categories. Stakeholders will be included in all phases of the priority setting process.
Phase II	Data collection of stakeholder input by involving participants early in the process. Early stakeholder involvement establishes legitimacy and reinforces the perception that dialogue is critical for success.
Phase III	Assimilation and implementation of stakeholder input into university priority setting.
Phase IV	Support of ongoing communications within the participatory decision-making process dialogue among stakeholders will be continued in the final phase of the project. Personal and written contact will be maintained with stakeholders affording multiple opportunities for stakeholder engagement with the priority setting process.

The Logical Connection Between Stakeholder Input and Agricultural Communications

Though the terminology for gathering audience input differs in the fields of agricultural communications and program planning and evaluation, several recent research efforts in agricultural communications have implied that gathering stakeholder input for communications planning is equally important as gathering it for setting university research agendas. For example, Suvedi et al.'s (1999) detailed investigation of

Michigan farmers' information-seeking behaviors enlightened agricultural communicators on the need for obtaining stakeholder input in communications planning. Trede and Whitaker's (1998) study on the informational needs of Iowa beginning farmers also pinpointed the need for stakeholder input in the communications planning process. These audience studies and many others like them are, in effect, efforts at gathering stakeholder input for use in planning agricultural communications efforts.

In a search for democratic input into Oklahoma State University Division of Agricultural Sciences and Natural Resources' (which encompasses the Oklahoma Agricultural Experiment Station) efforts at setting research and extension agendas, Kelsey and Pense (2001) proposed and implemented a process for gathering such input. The same process, focused on gathering qualitative input from "agents," "beneficiaries," and "underrepresented citizens," is easily transferable from the task of research and extension program planning to agricultural communications planning and assessment and audience analysis. In addition, the qualitative case study method for collecting stakeholder input is a strong match with the goals of audience analysis and publications planning and assessment, affording researchers with the thick, rich, data on audience, which is required for successful communication of agricultural research.

Audience Analysis

The concept of audience analysis has many roots in technical communication theory. Technical communication theorists Houp and Pearsall (1984, p. 20) describe audience analysis as gaining an understanding of the purpose and background of an audience:

> You must understand not only the purpose but also the background of your audience. You must know who your readers are, what they already know, and what they don't know. You must know what your readers will understand without explanation and without definitions.

The authors of another popular technical communications text are even more specific about the need to understand one's audience (Price & Korman, 1993, p. 29):

> The more you know about the groups of people within your audience (usually you write for several groups), the more you can shape your prose so they understand you, and the easier it will be for you to organize your information so they can find what they need. Your understanding of your audience can determine whether your manual succeeds or fails ... You need to consult with anyone who can tell you about your audience. Then you can prepare an audience profile.

Communicators should understand that such a profile is not a true description of the audience. It is, however, a conglomeration of characteristics that can be used in creating a "fictitious" audience which authors and editors can envision as they plan and create publications (Ong, 1975). This "fictional" reader differs from the actual audience in that it "is a role that must be assumed, a set of values, attitudes, biases, even facts that must be known and accepted if the text is to be read and understood" (Coney, 1987, p. 323). Therefore, the actual audience must be willing and able to play the role that the communicator assigns for them.

Killingsworth and Gilbertson's (1992) technical communication theory text notes that writers should ask three questions before designing text that is technical in nature: (1) What does my reader need to know? (2) How can I help the reader to understand? And

(3) what do I want the reader to do with the material? With these questions answered, the fictional audience Ong has described becomes more clear.

By studying the feelings and perceptions of audience members, authors and editors can accurately predict the roles that their actual audience members are willing and able to play. In this theoretical light, qualitative methodology, which strives to gather rich, thick, detailed sociological information, should be extremely useful as an audience analysis tool. In fact, Anderson (1991) suggests that to write in a way that will meet each person's needs without hampering clear and effective communication to the others, writers may need to focus on the needs and concerns of the most influential members of their audience. Therefore, the methods of this study include an examination of, among others, the political and social leaders of the wheat industry.

In summary, a clear understanding of the intended audience for a communications effort can determine whether it succeeds or fails. The goals of audience analysis are to gather information from and about the intended receivers of a message and to build a fictional audience for use as a reference in creating and carrying out communications efforts. Though survey research has been the primary mode of gathering audience-related data in the field of agricultural communications, qualitative methods are a logical way to compile a thick, rich description of an audience's needs, perceptions, and concerns.

Agricultural Publication Planning and Assessment

Planning Agricultural Publications

Littlejohn (1992, p. 10), in characterizing communications researchers, describes the audience researcher's perspective with the phrase "who one is determines what one

sees." If authors and editors of agricultural publications take this rhetorical view of their audiences, they easily understand why audience analysis is paramount to producing effective publications. Effective communication of agricultural research information depends greatly on the communicator's ability to understand his or her audience's needs and preferences. Thomson and Kelvin (1996), in their study of suburbanites' perceptions about agriculture, agree, noting that media (agricultural communicators working in mass media) can be most effective when they understand their targeted audiences. Tucker et al. (1997, p. 20) cites Redding (1982) in pointing out that "one of the strongest arguments for editorial research is the need to keep current with readers' perceived needs and interests."

The need for defining an audience for agricultural research reports also is evident to Kern (1992), who characterizes three main audiences specifically for annual reports generated by agricultural research institutions: (1) heads of agencies that use agricultural research findings, (2) agricultural scientists, and (3) some persons interested in agricultural science (but not scientists). This characterization is useful to agricultural authors and editors in developing an audience-friendly approach to the design and preparation of annual agricultural research reports that are more useful than those written in the usual scientific-report form.

Like agricultural research publications, some agricultural extension publications also struggle with audience related problems. According to Risdon (1990), "Extension has been plagued by the fact that many citizens avoid Extension publications because they're hard to read and use." Risdon's article, meant to be a guide for authors and editors of agricultural publications, suggests employing learning theory to guide the audience

analysis and publication development process. She suggests a six-stage model for developing the text of a publication (Table 2). Within each stage are critical questions that apply learning theory in the text development process.

Table 2

Risdon's (1990) Six-stage Model for Developing Agricultural Publications

Stages	Operative Questions
Stage One: Clarifying the Purpose	What's the purpose of the publication? What's the central topic to be conveyed? What are the major and supporting concepts?
Stage Two: Creating Relevance	How much do the intended clients know? How can the new information relate to them? What's important about this new information?
Stage Three: Developing Coherent Structure	Are the concepts arranged in a consistent order? Has a conceptual flow been created? Has non-relevant information been deleted?
Stage Four: Explaining Terminology	Have technical terms been identified? Which terms are critical to know? Which technical terms should be explained?

(table continues)

Stages	Operative Questions
Stage Five: Composing Cohesive Passages	Does each paragraph begin with a topic sentence? Does each sentence connect with the next? Have all major concepts been presented?
Stage Six: Evaluating the Publication	How will comprehension be measured? Are the main ideas understandable? Did the client gain important information?

These guidelines fit well within the audience analysis principles established by technical communications theorists Warren (1993) and Killingsworth and Gilbertson (1992).

Stage six of Risdon's process is an important but often overlooked element of communication. Feedback for authors and editors—though gathering it is time-consuming—gives communicators a means of determining the effectiveness of their communicative efforts.

Agricultural Publication Assessment

Several studies have focused on audiences' perceptions of existing agricultural publications. Of those, the one most closely related to this study is Wanjohi's (1993) readership survey of Agriculture at OSU, Oklahoma State University's agricultural magazine. It is likely that the audience for Agriculture at OSU overlaps with the audience for the Partners in Progress series, simply because both are targeted toward people in the Oklahoma agriculture industry (although Agriculture at OSU covers a much broader

range of topics). Wanjohi collected data from 272 randomly selected readers from a population of 4,000 using a 43-question survey instrument. Wanjohi's data analysis, which employed descriptive statistics, chi-square, and ANOVA, revealed the findings in Table 3.

Table 3

Wanjohi's (1993, p. 2) Results of a Quantitative Analysis of the Audience for Agriculture at OSU

Characteristics	Descriptions
Readers' Affiliation to Agriculture	In order of frequency, respondents were faculty members, farmers, administrators, secondary school teachers, and legislators.
Gender of Readers	The total group of respondents was composed of 88 percent men and 12 percent women.
Age of Readers	The largest number of respondents were age 51 or older, followed by age 41 to 50.
Education Level	The largest number of readers obtained a bachelor's degree, followed by master's, and doctorate, respectively.
Major Field of Study in College	Seventy-four percent of the respondents held a degree(s) from agricultural colleges and 15 percent from colleges of education.

(table continues)

Characteristics	Descriptions
Usefulness of Sources of Information	The magazine ranked second to the Cooperative Extension Service as a source of information about the OSU Division of Agricultural Sciences and Natural Resources.
Overall Opinion	The magazine was viewed as believable, attractive, and accurate. Lowest scores were given for completeness, diversity, and timeliness.
Physical Appearance	More than half indicated no need for change in design. Secondary school teachers and farmers recommended more photographs.

Wanjohi's study described some general qualities of readers of Oklahoma Agricultural Experiment Station publication readers; however, because the focus of the Partners in Progress series had become narrowed, audience characteristics and preferences for Ag at OSU and Partners in Progress publications are likely to differ (Table 3).

A similar survey by Tucker et al. (1997) of The University of Missouri's Focus21 audience sheds light on agricultural audiences' preferences for agricultural college magazines. Results of the Tucker et al. study indicate the importance of agricultural publications in influencing audiences' perceptions of the institutions from which they are generated. This information is further justification for an audience analysis of those who read the Partners in Progress series, because one of the objectives of the new type of progress report was to show accountability and impacts to taxpayers, creating a positive

public perception of the Oklahoma Agricultural Experiment Station. Like Wanjohi's study, the Tucker, et al. study also sought to answer questions related to design. Specifically, findings indicated a relatively high preference for colorful photographs in the publication and generally preferred the use of photographs and visuals to provide information in addition to the text.

McGinley's (1993) work, which involved a Likert-type survey, measured agricultural publication reader satisfaction in general terms. McGinley found that readers of the agricultural magazine Arizona Land & People were satisfied with the magazine in its current form, although they prefered that it be published more often. The readers represented a wide range of occupations, many related to agriculture. The magazine was valued for the quality of its technical information, which a majority of the readers use for work-related purposes. Findings also suggested that Arizona Land & People was a valuable tool in schools and libraries.

Another method of gaining feedback from publication audiences in the agricultural communications field is an assessment study, in which samples of the target audience are tested to determine the effectiveness of the publication. Boone and Smith (1996) developed a pre-test/post-test study to determine the educational effectiveness of Ohio extension publications related to water quality. The results indicated that the publications (fact sheets) were effective non-formal education methods.

In summary, the benefits of Risdon's practical, theory-based advice on publications planning are twofold. Her work provides a framework for agricultural communicators to follow in developing publications. Additionally, such a framework is essential in evaluating the communicative effectiveness of publications. The audience

studies performed by Wanjohi, Tucker et al., McGinley, and Boone and Smith are useful to authors and editors of publications that target a more general agricultural audience than the Partners in Progress series is intended to reach. With the content of the Partners in Progress publications focused narrowly on research related to one commodity (wheat, beef, peanuts, or soybeans), the results of an audience analysis will likely be quite different. Kern's study, too, involves a more general audience; however, his results should be compared with the results of this study to determine if the categories of audience he lists for annual reports match the categories that emerge as a result of the audience analysis for the Partners in Progress reports.

Theoretical Framework for Qualitative Methods

Qualitative Methods for Gathering Stakeholder Input

This study employed a qualitative case study approach to gain an in-depth understanding of the situation, values and opinions of the stakeholders in the communication of OSU's wheat research. Because each stakeholder processes information through a unique schema, effectively controlling the variables that affect stakeholders' perceptions of a publication would be impossible in a quantitative study. Yin (1994) postulated that case study is a design particularly suited to situations in which it is impossible to separate the phenomenon's variables from their context. As Merriam (1998) argued, qualitative case studies provide researchers with a method of uncovering particularistic, descriptive, and heuristic data. Qualitative case study data is particularistic in the sense that it focuses on a particular situation, event, program, or phenomenon. It is descriptive in that the end product of a case study is a rich, thick description of the

phenomenon under study. It is heuristic in that the data illuminates the reader's understanding of a particular phenomenon. These qualities are especially applicable to the study of a specific audience (i.e., wheat research stakeholders) for a specific publication (i.e., the Partners in Progress: Wheat Research at OSU report).

Because of these qualities, qualitative case study research lends itself easily to gathering stakeholder input for planning and evaluation purposes. Guba and Lincoln (1989) see qualitative research (including the case study method) as a way of democratizing the evaluation process, gathering input from a truly representative group. In other words, information needs to be obtained from a variety of stakeholders. In the case of the Partners in Progress study, this group should include those who administer programs--in this case, those who administer and disseminate research-based information (i.e., agents). The group should also include those who benefit from the communications efforts (beneficiaries) and those who may be victims or who are underserved (underrepresented citizens). The thick, rich description afforded by a qualitative case study paints a clear picture of the group being studied--a picture that could be equated to Ong's (1975) fictional audience and that is not unfairly influenced by information that comes from only one segment of stakeholders.

Qualitative Methods and Audience Analysis

If authors and editors take this same view of their audiences, they easily understand why audience analysis is paramount to producing effective publications. Effective communication depends greatly on the communicator's ability to understand an audience's culture and the interactions in that culture that help people form meaning from

messages. This simple explanation of audience analysis demonstrates how qualitative case study research can serve as an effective audience analysis tool.

Qualitative researchers seek "a deeper immersion in others' worlds in order to grasp what they experience as meaningful and important" (Emerson et al., 1995, p. 2). They often gather their data through interviews and participant observation, techniques that allow them to "directly and forcibly ... experience both the ordinary routines and conditions under which people conduct their lives and the constraints and pressures to which such living is subject" (Emerson et al., 1995, p. 2).

Qualitative Methods versus Quantitative Methods in Agricultural Communications

An argument could be made that quantitative audience surveys accomplish a similar purpose, and indeed surveys and statistical analysis of survey-generated data are useful in determining the needs and preferences of targeted audiences. Tucker (1997), for example (although he later argued that survey methodology may be becoming too commonplace), used a survey of University of Missouri agriculture alumni to determine the effectiveness of an agricultural research publication which is targeted for Missouri agricultural producers.

McGinley (1993) used a similar technique to determine perceptions of a University of Arizona agricultural publication. This type of descriptive survey research is common among publications professionals and is accepted as useful and practical research. In fact, Redding (1982), provides a widely-used procedure for conducting such a readership survey.

However, qualitative research gives authors and editors something more—an information filter that is similar to the audience's, a way of identifying with their audience's culture, and a means to understand how the audience interprets information. This study should serve as an example to agricultural communications researchers who have not taken advantage of qualitative research as an audience analysis tool.

In the Partners in Progress study, data was collected through the use of several qualitative methods: informal surveys; individual interviews with wheat researchers, policy makers, and wheat producers; participant observations; and analysis of artifacts (namely, other publications that wheat researchers use to communicate with producers). These various methods add credibility to the findings of this study and are typical methods employed in qualitative studies (Bogdan & Biklen, 1998).

Ultimately, the qualitative case study method appears to be most appropriate for the situation under investigation. The Partners in Progress study seeks to determine issues related to the Partners in Progress publication that stakeholders consider meaningful and important. The research methods employed in this study were in accordance with what Spradley (1980, p. 54) calls the "purposes" of a participant-observer: "(1) to engage in activities appropriate to the situation and (2) to observe the activities, people, and physical aspects of the situation."

In summary, qualitative case study methodology is appropriate for the task of publication planning and assessment and for the task of audience analysis because it allows researchers to develop an in-depth view of audience members' needs, preferences, and general schemas employed in receiving and processing information. This in-depth view, which is, in fact, Ong's (1975) "fictional audience," is key in communicators'

efforts to develop and package information so that it communicates most effectively with the largest number of audience members possible.

Summary

In an effort to begin solving the historical problems with Experiment Station publications, this study draws its theoretical framework from paradigms in three unique academic fields: publication development in agricultural communications, qualitative assessment in education (and agricultural education), and audience analysis in English composition and technical writing, (Figure 1).

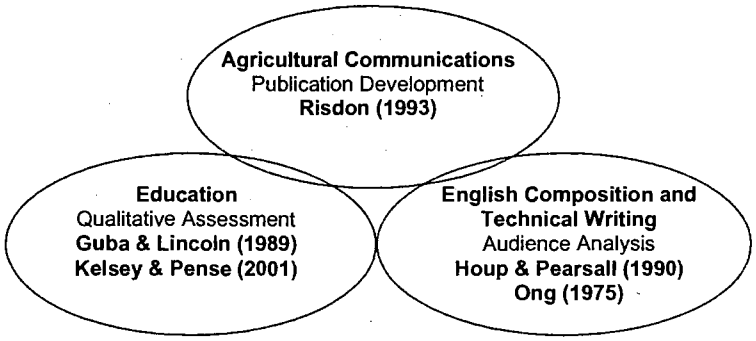

Figure 1. Qualitative audience analysis: A unique combination of theoretical frameworks for the Partners in Progress study.

In the field of English, Ong (1975) explained audience analysis as developing a "fictional" audience that represents the demographics, needs, and preferences of the members of the audience. In education, agricultural education researchers Kelsey and Pense (2001) proposed a framework for collecting stakeholder input for agricultural research programs, which was based on Guba and Lincoln's preeminent work on qualitative research and on Bryk's (1983), Ayers' (1987), and Fine's (1994) work on

stakeholder input. Risdon (1990), in the field of agricultural communications, proposed a six-stage model for developing agricultural publications.

CHAPTER 3

Research Design

Overview

The purpose of this chapter is to describe the methods and procedures used to develop and conduct the study. This chapter is divided into two main sections: description of the case and methodology. The former explains why the case was selected, provides a context in which the data were collected, and reviews the study's research objectives. The latter includes an explanation of researcher epistemology, a justification for the research design, and explanation of subject selection and human subject protection, a description of data collection procedures and instrumentation, an explanation of data analysis procedures, and a discussion of validity and reliability of qualitative research findings.

Description of the Case

Case Selection

The wheat research report and the stakeholders of the research on which it reports were selected for this study for several reasons. First, the Partners in Progress: Wheat Research at OSU publication was the first in the series to be developed. Positive feedback regarding the wheat research report through informal channels led OSU agricultural

communicators to use the publication as a prototype for other commodity-focused reports in the series. Therefore, research findings in the case of the wheat research report could have implications for the similar beef, soybean, and peanut reports that were created in the image of the wheat report prototype. Secondly, of all the commodity-focused reports, the wheat report has the largest distribution (500); thus, the number of subjects, including agents, beneficiaries, and underrepresented citizens involved in this case study was sufficiently limited but also was large enough to produce meaningful data. Third, a large portion of Oklahoma's wheat production occurs in a single region of the state, providing a manageable population for purposes of study. Fourth, Oklahoma's wheat commodity commission, the Oklahoma Wheat Commission, supports between seven and 10 Oklahoma Agricultural Experiment Station research projects each year with money from the checkoff fund it manages. Therefore, the relationship between the Oklahoma Agricultural Experiment Station and the Oklahoma Wheat Commission is strong, paving the way for interviews with producers and policy makers to be conveniently arranged. An additional strength is the Cooperative Extension Services' link to producers. Wheat-related field days, tours, and on-farm demonstrations draw hundreds of wheat producers together each year, again adding an element of accessibility to the population.

The Context

The Partners in Progress: Wheat Research at OSU Report

Data were collected for this case study at Oklahoma State University, Stillwater; at off-campus seminars and workshops sponsored by the Oklahoma Cooperative Extension Service; at various commodity group and agriculture-related organization

meetings, seminars, and workshops in central, northern, and northwestern Oklahoma; and in the on-campus offices of the various OSU wheat researchers. The object of the study was the Oklahoma Agricultural Experiment Station Progress Report Partners in Progress: Wheat Research at OSU. The subjects of this study were stakeholders of OSU wheat research, including agents, beneficiaries, and underrepresented citizens as defined by Guba and Lincoln (1989).

The annual report that was the focus of this study had been printed and distributed once a year for four years (beginning in 1997) as a means of reporting on the progress of ongoing wheat research conducted by Oklahoma Agricultural Experiment Station researchers. The primary purposes of the report, according to the Oklahoma Agricultural Experiment Station Associate Director (D.C Coston, personal communication, September 14, 1998) were to serve as a public accountability tool, informing members of the Oklahoma Wheat Commission and wheat producers across Oklahoma of how research money from a voluntary wheat checkoff fund was utilized.

Authors of the report included wheat researchers from several academic units in OSU's Division of Agricultural Sciences and Natural Resources, including Plant and Soil Sciences, Biosystems and Agricultural Engineering, Entomology and Plant Pathology, Agricultural Economics, and the Food and Agricultural Products Research and Technology Center. The primary author, who wrote the introductory section and worked with an agricultural editor to coordinate production of the report, was the OSU's state extension wheat specialist. The primary author always contributed at least three sections to the report, but otherwise each author was responsible or partially responsible for one specific section of the report dealing with the research in which they had been involved.

Partners in Progress: Wheat Research at OSU was part of a series of similar reports that followed a similar format. Other reports in the Partners in Progress series included Beef Research at OSU, Soybean Research at OSU, and Peanut Research at OSU. Each report was similar in length, ranging from 28 to 36 pages. Professionally printed on recycled paper, the publications were 8 1/2" x 11 " and saddle-stitched. The wheat report was printed each year in purple ink to help potential readers differentiate it from other reports in the series, each of which was printed in a unique ink color.

To help communicate some of the more technical information, the report contained tables, graphs, charts, and occasionally photographs. Additionally, to make the report easy for some readers to scan, a bulleted list of specific research findings was included at the beginning of each section.

Five hundred wheat research reports were printed each year, and 250 were delivered to the Oklahoma Wheat Commission administration, who were to distribute the reports to producers across the state along with a matching brochure containing highlights of the report. About 100 of the reports were distributed to cooperating research libraries in the United States, and one copy was sent to each county Extension office in Oklahoma. The director of the Oklahoma Agricultural Experiment Station kept about 50 copies to deliver to stakeholders personally, and the OSU Extension mailing service kept 25 shelf copies.

The Stakeholders

According to Guba and Lincoln's (1989) methods, the stakeholders in the Oklahoma Agricultural Experiments Station's efforts to communicate with wheat

researchers were categorized into agents, beneficiaries, and underrepresented citizens. Agents were wheat researchers at OSU who were contributing authors to Partners in Progress: Wheat Research at OSU. Beneficiaries were Oklahoma wheat producers who benefited from reading such reports and who benefited from Oklahoma Agricultural Experiment Station efforts in general. Underrepresented citizens were Oklahoma wheat producers who identified themselves or who were identified by others as being distant from or underserved by the Oklahoma Agricultural Experiment Station.

Research Questions

The case study is a qualitative audience analysis of the readers of Partners in Progress: Wheat Research at OSU. The case study sought answers to the following overarching research questions:

1. What types of readers comprise the groups of people who use the Partners in Progress reports as information sources?
2. For what purposes do people read the reports?
3. What are the audiences' needs and expectations regarding writing style, level of technicality, and design, and what is the order of importance of these needs?
4. Do these reports effectively attain the Experiment Station goal of disseminating research results to producers for the purposes of sharing practical research-based information for producers to use?
5. Do these reports effectively attain the Experiment Station's goal of disseminating research results to stakeholders for the purpose of demonstrating accountability?

The information resulting from this case study will be used in the development of guidelines for improving the Partners in Progress series of publications and should be useful to agricultural communicators who can apply the results to similar publications for similar audiences.

Methodology

The Researcher's Perspective

To help the reader of this study develop a deeper understanding of the context in which the findings were developed (Bogdan & Biklen, 1998), the following subsections describing the researcher's perspective are provided. The researcher located himself in the constructivist paradigm of qualitative research. Also, the he had unique ties to the Partners in Progress: Wheat Research at OSU report, having served as the production editor of the report since its inception.

Constructivism in the Qualitative Paradigm

This study purposefully avoided traditional survey methodology, which is commonly used in gathering information from and about publication audiences. As Tucker (1996) noted, data produced by survey methodology can be superficial and may be overused in agricultural communications research. Therefore, in an effort to avoid superficiality, this study incorporated methods from the qualitative research genre and held to a research philosophy of constructivism.

Through open-ended questions on a hand-delivered survey, short open-ended interviews, and examination of artifacts encountered during participant observation, in-depth information was obtained from the Partners in Progress wheat researchers/authors and their audience members. The bulk of the qualitative methods employed in this study followed Kelsey and Pense's (2001) model for collecting stakeholder input, with slight modifications to account for the fact that the data gathered from stakeholders was used to improve Experiment Station communications efforts as opposed to being used for setting the Experiment Station research agenda. The qualitative methods strengthen this audience analysis project particularly by providing detailed, descriptive data (Merriam, 1988) that led to the big picture of the audience, its communicative needs, and its perceptions of the communicative effectiveness of Partners in Progress: Wheat Research at OSU.

The word qualitative, according to Denzin and Lincoln (2000, p. 8) "implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity, or frequency. (Qualitative researchers) seek answers to questions that stress *how* social experience is created and given meaning." In other words, qualitative studies like this particular case study strive to evaluate or describe situations that may not be accurately described by measurement and analysis of statistical relationships between variables.

This study falls most aptly into the Constructivist paradigm of qualitative research, which encompasses interpretive case studies and ethnographies (Denzin & Lincoln, 2000). Constructivism--or the belief that through communication about events,

people, and their roles in society an explanation of reality can be constructed based on existing knowledge of social culture--is based on four assumptions (Littlejohn, 1992):

1. The world does not present itself objectively to the observer, but is known through human experience, which is largely influenced by language.

2. The categories in language used to classify things emerge from the social interaction within a group of people at a particular time and in a particular place. Categories of understanding, then, are situational.

3. How reality is understood at a given moment is determined by the conventions of communication in force at that time. The stability of social life therefore determines how concrete our knowledge seems to be.

4. Reality is socially constructed by interconnected patterns of communication behavior. Within a social group or culture, reality is defined not so much by individual acts, but by complex and organized patterns of ongoing action.

Constructivist research reaches beyond positivism or postpositivitism movements, which strive to create new theory through logical deduction. It proposes, instead to relate observations to existing explanations of society. Denzin and Lincoln (2000, p.22) describe the narration (i.e., reporting of research results) associated with constructivist interpretation as "interpretive case studies" and "ethnographic fiction." The latter term correlates well with Ong's (1975) description of the "fictional audience" that communicators should develop through audience analysis.

This explanation of constructivism serves to emphasize the natural (albeit unique) relationship among audience analysis, stakeholder input, and qualitative research. As described in Chapter 2, audience analysis requires the author to construct a fictional

audience (Ong, 1975) for which to write by observing the known members of the audience for a publication and building stereotypes. Similarly, the stakeholder input process requires study of the stakeholders' claims, concerns, and issues to develop a clear picture of what stakeholders as a whole desire. Qualitative research, in the constructivist paradigm, offers researchers a method of gathering information and developing an understanding of reality as seen by the subjects of the study. Thus, the qualitative research in the constructivist paradigm serves audience analyzers and gatherers of stakeholder with a well-fitting method to complete their tasks.

About the Researcher

The researcher was also the editor of Partners in Progress: Wheat Research at OSU. An important part of an editor's responsibilities is to perform a thorough audience analysis and evaluation of the publications he edits. Because of the need for audience analysis and evaluation, many times, the editor becomes the evaluator of his own publication. This was the scenario for the case of Partners in Progress: Wheat Research at OSU.

The editor, at the time of this research, was a six-year veteran in OSU's Agricultural Communications Services. His responsibilities regarding Partners in Progress: Wheat Research at OSU included soliciting articles for the report, editing them for organization, reading level, and style, designing the visual aspects of the publication, and managing the printing and distribution of the reports. During the production of the report, he worked closely with wheat researchs, who served as the subject matter experts

and authors of the articles. He frequently advised them on issues related to organization, reading level, and style.

Readers of this study should keep in mind, therefore, that the researcher had a vested interest in the publication and audience being studied because he was also the editor. This vested interest may have indeed introduced an element of subjectivity in the reporting of findings. However, participant observation, by its own definition, requires the researcher to actively partake in the social situation being studied to gain introspection. Merriam (1998, p. 6-7) refers to the "insider" view as the "emic" perspective and the outsider view as the "etic" perspective. The participant-observer, then, can be both an "insider" in some situations during the study and an "outsider" in other situations (Spradley, 1980, p. 57). This was the scenario in the case of the Partners in Progress study: The researcher entered the study with a solid understanding of the agents' point of view (agents were wheat researchers and Cooperative Extension faculty), but he was an outsider relative to the beneficiaries and underrepresented citizens in the study (beneficiaries and underrepresented citizens were wheat producers).

Case Study Design

Explanation of Case Study Research

Specifically, this study fits into Stake's (2000, p. 437) category of "intrinsic case study," which is a study of a particular, bounded case undertaken because the researcher wants a better understanding of the case. The primary purpose of intrinsic case studies is not theory building, but the case study itself may be used in conjunction with other similar studies in the mode of "collective case study" to begin to build theory.

Though many academic researchers put great emphasis on the generalizability of a case to a larger population, Stake (2000, p. 439) argued that "damage occurs when the commitment to generalize or to theorize runs so strong that the researcher's attention is drawn away from features important for understanding the case itself." Some generalization is inherent in any study, but an intrinsic case study such as this one focuses on the specifics of this particular case and what is important about the case within its own world.

Merriam (1998) explained that qualitative case studies provide researchers with a method of uncovering particularistic, descriptive, and heuristic data. Qualitative case study data is particularistic, or bounded (a term many qualitative researchers prefer) in the sense that it focuses on a particular situation, event, program, or phenomenon. In this case, the particular phenomenon is the communication situation involving Partners in Progress: Wheat Research at OSU, its authors, and its audience members over the short lifetime of the Partners in Progress series, which began in 1997. Case study data is descriptive in that the end product of a case study is a rich, thick description of the phenomenon under study. The findings of this study are based primarily on transcripts from personal interviews with stakeholders, which provided the thick, rich description required of the end product of a case study. Case study data is heuristic in that the data illuminates the reader's understanding of a particular phenomenon. Indeed, this study results in an explanation of the communication situation, shedding light on both the publication and its audience.

In summary, the case study method was chosen to provide the researcher, who was also the editor of Partners in Progress: Wheat Research at OSU, with thick, rich

description that illuminated his understanding of the stakeholders in the communication situation. The case study method offered a means of discovering information that may well have been hidden by statistical calculations of responses to survey questions. Realizing that this is, in effect, a social science study, the researcher chose to employ methods common in the social sciences to gather and analyze data and report the findings.

Model for Gathering Stakeholder Input

Following a model for collecting stakeholder input regarding Oklahoma Agricultural Experiment Station proposed and used by Kelsey and Pense (2001) at OSU to gather stakeholder input for OSU's forestry research agenda, this study employed a three-phase data collection and analysis process to evaluate communications efforts related to wheat research. The three phases of the project were designed to encourage democratic input regarding the Partners in Progress publication among the stakeholders at all levels of the process, and they allowed for an unbiased comparison of the agents' (wheat researchers and authors) views of the publication with the audience's views.

Phase I involved identification and selection stakeholders who fell into "agent," "beneficiary," and "underrepresented" categories (Guba & Lincoln, 1989). Once stakeholders were identified as either agents, beneficiaries, or underrepresented, they were approached and asked to participate in a short open-ended interview regarding Oklahoma Agricultural Experiment Station communication efforts with wheat producers.

Phase II involved collecting stakeholder input. Early stakeholder involvement establishes legitimacy and reinforces the perception that dialogue is critical for success

(Reineke, 1991). The Partners in Progress series was still in its infancy at the time of this study, so stakeholders were, indeed, involved relatively early.

Phase III involved assimilating stakeholder input and employing it in the planning of future Partners in Progress publications.

Phase IV involved keeping open lines of communication to encourage an ongoing dialectic regarding communications issues--specifically, communications about wheat research.

Kelsey and Pense's (2001) work on gathering input from stakeholders in Oklahoma Agricultural Experiment Station forestry research preceded this study. Their work resulted in the proposed model for gathering stakeholder input for the purpose of setting research agendas at land-grant institutions. This model, with minor modification, can be applied to the process of collecting stakeholder input for the purpose of audience analysis. While the four phases of this preliminary model were based on the work of Babiuch and Farhar's (1994) resource book on stakeholder analysis for the Department of Energy, much of the methodology was also gleaned from Guba and Lincoln's Fourth Generation Evaluation (1989). Kelsey and Pense's (2001) project adopted Babiuch and Farhar's proactive position for collecting and analyzing stakeholder priorities for university research with the explicit purpose of setting future-oriented strategic goals for research expenditures. Guba and Lincoln provided categories of stakeholders to be included in the study, and also provided components from their 12-step evaluation model, which were included in Kelsey and Pense's four-phases:

1. Identifying and selecting stakeholders who fall into agent, beneficiary, and underrepresented categories

2. Collecting stakeholder input

3. Assimilating and implementing stakeholder input into university research priority setting

4. Continuing ongoing communications with stakeholders.

This interview portion of this study employed these four phases with minor modifications to the third phase to make the project more appropriate for audience research. By the time the data collection phase reached the point of data saturation – the point of data collection where the information becomes redundant (Bogdan & Biklen, 1998) – a consensus was clear; therefore, no negotiation among stakeholders was necessary.

Subject Selection and Human Subject Protection

Sampling, in qualitative research, is frequently purposive. Purposive sampling "is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned" (Merriam, 1998, p. 61). According to Mathie and Green (1997), it is more important to have a range and significance of perceptions and preferences, than to have quantifiable measures of the distribution of stakeholder opinion.

Two key informants emerged early in the data collection process: an OSU wheat researcher who has spent much time with producers in the field, and a leader of a statewide wheat growers' association. These two men were especially helpful in setting up interviews with a range of stakeholders in the field and were able to pre-identify them as beneficiaries or underrepresented citizens. Additionally, a strong relationship between

the university and several commodity groups in Oklahoma led to the procurement of time on three board meeting agendas. These board meetings offered a unique opportunity in which surveys could be administered in a face-to-face setting, and it allowed for an excellent opportunity for participant observation among a group of beneficiaries.

The number of subjects participating in this case study was 35. Twenty participated in the survey portion of the study. Three of these subjects, plus 15 more participated in the interview portion of the study.

The initial population identified by the Director of the Oklahoma Agricultural Experiment Station as bona fide stakeholders were board members of statewide commodity groups (n=17). Seventeen commodity group board members, all identified as beneficiaries, completed the 15-question survey, which was delivered face-to-face at various commodity group board meetings.

The second population identified as bona fide stakeholders were the OSU wheat researchers and extension professionals (n=6) who contributed substantially as authors in the latest edition of Partners in Progress: Wheat Research at OSU. These wheat researchers/authors were interviewed in their on-campus offices using the interview outline described in Table 4. Three of these six also completed the same survey as the 17 commodity group board members. The same three, in addition to the three who did not complete the survey, participated in the interviews.

An interview process with each of the six faculty members resulted in identifying additional stakeholders other than the wheat researchers/authors, namely beneficiaries (n=5) and underrepresented citizens (n=6). Beneficiaries and underrepresented citizens were categorized according to the apparent strength of their relationship with the

Oklahoma Agricultural Experiment Station. Agents were able to identify some beneficiaries, and some beneficiaries helped identify other beneficiaries and underrepresented citizens. This sampling method is known in the qualitative genre as networking or snowballing (Stone et al., 1999). These producers were interviewed by telephone at their homes and in person at various educational meetings for wheat producers.

The proposal for the study was approved by the Oklahoma Agricultural Experiment Station and was subsequently submitted for review and approval by the Institutional Review Board (IRB). This review was required by Oklahoma State University in order to protect the rights of those participating in the study. After conducting a proper review of the proposed study, permission was granted to proceed with the study and the following research number was assigned: AG-99-021 (Appendix A).

Data Collection Procedures and Instrumentation

Data were collected through a variety of methods and instruments, allowing for appropriate triangulation of data. Data collection methods employed included surveys, interviews, collection of artifacts, and participant observation. Data collection instruments used in conjunction with these methods included a questionnaire containing two open-ended questions and 13 Likert-type questions. Instrumentation for the interviews consisted of an interview schedule, which served as a dynamic outline providing direction for the interviews.

Surveys

Though surveys were not the primary method of data collection in this study, they served two important roles: they aided in triangulation of data, which adds credibility to the study; and they were a good method of gathering data with a specific group of subjects, namely the beneficiaries. Surveys were provided to board members of the Oklahoma Wheat Commission, the Oklahoma Beef Industry Council, and the Oklahoma Wheat Research Foundation at monthly meetings.

Face validity of the survey was determined by a panel of experts (Dillman & Sallant, 1994), including an agricultural research administrator and three agricultural education researchers. Initially, the surveys were administered as a pilot study; however, because alterations to the instrument were not necessary, data from the pilot study were pooled with data for the study.

Each survey contained two open-ended questions related to the constructs of audience and purpose, and 13 Likert-type questions related to style, level of technicality, and design preferences (Appendix B). Responses to the open-ended survey questions were entered as qualitative data and were analyzed along with transcripts resulting from subsequent interviews of other stakeholders. Responses to the Likert-type questions were analyzed, and the means were recorded, demonstrating a representation of the group's response to questions related to style, level of technicality, and design preferences.

Interviews

The following plan for data collection and analysis resulted from Kelsey and Pense's (2001) work on stakeholder research:

Phase I: Identification and selection of stakeholders who fall into agent, beneficiary, and underrepresented citizen categories. A progressive system of snowballing (Merriam, 1998), or network sampling (Stone, et al., 1999), was employed. This allowed a list of stakeholders to grow as they were identified by the initial stakeholders who were interviewed. Snowballing involves receiving referrals from previous participants that lead to interviews with other quality participants. Some agents were able to identify beneficiaries who would participate in the study, and some beneficiaries were able to identify underrepresented citizens. Initial referrals came from contacts within the university, including state Extension specialists. A state Extension wheat specialist was most helpful in identifying potential participants. Beneficiaries and underrepresented citizens received a copy of the most recent Partners in Progress: Wheat Research at OSU publication, and a short explanation of the study.

Phase II: Collecting stakeholder input. Data collection began with an initial interview of an Experiment Station administrator, who referred a well-defined group of beneficiaries, including the executive boards of the Oklahoma Wheat Research Foundation, the Oklahoma Beef Industry Council, and the Oklahoma Wheat Commission. At their board meetings, the subjects were presented with a rationale for the study and were asked to complete a questionnaire containing both open-ended questions and Likert-type questions regarding their perceptions of the publication. The same survey was completed by several wheat researchers as well. Interviews began on the campus of Oklahoma State University, where the wheat researchers/authors who had recently contributed sections to Partners in Progress: Wheat Research at OSU were interviewed. Their connections with wheat producers led to interviews with producers at extension and

Experiment Station field days and symposiums, interviews with producers at educational events sponsored by political groups with agriculture interests, and interviews by telephone. These producers were able to further identify producers who fit the underrepresented category. The producers were assigned to either the beneficiary or underrepresented citizen categories according to their responses to the interview questions. During each of the interviews conducted in the field, observational data was collected in the form of field notes, and artifacts (mainly publications being used in communications between agents and beneficiaries) were collected.

Phase III: Assimilating stakeholder input and employing it in the planning of future Partners in Progress publications. Data from interviews were transcribed and coded, with the intent of identifying thematic claims, concerns, and issues (Merriam, 1998; Guba & Lincoln, 1989). Hypotheses concerning themes were developed and confirmed through a member-check with agents, beneficiaries, and underrepresented citizens (Merriam, 1998).

Phase IV: Continuing ongoing communication with stakeholders regarding future communications efforts. Resultant recommendations from stakeholder input was intended to generate substantive change for Oklahoma Agricultural Experiment Station communication priorities, specifically priorities regarding the communication of wheat research findings. The final step in this methodology requires the acceptance of the findings and recommendations by the Oklahoma Agricultural Experiment Station administration and action based upon those recommendations. Above all, ongoing communications with stakeholders to continue this iterative process is key (Mathie & Greene, 1997). Implications of this study recommend the development of a forum in

which agents, beneficiaries, and potential beneficiaries (including the underserved) can communicate regarding communication needs.

Stakeholder interviews were predominantly non-structured (Guba & Lincoln, 1989). Though each of the interviews began with questions from a preliminary interview schedule based on the research questions of this study, new questions emerged during the interviews, as is often the case with qualitative methodology (Emerson, 1995). The final interview schedule took shape as the initial interviews were conducted (Table 4). Operational interview questions evolved in the initial interviews, which best elicited responses that would assist in answering the five basic research questions. The interviews were largely unstructured initially, with the interviewer eliciting the respondents' claims, concerns, and issues in their own terminology. As common themes emerged and became clearer, however, the interviewer was able to ask more and more pointed questions; and, this in turn, resulted in an outline for successive interviews.

Table 4

Research Questions and Their Corresponding Operational Questions Used in the Interview Schedule

Research Questions	Corresponding Interview Questions
What type of readers comprise the groups of people who use the Partners in Progress reports as information sources?	All*: Who would you say this publication is written for? (Probe: Producers? Policy makers? Other scientists?) In what order? Agents: Do you think the audience would agree with your assessment?

(table continues)

Research Questions	Corresponding Interview Questions
	Beneficiaries and Underrepresented: Do you think the authors would agree with your assessment?
What are the audiences' needs and expectations regarding writing style, level of technicality, and design?	All: How would you change this publication to make it more effective? (Probe: Consider the content, writing style, level of technicality, and design).
Do these reports effectively attain the Experiment Station goal of disseminating research results to producers for the purposes of sharing practical research based information for producers to use?	All: Are progress reports a good way to communicate research results to producers? Why or why not? All: Does this particular report do a good job of communicating useful research-based information to producers? Why or why not?
Do these reports effectively attain the Experiment Station goal of disseminating research results to policy makers for the purpose of demonstrating accountability?	All: Is this particular report a good way to explain how checkoff dollars are being spent on research? All: Is this particular report a good way to convince wheat producers to not request a refund? Why or why not?

*All = agents, beneficiaries, and underrepresented citizens

Collection of Artifacts

Throughout the period of time spent in the field process, the researcher collected artifacts, or documents, namely wheat-related publications used by beneficiaries and agents. These artifacts helped support and clarify the claims made by the subjects regarding their use of popular publications to educate themselves about wheat-related issues. Examples are OSU fact sheets made available to wheat producers at a wheat field days, OSU Production Technology Reports that a wheat researcher said he likes to hand out at producer meetings, and publications that producers claimed they read to get information about wheat production and management practices, which included the Oklahoma Farmer-Stockman and The High Plains Journal.

Participant-Observervation

Occasionally, the researcher made observations that constituted data not provided through interviews or surveys. Detailed field notes were taken at field days and producer meetings. These notes described the context and setting for the interviews and were entered as data and analyzed along with the transcripts of the personal interviews.

Data Analyses

Themes and Codes

Analysis of qualitative data followed Patton's (1980) suggestions for creating categories through marginal notes on transcripts. This process was simplified by the use of ATLAS.ti, software that allows users to enter notes electronically into word processor

documents, linking them with the text to which they refer. This allowed the researcher to identify and annotate data supporting emerging themes.

The analysis in this study began with categories formed based on the research questions. Those categories, also called core themes (Emmerson, 1995), or families (in ATLAS.ti software) included Types of readers, Purposes for reading, Audience needs and expectations, Communication goals, and Accountability goals.

Differentiation between qualitative data collection and analysis is sometimes vague, and the relationship between the two keeps the analysis process dynamic. As the researcher is gathering data, new themes and hypotheses emerge from the data, leading to further data collection and analysis (Merriam, 1998). In this study, data collection began with an informal Likert-type survey of Oklahoma commodity board members. Their responses to the survey led to a simple descriptive statistical analysis which gave the researcher direction for the ensuing interviews. Formal analysis began as stakeholder interviews were conducted and transcribed. The researcher applied families of codes, specific codes, and memos to the interview transcripts, which led to thematic generalizations and hypotheses. Interviews and data analysis spanned an entire year and ended when the project had reached the point of data saturation (Lincoln & Guba, 1985).

Coding with ATLAS.ti

By coding the interview transcripts utilizing ATLAS.ti, a visual qualitative data analysis software, the researcher structured an array of issues and concerns that reflected multiple perspectives and values. The software allowed the researcher to create electronic links between interview exerpts and codes, or themes. It also allowed for the process of

memoing (Emerson, 1995), which entailed electronically linking observational notes to specific interview exerpts. Obvious themes emerged from the array of electronic families, codes, and memos that, after verification through triangulation techniques, became the findings of this study.

Credibility, Transferability, Dependability, and Confirmability

This study's strategy for enhancing qualitative validity included six methods listed by Merriam (1998): triangulation, member checks, long-term observation, peer examination, participatory research, and clarification of researcher bias.

Efforts to triangulate the findings strengthened validity because they ensured that data was obtained from multiple sources and methods; in this case, interviews of three identified groups of stakeholders (agents, beneficiaries, and underrepresented citizens), artifact (document) analysis, open-ended and Likert-type survey questions of certain purposefully selected subjects, and written field observations by the researcher in this study.

Member checks added rigor to the study by asking members of the research environment to examine documents and transcripts for accuracy. Copies of the written findings were delivered to interview participants, who were asked to review the findings and report any objections they had with the researcher's interpretation of the case. With no objections from the subjects of the study, the researcher's description of the case appears to have been accurate in the eyes of those who were studied.

As a participant-observer in the field, the long-term observation made by the researcher added further to the study's validity. Data collection lasted for more than a

year, providing the researcher with the kind of extended participatory observation necessary to accurately describe a case.

Early drafts of the research were submitted to peers for review and feedback; such peer review also added to validity. The survey questionnaire and the interview schedule were examined and critiqued by experts in educational research and administration, providing face validity.

The emergent design of the study involved participation by the subjects (stakeholders) to conceptualize, develop and give guidance to the project; such a participatory mode of research added yet another dimension to the study's validity.

Observer bias can never be completely removed from an individual. However, such biases were duly acknowledged during the course of the study and during the data analysis and reporting phases of this project. Readers of this study should consider closely the context of the case and the researcher's perspective as they attempt to understand it through their own schemas.

Qualitative researchers, in an effort to differentiate qualitative research terms from quantitative research terms, coined new terms to describe "rigor" and "adequacy" in their research designs (Lincoln, 1999). Guba and Lincoln (1989) propose four criteria for judging rigor and adequacy: credibility, transferability, dependability, and confirmability.

Credibility of the study was enhanced by prolonged engagement, persistent observations, peer debriefings and progressive subjectivity and member checks.

Transferability is possible only in so far as the results are applied to similar settings. Further, descriptive detail will allow others to decide if the findings are applicable to other cases. This study did not intend to generalize statistical results of a

case study to other populations, but some analytical generalizations may be drawn, and the results are possibly applicable to other Oklahoma Agricultural Experiment Station publications and other external communications efforts.

The dependability of the study was enhanced through detailed records of the data collected and the data analysis procedures. Audio tape served as a verbatum account of the interviews conducted. This, in combination with the archived documents and field notes, served to strengthen the study's dependability.

Confirmability was maintained by including detailed excerpts from the raw data in the qualitative narrative, as well as having made complete transcripts available to colleagues who reviewed the study (in this case, dissertation committee members).

Summary

This case was selected because the researcher intended to gain an in-depth understanding of the stakeholders' concerns and issues related to Partners in Progress: Wheat Research at OSU. A clear understanding of the context of the case was provided and is key in understanding the case study itself. The object of the study was the wheat research report, and the subjects were the stakeholders in the communication situation surrounding the report.

Two factors related to the study are important in understanding the findings: first, the researcher saw himself as an insider among those classified as agents in the study but as an outsider among the beneficiaries and underrepresented citizens in the study; second, the researcher located himself in the constructivist paradigm of qualitative research, which indicates that he was aware that the reality he described in this study was particular

to him and was constructed through his personal observations and interpretations of complex and organized patterns of ongoing action.

The chosen methodology for this study was the qualitative case study method, which coincides with the notion of audience analysis. Through several methods, and employing two instruments (a questionnaire and an interview schedule), the researcher collected data representing stakeholders' concerns and issues related to Partners in Progress: Wheat Research at OSU.

Data analysis involved the use of computer software called ATLAS.ti, which aided in developing families of codes and specific codes that related directly to the original research questions. From these codes, initial hypotheses for this study emerged, and through further data collection and analysis, the findings of this study were developed.

CHAPTER 4

Findings

Overview

This chapter presents the research data used to develop conclusions and recommendations related to Partners in Progress: Wheat Research at OSU. The findings are described with a mixture of narrative and tabular information.

For the findings of a qualitative case study to be clearly communicated, those reading the findings must first understand the context of the case before attempting to understand the findings themselves (Merriam, 1998). Therefore, this chapter begins with a review of the general context of the study and specific contexts in which data were collected.

The findings, which follow the explanation of the context, relate directly to the five research questions posed in Chapter 1 and are presented in order with respect to those research questions. Each code represents a finding, and some themes contain several codes. Each code is supported with a table enumerating subjects' responses pertaining to that particular code. Excerpts from interview transcripts also support each code. Additionally, where appropriate, findings from the quantitative portion of this study are included to help triangulate findings that resulted from analysis of the interview transcripts.

Context of Findings

Partners in Progress, a series of annual reports demonstrating research progress and impacts resulting from projects funded wholly or partially by Oklahoma commodity groups was created in 1995. This series includes individual annual progress reports that report on wheat, beef, soybean, and peanut research at OSU.

According to Oklahoma Agricultural Experiment Station Associate Director D.C. Coston, the purposes of this new type of publication are (1) to provide scientific knowledge to agricultural producers who can apply it in their work, and (2) to show accountability and impacts to stakeholders (particularly members of commodity groups who pay checkoffs, legislators, and funding agencies such as commodity group boards (Coston, personal interview, September 14, 1998). The Oklahoma commodity groups targeted include the Oklahoma Wheat Commission, the Oklahoma Beef Industry Council, the Oklahoma Peanut Commission, and the Oklahoma Soybean Board, each of which provide research dollars from checkoff funds to the Experiment Station.

The scope of this study was limited to the Partners in Progress publication titled Wheat Research at OSU. All of the subjects participating in the study were stakeholders in Oklahoma Agricultural Experiment Station wheat research.

The number of subjects participating in this case study was 34. Twenty participated in the survey portion of the study. Seventeen policy/decision makers (commodity group board members, all identified as beneficiaries) and three authors (OSU wheat researchers, all identified as agents) completed the 15-question survey, which was delivered face-to-face at various commodity group board meetings and in the university offices of the agents.

Seventeen stakeholders--three authors who had participated in the survey, plus three other authors and 11 producers--participated in the interview portion of the study. The interview process, which was the primary mode of investigation, began with faculty members (n=6) and resulted in the identification of additional stakeholders other than the wheat researchers/authors, namely beneficiaries (n=5) and underrepresented citizens (n=6). Table 5 characterizes the stakeholders who participated in interviews.

Table 5

Stakeholders Participating in the Partners in Progress Study

Stakeholder No.	Type	Connection to the Wheat Industry
1	Agent	OSU Researcher
2	Agent	OSU Researcher
3	Agent	OSU Researcher
4	Agent	OSU Extension Professional
5	Agent	OSU Researcher
6	Agent	OSU Researcher
7	Beneficiary	Cattle and Wheat Producer / Ag Agency Employee
8	Beneficiary	Wheat Producer
9	Beneficiary	Wheat Producer / Ag Agency Employee

(table continues)

Stakeholder No.	Type	Connection to the Wheat Industry
10	Beneficiary	Cattle and Wheat Producer / Accountant / Member of Growers' Association
11	Beneficiary	Wheat Producer / Director of Growers' Association
12	Underrepresented	Cattle and Wheat Producer
13	Underrepresented	Wheat Producer
14	Underrepresented	Wheat Producer
15	Underrepresented	Cattle/Wheat Producer
16	Underrepresented	Wheat Producer
17	Underrepresented	Wheat Producer

Analysis of data collected through interviews with stakeholders in Experiment Station wheat research provided answers to the following research questions:

1. What types of readers comprise the groups of people who use the Partners in Progress reports as information sources?

2. For what purposes do people read the reports?

3. What are the audiences' needs and expectations regarding writing style, level of technicality, and design, and what is the order of importance of these needs?

4. Do these reports effectively attain the Experiment Station goal of disseminating research results to producers for the purposes of sharing practical research-based information for producers to use?

5. Do these reports effectively attain the Experiment Station's goal of disseminating research results to stakeholders for the purpose of demonstrating accountability?

Findings for Objective 1: Types of Readers

According to Risdon's (1990) six-stage model for developing agricultural publications (Table 2), once the purpose of a publication is clarified, the second stage of development requires communicators to clarify the relevance of the publication's information to the audience. This necessitated identification of the people who actually read Partners in Progress: Wheat Research at OSU. Data from this study indicated that though agents agreed the report is written primarily for policy/decision-makers (i.e., Oklahoma Wheat Commission board members), they disagreed about whether producers or other researchers were also audience members. Wheat producers, on the other hand, thought the publication was written for a much more broad audience, including policy/decision-makers, producers, researchers, and even students. Four themes clearly emerged in the Types of Readers family:

1. Many producers had never seen Partners in Progress: Wheat Research at OSU.
2. Agents believed policy/decision makers are the primary audience for Partners in Progress: Wheat Research at OSU.
3. Identification of the audience was unclear among beneficiaries and underrepresented citizens.
4. A small faction of ardent readers existed.

These four themes became the findings related to Objective 1 of this study.

Many Producers Had Never Seen Partners in Progress: Wheat Research at OSU

The initial plan for evaluating the Partners in Progress: Wheat Research at OSU audience and gathering stakeholder input for the publication relied on the assumption that many stakeholders had read or at least had seen the publication before. This assumption quickly was proven faulty by data indicating the publication is relatively unknown among wheat producers across Oklahoma. In fact, of the producers who were not commodity board members, only one had read the publication before being presented with it in the interview situation, and he was the executive director of a wheat producers' association. Table 6 demonstrates the number of stakeholders who had never seen Partners in Progress: Wheat Research at OSU.

Table 6

Stakeholders' Claims That They Had Never Before Seen Partners in Progress: Wheat Research at OSU

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Beneficiaries	#7, #8, #9, #10	4/5
Underrepresented Citizens	#12, #13, #14, #15, #16, #17	6/6

In initial interviews, the operative interview question for this objective was "Have you read this publication?" The typical response was the one-word reply, "No."

JM: Have you ever seen Partners in Progress, the pamphlet I gave you?

#14: No.

JM: ...this is the publication that we were talking about, Partners in Progress. Have you seen this before?

#9: No I haven't. This is new.

Because the typical response to this question lacked depth, the operative question evolved into hypothetical form--"Would you ever read this publication?"

JM: Do publications like this have value to you? Would you ever read them?

#7: Yeah, I would. The biggest problem is distribution—how to get it out.

In responding to the survey, even an Oklahoma Wheat Commission board member claimed he had never seen a Partners in Progress: Wheat Research at OSU publication. He wrote: "First time I had heard of this report being printed. Interesting research."

Though it seemed to be an obstacle to collecting good evaluative input from stakeholders, the fact that most producers participating in this study had never seen the publication they were being asked to evaluate was, in actuality, the first finding of this study. Many producers—beneficiaries as well as underrepresented citizens—had not read the report and had never seen the report before.

Audience Is Decision Makers

Those who did read Partners in Progress reports were political leaders and public decision makers, particularly members of the Oklahoma Wheat Commission (sometimes referred to as board members). All agents agreed this group was a primary audience for the report. Two beneficiaries agreed, and one underrepresented citizen agreed. Table 7 shows the number of stakeholder claims that the audience was policy/decision makers.

Table 7

Stakeholders' Claims That the Audience for Partners in Progress: Wheat Research at OSU was Policy/Decision Makers

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4, #5, #6	6/6
Beneficiaries	#9, #11	2/5
Underrepresented Citizens	#14	1/6

Because the Oklahoma Wheat Commission board of directors decides on amounts of funding for wheat-related research projects at the Oklahoma Agricultural Experiment Station, those board members are logically a primary audience in the minds of all six of the agents participating in this study.

> #1: Well, yes, (the Partners in Progress publication) to me is geared toward a little more different audience than the typical grower. This one summarizes the wheat research at OSU and is used to a great degree by the people in industry and wheat commission and wheat research foundation who have the responsibility of doling out that research money.
>
> #3: Certainly board members (are the audience). I think we are writing at a level that they can pick up information and they can take it forward and they can be the communicator, and I think that is an important focus of it, not just to go directly to the producers. I've heard nothing but good comments from those guys.

Yet, few stakeholders seemed to have a good grasp of who the primary audience should be. A key informant, who was the executive director of a wheat producers' association, said he had been a regular reader of the report, but that his peers probably would not read it. Another participant recognized the report as a good resource for policy makers.

> #11: I'll be honest with you. I've got every one that has ever been sent to me. I keep them on file at the office. It's part of my job. Where as a normal producer would say, "I need about 15 to 20 percent of this."
>
> #9: It's probably a good resource for policy makers and probably professors would lean on this. Scientists.

According to some agents, the board members, themselves, recognize that they are a primary audience, and many are grateful for the information in the reports. Agent #3 said he hoped the board members would pass the information on to their constituents:

> #3: I think we are writing at a level that (Wheat Commission members) can pick up information and they can take it forward, and they can be the communicator. I think that is an important focus of it, not to go directly to the producers. I've heard nothing but good comments from those guys (Wheat Commission members).

In commission members' responses to the survey question asking them to list words and phrases that characterize the group of people who read Partners in Progress reports, one concept was thematic: readers of these reports were considered "progressive" and "educated."

Agents are keenly aware of the need to inform policy/decision makers of progress in wheat research at OSU. Indeed, a few beneficiaries and underrepresented citizens

agree that the policy makers are the primary readers of Partners in Progress: Wheat Research at OSU, though the ratios of beneficiaries and underrepresented citizens making this claim are relatively low.

Other Audience Members are Unclear

Agents--the wheat researchers who write the text in Partners in Progress: Wheat Research at OSU--do not agree among themselves on who comprises the rest of the audience. Nor do they agree with other stakeholders, who see a very broad audience, including policy/decision-makers, producers, and even other researchers. Tables 8 and 9 demonstrate the stakeholders claims on this issue.

Table 8

Stakeholders' Claims That the Audience for Partners in Progress: Wheat Research at OSU was Policy/Decision Makers

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4 (#5 and #6 disagreed)	4/6
Beneficiaries	#9, #11 (#10 disagreed)	2/5
Underrepresented Citizens	#12 (#13 and #16 disagreed)	1/6

Table 9

Stakeholders' Claims That the Audience for Partners in Progress: Wheat Research Is Researchers, Students, and Others

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#2, #3, #4, #5 (#1 disagreed)	4/6
Beneficiaries	#9	1/5
Underrepresented Citizens		0/6

Some agents are reluctant to use the reports to explain research to wheat producers, opting to use other publications that are more pictorial and that contain less text. One agent produced copies of his own custom-made publications he prefers to use with producers at Extension wheat meetings and field days.

> #1: There are a few growers—a lot of people on those commissions are growers, so there are some of those that would (read the reports). For a typical grower [#1 produced an internally produced, color handout], this is the kind of stuff that we just did on a computer that I would want to give them. A lot more with just pictures and main points summarized and things like that.

Another agent agreed, noting that producers simply don't have time to read such a lengthy report.

> #2: I don't think they use long research reports like this one because the producers' most limited resource is time, and at best he'll scan.

Marked disagreement exists among agents about whether or not other wheat researchers are a part of the audience.

JM: Do you think other researchers look at stuff like this?

#3: I hope so. I make it available on that web site with the intentions that they will read that.

#2: I read it myself and it is one way I find out what the other guy s are doing. I suspect it is read outside of Oklahoma (by other researchers) as much as it's read inside the state of Oklahoma.

#1: What (other wheat researchers) would look for more at a university would be research publications that would come out in research journals.

Some agents and beneficiaries see the audience as those in attendance at field days and Extension-sponsored producer meetings. A finding discussed later is the extreme value of face-to-face communication at Extension wheat meetings and field days. Agents and beneficiaries see the reports as an important tool to complement the face-to-face interaction. An important caveat to this finding is that those wheat producers who were interviewed at such events and those participants who claimed to attend such events had never read Partners in Progress: Wheat Research at OSU; they relied on other Extension publications, such as fact sheets and Production Technology reports, which they received at public meetings.

JM: So the meetings are where you get the bulk of your information? Not publications, but face-to-face with the researchers?

#14: Well, the publications we get at the meetings.

#4: (Producers at Extension wheat meetings) may just grab the main points without going into the text to read the details. I think I like the style of this publication. I'm not sure all farmers will read these, maybe just the main points.

JM: So you do find some value in a publication like this as far as educating yourself?

#10: Yeah. Could I keep that (copy of Partners in Progress: Wheat Research at OSU)?

One producer made a perceptive point related to using the publications at public meetings, some of which are not well-attended by wheat producers.

#9: I mean, if (producers) won't drive five miles to look at growing varieties, why would they pick up this (publication) and read it? They might, but still, you could read all evening and still not see what you could see in 30 minutes in real life.

Ultimately, it was clear that the communications situation in which Partners in Progress: Wheat Research at OSU exists was clouded by a lack of agreement among stakeholders about who, other than policy/decision makers, should be included in the target audience for this publication. Identification of the audience was further clouded by the fact that very few producers had access to the report, even if they thought it was meant for them.

A Small Faction of Ardent Readers Exists

A small number of producers valued the information in Partners in Progress publications as practical information sources more than others. These producers appeared to constitute a category of beneficiaries who put more effort than most into searching for

new technologies and practices that could benefit their operations. Table 10 demonstrates the small number of beneficiaries who prefer to educate themselves by reading.

Table 10

Stakeholders' Claims They Read Frequently to Educate Themselves About Wheat Production and Management Issues

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Beneficiaries	#10, #11	2/5
Underrepresented Citizens		0/6

Wheat Commission members referred to these producers in their survey responses with terms such as "progressive," "educated," and "interested in education." Subject #11, the producer who also happened to be the executive director of a wheat producers' association, made note of the small percentage of producers who aggressively pursue new information on wheat production by reading publications.

> #11: I am an exception to the rule, but 99 out of 100 guys, if you laid these on the counter at the Co-Op or the grain elevator, aren't even going to pick it up. If they did pick it up and they open it up and they saw a graph or a chart, or something like that, they're going to go, "Ah, that's alright," and leave.

Another participant, a female who was an accountant and part-time wheat and cattle producer, fit well in this category of ardent readers, though she had never encountered a Partners in Progress report.

#10: I probably would (read this publication): I don't know that I would sit down and read cover to cover, but I'd pick out an article and come back. Yeah, I probably would.

Although they are a minority, these ardent readers take full advantage of the educational aspects of Partners in Progress: Wheat Research at OSU. Other than the policy/decision makers, they are the true beneficiaries of the information on wheat research provided through Partners in Progress: Wheat Research at OSU. They clearly constitute a second important audience that wheat researchers/authors must keep in mind.

Findings for Objective 2: Purposes for Reading

The first step in developing agricultural publications should be to clarify the general communicative purpose for the publication (Risdon, 1990). Responses to survey questions and content extracted from interview transcripts confirm that the perceived purpose is to publicize the efforts of Oklahoma Agricultural Experiment Station wheat researchers and to provide policy/decision makers, namely Oklahoma Wheat Commission members with an update of wheat research progress made in the past year by the Oklahoma Agricultural Experiment Station. Educating producers is a secondary goal of this publication in the eyes of the stakeholders. In the family of codes labeled Purposes for Reading, three distinct themes emerged:

1. Some read to keep up with Oklahoma Agricultural Experiment Station research progress.
2. Some read to gather information for use in making public policy decisions.

3. Some progressive producers read to educate themselves about wheat production and management practices.

These three themes became the findings for Objective 2 of the study.

Marketing the Oklahoma Agricultural Experiment Station

Some audience members and all researchers/authors (agents) agree that the primary purpose of the publication is to publicize the wheat research efforts of the Oklahoma Agricultural Experiment Station to stakeholders. Like many publicly funded entities, the Oklahoma Agricultural Experiment Station depends on its outside publications to help justify its existence to the public, and stakeholders recognize that function of Partners in Progress: Wheat Research at OSU. Table 11 demonstrates stakeholders' claims that Partners in Progress: Wheat Research at OSU serves as a way for stakeholders to keep up with wheat research.

Table 11

Stakeholders' Claims That Some Read Partners in Progress: Wheat Research at OSU to Keep Up With Oklahoma Agricultural Experiment Station Research Progress

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4, #5, #6	6/6
Beneficiaries	#8, #11	2/5
Underrepresented Citizens	#12, #17	2/6

This opinion is clear among agents, but not so clear among beneficiaries and underrepresented citizens. The agents were in total agreement that Partners in Progress: Wheat Research at OSU is a marketing tool.

> #1: This (report) is used to a great degree by people in industry and Wheat Commission and Wheat Research Foundation, who have the responsibility of doling out that research money.
>
> #5: Oh, it's very valuable as a marketing tool, but I don't know how much it actually gets read by producers other than commission members. Now, the bulleted statements at the beginning of the sections, those probably get looked at some.

Most agents acknowledge marketing as an important function of the reports, though some question whether the expense of publishing a marketing publication is justifiable:

> #1: That always needs to be a balance, because if you do (publish marketing publications), then usually something else lacks for money.

Producers, too, acknowledge the marketing function, though it may not be the first thing on their minds as they begin to read a copy of Partners in Progress: Wheat Research at OSU. Interview subject #8, a beneficiary, equated the publication with the marketing tools employed by the Oklahoma Beef Industry Council, which promote beef and marketing and research efforts related to beef.

> #8 You know, I've got a "Beef" license plate on the front of my truck. And they say, "here's your beef checkoff dollars." Get out and advertise! It did come to

mind that you need to have this stuff for accountability, but as far as where the soft money was coming from, it didn't really come to mind.

Finally, the benefits of the marketing function reach beyond the Oklahoma Agricultural Experiment Station. Reviews of the responses to survey questions showed that policy/decision makers equate the Oklahoma Agricultural Experiment Station and OSU. In response to the question "List reasons why people read Partners in Progress reports," answers like "interest in OSU" and "to see what OSU is doing" were typical. Also, at least one agent who had teaching responsibilities at OSU used the report to recruit graduate students who might want to become wheat researchers.

#3: I often give those to incoming graduate students to let them know what our research program is all about. When they are first coming in, they don't really know about it.

Stakeholders, to differing degrees, see marketing as one important purpose of Partners in Progress: Wheat Research at OSU. Beneficiaries may not see the marketing as being as important as the educational function, while agents see the publication as a marketing tool first. Additionally, the report markets the university as a whole, because some policy/decision makers in the wheat industry see the Oklahoma Agricultural Experiment Station and OSU as one and the same, sometimes referring to the research entity as "OSU."

Some Read to Gather Information for Use in Making Public Policy Decisions.

Agents are keenly aware that policy/decision makers use Partners in Progress: Wheat Research at OSU as a tool to inform themselves so they can make justified

decisions in awarding research funds. However, other members of the wheat industry failed to acknowledge this as a primary purpose of the publication. Some producers, though they weren't sure whom the publication truly targeted, said the purpose of the publication should be to educate producers. Table 12 demonstrates these results.

Table 12

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Serves Mainly as a Decision-making Tool for Policy/Decision Makers

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4, #5, #6	6/6
Beneficiaries	#9, #10	2/5
Underrepresented Citizens		0/6

One agent's explanation of his view of the purpose for Partners in Progress: Wheat Research at OSU typified most of the other agents' responses.

> #4: This is a good way of (communicating with the Wheat Commission). You are showing them what type of research OSU is conducting. Just by glancing at the title, the (commission member) would tell which (research is) important to them and which is not. The next year when they make a decision to approve this grant, then they may say that "some (research) you did last year didn't really relate to our problem very well so we may not fund this year." I think this is a good way to present the results.

One agent downplayed the importance of marketing wheat research to the Wheat Commission, noting that wheat research would continue at OSU regardless of the Wheat Commission's financial support:

> #2: My guess is that any dean that decided to terminate wheat research would soon find himself looking for another job.

However, the same agent had previously spoken of the worth of the report as a decision-making tool.

> #2: This publication is probably good as a way for the Wheat Commission to justify the research dollars they are sending to OSU.

In their survey responses, commission members themselves characterized the purposes for the publication with phrases such as "seeking confirmation of research success," "what are you doing with our checkoff funds?" and "to learn about progress being made with research."

Ultimately, among the marketing-related uses for Partners in Progress: Wheat Research at OSU, one main purpose (agreed upon by agents and beneficiaries) was to persuade members of the Oklahoma Wheat Commission that wheat checkoff money was spent on research that benefits the Oklahoma wheat industry. The publication was used primarily by agents for this purpose. Beneficiaries also saw the report as a useful marketing tool with the Oklahoma Wheat Commission members, and the commission members themselves found value in the publication as a decision-making tool.

Some Progressive Producers Read to Educate Themselves

As the first finding indicated, most wheat producers had not read Partners in Progress: Wheat Research at OSU, but there was a small group of progressive producers who actively search for, and read, any publication they can acquire containing information about wheat management practices. These beneficiaries were served well by the publication, if they were able to obtain a copy. Table 13 identifies the members of this minority group among those interviewed.

Table 13

Beneficiaries' Claims That They Read (or would read) Partners in Progress: Wheat Research at OSU to Educate Themselves about Wheat Production and Management Practices

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Beneficiaries	#10, #11	2/5

One agent agreed with this notion of a minority of ardent readers, noting that a few progressive producers might be served educationally by such a report.

> #1: There are a few growers [who would read the report for educational purposes], a lot of people on those commissions are growers, so there are some of those that would.

In fact, policy/decision makers among the audience, most of whom are producers themselves, view Partners in Progress: Wheat Research at OSU as an important educational tool. In the commission members' responses to the survey question, "List

reasons why people read Partners in Progress reports," they listed phrases such as, "a few producers really want this information," "interested in research," and "how can we get producers to use technology?"

In summary, survey responses, along with the interview responses of two beneficiaries who were ardent readers of research, show the educational value of the publication to a minority of readers. One interview subject had never seen the report before but asked to keep a copy and said she would make time to read the articles. The other, who was executive director of a wheat producers' association, said he kept each annual issue in a resource file. Stakeholders' use of Partners in Progress: Wheat Research at OSU as an educational tool was limited, first by a problem with distribution, and second by the fact that only a few producers read reports such as these to get information regarding management practices.

Findings for Objective 3: Audience Needs and Expectations

Stages 2 through 5 of Risdon's (1990) six-stage model for developing agricultural publications call for a careful audience analysis and needs assessment. The ability of a communicator to create relevance, develop a coherent structure, explain terminology, compose cohesive passages, and develop a usable design relies heavily on an understanding of audience needs and expectations.

To develop such an understanding, two data collection methods were employed. The main data collection effort involved personal interviews with stakeholders. Five themes emerged from analysis of interview transcripts:

1. Audience needs less technical information and more visual information.
2. Publications need to be shorter.
3. Short, bulleted statements are beneficial.
4. Audience desires applied research results.
5. Agents believe audience would benefit from electronic communication.

These codes, which fit under the family Audience Needs, became the findings for Objective 3.

Additionally, to triangulate data resulting from the interviews, and to add detail to the description of audience needs, a Likert-type survey was administered to policy/ decision makers, who were the primary audience for Partners in Progress: Wheat Research at OSU. For comparative purposes, agents answered the same survey questions. Incongruencies between the wheat researchers/authors' perceptions of audience needs and the audiences' perceptions of their own needs would indicate potential problems with communication between agents and beneficiaries. Table 14 demonstrates stakeholder claims related to this issue. Table15 contains the frequency distributions of the survey responses.

Audience Needs Less Technical Information and More Visual Information

Ten of the 17 interview participants agreed that audience members need less technical information and more visual information. Agents and underrepresented citizens were most aware of this need. However, only two of five beneficiaries indicated a need for less technical information.

Table 14

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Should Have Contained Less Technical Information and More Visual Information

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #3, #4, #6	4/6
Beneficiaries	#9, #8	2/5
Underrepresented Citizens	#12, #15, #13, #16	4/6

When asked how he would change Partners in Progress: Wheat Research at OSU to make it more effective, one beneficiary's response typified the response from stakeholders and elicited a hearty laugh from an eavesdropping bystander, who was also an interview participant.

> #9: (I would make it) a little easier to read. Probably a little less data and information. Maybe summarize more, use more common terms, get away from the high-level terminology, like "germplasm introgression."
>
> Bystander: [Laughs loudly]

An underrepresented stakeholder agreed, explaining the need for a balance between technical, research-based information and simplicity.

> #13: We want our publications to be scientific. After all, (the Experiment Station) has got to educate people, right? But we want it to be user-friendly, where we can at least read it—where the typical college graduate producer can actually read it

> and understand it. You know, these publications don't need to impress us. They need to inform us, and a lot of times, I think academicians want to impress us. They want to show us how much they know. That's not what we need. We need information that'll help us on our individual operations.

Agents, also, thought the audience for Partners in Progress: Wheat Research at OSU needed less technical information and might benefit from less text and more visuals.

> #3: (Wheat producers) don't need the details at the level that (researchers) are used to communicating. It does no good.
>
> #1: If there are going to be some figures in there, really simple ones, like bar graphs, then that would be okay. But if you start adding a lot of technical tables and charts, that, to me, gets away from the purpose (of the publication).

Data from the survey confirm that beneficiaries were largely content with the level of technicality of subject matter in Partners in Progress: Wheat Research at OSU (Table 15). However, one survey participant took the time to write the following note in the margin of the survey instrument:

> If your purpose is to increase readership, you should lower the degree of technicality and language.

The survey data in Table 15, which were gathered in advance of the interviews, also showed that agents were satisfied with the level of technicality in the articles they wrote.

Table 15

Frequency Distributions of Audience Opinions Regarding Level of Technicality, Tone, and Writing Style

Terminology/vocabulary					
	Too technical for most readers	Appropriate level for most readers	Too basic for most readers	No opinion	NA
Agents		3			
Beneficiaries	2	13			2

Statistics and Numerical Information					
	Too technical for most readers	Appropriate level for most readers	Too basic for most readers	No opinion	NA
Agents		3			
Beneficiaries	2	12	1		2

Description of Experimental Methods					
	Too technical for most readers	Appropriate level for most readers	Too basic for most readers	No opinion	NA
Agents		3			
Beneficiaries	2	9	3		3

Reading Level					
	Too low for most readers	Appropriate level for most readers	Too high for most readers	No opinion	NA
Agents		3			
Beneficiaries		15	1	1	

(table continues)

	Tone				
	Too conversational for most readers	Appropriate tone for most readers	Too scientific for most readers	No opinion	NA
Agents		3			
Beneficiaries		16			1

In summary, agents and underrepresented citizens were especially aware of the need for Partners in Progress: Wheat Research at OSU to be less technical and more visual. Simpler text and more simple graphics would benefit the audience. Data from the survey triangulated this finding and indicated that the agents thought they succeed in keeping the publication simple. Beneficiaries participating in the survey agreed.

Publications Needed to Be Shorter

Eleven of the 17 interview participants noted the importance of brevity. With a finite amount of time in each day, as several stakeholders noted, time for reading is limited, at best. Table 16 demonstrates stakeholder claims related to length of Partners in Progress: Wheat Research at OSU.

Table 16

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Needed to Be Shorter

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4, #6	5/6
Beneficiaries	#10, #11	2/5
Underrepresented Citizens	#12, #13, #17	3/6

Five of the six agents interviewed were aware of the need for brevity. Two agents were able to sum up the agents' perspective particularly well. One author, in fact, said the report was simply too long to be of any use as a handout at a grower meeting.

> #1: This [Partners in Progress report] is not something I would want to hand out at a growers' meeting because it is way too much writing and too much figures and things like that. I would make it shorter. I think brevity is the key. Try to find a way to get your message to come across in the fewest words possible, and that is the way I write it. I try to keep it as short as possible.
>
> #2: I am not trying to put down your publication, but farmers want answers to the questions they have right then. They are much less likely now to have the time to sit down and read a 29-page publication than they were 50 years ago.

The one dissenting agent explained his dilemma related to brevity.

#4: If you make it too brief, [readers] say, "Well, you didn't give me enough information to make a conclusion."

Beneficiaries were less likely to say the publications were too long. The key informant from the wheat producers' association accurately described his opinion on the matter of length.

#11: You can't market to people like me, because I am the exception. Twenty years from now, I think I'll be the norm. But for now, I think you need to cut it down by half.

An underrepresented citizen captured the notion of how lengthy publications can be intimidating to some readers.

#12: You know, when you handed this to me and I looked at it, I thought to myself, "Oh, you're going to have to read on that a while." That's the first impression. "Ooh, this is going to take a little bit [of time]." Most people are always in a hurry and they have other things they've got to do.

Survey results related to length of sentences, length of paragraphs, and length of sections (or articles) in Partners in Progress: Wheat Research at OSU helped to triangulate findings from the interviews with agents and beneficiaries. One-third of the beneficiaries noted that the sections were too long for most readers. One author admitted in the survey that the sections were too long for the intended audience. Most agreed that the sentence and paragraph length was appropriate.

Table 17

Survey Results Regarding Length of Sections, Sentences, and Paragraphs

Length of Sections (individual articles)

	Too long for most readers	Appropriate length for most readers	Too short for most readers	No opinion	NA
Agents	1	2			
Beneficiaries	5	10			2

Length of Sentences

	Too long for most readers	Appropriate length for most readers	Too short for most readers	No opinion	NA
Agents		2		1	
Beneficiaries	2	12		2	1

Length of Paragraphs

	Too long for most readers	Appropriate length for most readers	Too short for most readers	No opinion	NA
Agents		3			
Beneficiaries	1	13		2	1

In summary, length of the publication is an issue for many readers, especially underrepresented citizens. Agents recognized this issue, and claimed they worked to keep the publication short, but they, again, were caught in a balancing act, trying to meet the needs of the audience in terms of their desire for brief information and their desire for details.

Short, Bulleted Statements are Beneficial

Four of the eleven beneficiaries and underrepresented citizens mentioned their affinity for the short, bulleted statements of research progress that appeared at the beginning of each section in Partners in Progress: Wheat Research at OSU. The bulleted statements acted as an overview or summary of progress in each area of wheat research at OSU. Though the relatively small number of supporting comments from stakeholders may seem insignificant, the comments become more significant in light of the fact that the bulleted statements were not a part of the researcher's interview outline. The researcher asked no specific questions related to the bulleted statements, yet stakeholders mentioned them often enough to justify assigning them a code under the theme of audience needs. Agents, too, were aware of the benefit of the short bulleted statements, as Table 18 demonstrates.

Table 18

Stakeholders' Claims That the Short, Bulleted Statements of Research Progress in Partners in Progress: Wheat Research at OSU Were Beneficial

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #3, #4, #5	4/6
Beneficiaries	#11	1/5
Underrepresented Citizens	#12, #13, #17	3/6

Underrepresented citizens, who claimed time prevents them from reading long publications, seemed to value the bulleted statements most. One, in particular, who was interested in Partners in Progress: Wheat Research at OSU as an update on how checkoff money was spent on research, explained why he valued the bulleted statements.

> #13: These need to be done everywhere—these little captions that explain where checkoff funds go and why—because there's a perception in the country that our money is being wasted.

Another underrepresented citizen related the bulleted lists to his need for simple information.

> #12: I'd prefer something simple, like these bulleted lists.

Agents saw the bulleted statements as key in communicating with busy policy/decision makers.

> #1: As far as the commissioners go and the foundation people, and even the occasional producer that would pick it up, I think they would be most interested in those bullets.

Though stakeholder references to the bulleted lists were not as frequent as references to other issues, their presence was significant because they were totally unsolicited by the researcher. Authors saw value in the simplicity of the short overviews of research progress, as did underrepresented citizens, many of whom had already expressed their need for shorter, more visual information.

Audience Desires Applied Research Results

Thirteen of 17 stakeholders cited access to applicable research results as a definite need. Specifically, beneficiaries and agents mentioned that they valued information from the Oklahoma Agricultural Experiment Station related to variety selection and no-till practices. Agents are aware of this need. Table 19 demonstrates stakeholders' claims that applied research results are important to readers of Partners in Progress: Wheat Research at OSU.

Table 19

Stakeholders' Claims That the Partners in Progress: Wheat Research at OSU Audience Desired Mainly Applied Research Results (e.g., Results Relating to Variety Performance and No-till Production Systems)

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #4, #5, #6	5/6
Beneficiaries	#7, #8, #9, #11	4/5
Underrepresented Citizens	#14, #15, #16, #17	4/6

Agents were well aware of the need to show how research results could be of immediate benefit to wheat producers, but sometimes struggled to show clear progress each year when they were performing basic research or longitudinal research related to variety development and production practices.

#2: (Wheat producers) don't care if you are eight years down the road on a 10-year project to release a new variety. It is meaningless to them until the new variety is there. So from that standpoint, I see that an annual publication (like Partners in Progress) has some utility, but not a tremendous amount of utility.

#4: There are some people who always look for new things to try like no-till and using new varieties. Others like to stick with traditional ways of farming. For the first group, they like new information like variety trial information. They want to see which variety perform better in their area.

#6: I'm involved in basic and fundamental inquiry. Growers won't benefit from what I'm doing for another 20 years.

Both beneficiaries and underrepresented citizens were most interested in the applicable research results in Partners in Progress: Wheat Research at OSU.

#8: Yeah, wheat variety trial results—that's something I'm going to read and I'm going to look at. Those are important, because I'm going to make those decisions. It's going to affect my bottom line.

#14: I've heard a researcher (from OSU) talk about the importance of developing new varieties. I'll stick with a variety for about three years and then move on to another one. That is the most important type of information I can get. I'm always looking for something that can give me an edge.

#16: I'd like to see (information about) some of the wheats I have planted and see how they're stacking up against other varieties.

> #13: One of the things I want to see (the Oklahoma Agricultural Experiment Station) address is no-till. And if they don't get on the bandwagon and really get aggressive about it, someone will, because the producers are already there. I've gone 100 percent this year, no-till. (Wheat producers) would like to have research drive what we do, but sometimes, we have the perception that we drive the research. The research should be on the front edge of us.

In summary, if producers desired mainly applicable research results. If they were to have read the publication, they would most likely would have read it in search of information that would ultimately lead to the improvement of their bottom line. Some agents recognized this fact but struggled with how to be accountable for longitudinal research that does not produce applicable results annually.

Agents Believe Audience Would Benefit from Electronic Communication

Four of the six agents interviewed, and two producers, one a beneficiary and one an underrepresented citizen said they believed the World Wide Web is becoming the best way for wheat producers to get research-based information. Agents, especially, believe the internet can save producers time. This claim was not as popular with producers, with all but two failing to mention electronic communications as a need. Table 20 demonstrates this finding.

Table 20

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Audience Members Would Benefit from Having Access to Wheat Research Information Electronically (e.g., via the World Wide Web)

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#2, #3, #4, #6	4/6
Beneficiaries	#11	2/5
Underrepresented Citizens	#13	0/6

Agents are ahead of producers in terms of electronic communications. The Wheat Improvement Team, a group of wheat researchers at OSU, maintains a Web site for the purpose of communicating research results to producers, and an OSU Web site exists for producers needing information about soil problems. Agents believe use of the Web is increasing among producers.

> #3: From what I understand, (wheat producers) have become more internet-savvy, and I'm trying to make sure that they can communicate with me through that. We have a web site for the wheat improvement program.
>
> #6: I'm amazed when I'm at meetings at how many people will say that they saw something on the Web. They'll mention our Web site. So, I think they are using it. Probably their kids are dragging them into it. The people who come to the field

> days are progressive growers, probably. They probably know how to get on a computer, get to OSU, download a fact sheet, read all the farm journals.

The key informant who was executive director of an Oklahoma wheat producers' association, and who was categorized as a progressive producer and an ardent reader, said he used the Web primarily to get research-based information.

> #11: I'll get 90 percent of my information off the internet.

One underrepresented citizen pointed out that a mixture of media was required to communicate effectively with diverse commodity producers in Oklahoma. The larger, more progressive producers, he thought, would be more likely to benefit from electronic media such as the World Wide Web.

> #13: I think (wheat producers) are going to need it all. (The Oklahoma Agricultural Experiment Station) is going to continue to need to do something like (the Partners in Progress reports), but also to really focus on the World Wide Web. And you're just going to be able to target certain producers there, too. But that's the group that's going to utilize the information and those are the people who are going to be producing the majority of the commodities. That group will begin to use the Web in the next few years. I sure want (OSU) to be on the front edge of that, at the college level, and at the Extension level.

Stakeholders' interpretation of their readiness to use electronic media such as the World Wide Web was not unanimous. Agents had already invested a significant amount of time in communicating through the World Wide Web, but claims from beneficiaries and underrepresented stakeholders in this study indicated that only the most progressive producers would benefit from those efforts. The underrepresented citizen's claim that

many different media would be necessary to communicate effectively adheres to the common knowledge that diverse audiences require the use of diverse media.

Additonal Survey Data Detailing Audience Needs

Table 21 contains additional survey results that add detail to the description of the needs of readers of Partners in Progress: Wheat Research at OSU. Most interesting were the discrepancies among authors and beneficiaries regarding the preferred layout of the publication. Disagreement also existed regarding the usefulness of tables and other graphics in the publication, and regarding the use of color in the publication.

Table 21

Additional Frequency Distributions Resulting from the Survey of Commodity Board Members (Beneficiaries) and Wheat Researchers (Agents) Regarding Audience Needs.

	Layout				
	Layout should be more like a magazine	Layout should remain the same	Layout should be more like a technical report	No opinion	NA
Agents	1	1		1	
Beneficiaries	4	8	1	1	3

	Tables				
	Useful to most readers	Useful to some readers	Not useful to readers	No opinion	NA
Agents		3			
Beneficiaries	8	7		2	

(table continues)

Graphics: Graphs, Charts, Photographs, and/or Illustrations					
	Useful to most readers	Useful to some readers	Not useful to readers	No opinion	NA
Agents	2	1			
Beneficiaries	11	3			3

Ink Color(s)					
	More color would add to the effectiveness of the report	Color has no bearing on the effectiveness of the report	More color would diminish the effectiveness of the report	No opinion	NA
Agents	2			1	
Beneficiaries	8	4	3	1	1

Findings for Objective 4: Communication Goals

Stage Six of Risdon's (1990) model for developing agricultural publications involves evaluating the publication. Evaluation of Partners in Progress: Wheat Research at OSU included determining if stakeholders believed the publication was accomplishing its goals: to communicate research results to policy/decision makers and producers; and to demonstrate the accountability of Oklahoma Agricultural Experiment Station wheat research efforts.

Through analysis of stakeholder interview transcripts and stakeholder responses to open-ended survey questions, the following themes emerged under the family Communication Goals:

1. Agents participating in this study thought the reports were effective for policy/decision makers.
2. Most producers are not served by the reports.
3. Producers prefer face-to-face communication.
4. Other publications provide more practical, applicable research results.

These themes became the findings for Objective 4 of this study.

Effective for Policy/Decision Makers

Agents were confident that Partners in Progress: Wheat Research at OSU communicated well with policy/decision makers, specifically the Oklahoma Wheat Commission Board members. Survey results from commodity group board members, some of whom were Wheat Commission members, showed that that particular group of beneficiaries agreed with the agents. However, fewer beneficiaries participating in the interviews (two of five) saw the publication as an effective form of communication with policy/decision makers. Underrepresented citizens in this study did not recognize the publication's effectiveness in communicating with policy/decision makers. Table 22 demonstrates the results of the interviews.

Table 22

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Communicated Effectively with Policy/Decision Makers

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4 #5 #6	6/6
Beneficiaries	#9, #11	2/5
Underrepresented Citizens		0/6

Agents reported that they were confident that Partners in Progress: Wheat Research at OSU effectively communicates with policy/decision makers. One agent, in particular, who had frequent contact with members of the Oklahoma Wheat Commission, noted positive comments from Wheat Commission Board Members.

> #3: Certainly [the publications work well with] board members. I've heard nothing but good comments from those guys.

Other agents recognized the publication's success with board members, but also identified other policy/decision makers who benefited from the publication.

> #1: This [report] is used to a great degree by the people in industry and Wheat Commission and Wheat Research Foundation who have the responsibility of doling out research money. I could see giving something like that to legislators also.

#6: First of all, I think it is important that this publication get to the board. I think it is a very good vehicle for not only the commission board, but the [Oklahoma] Department of Agriculture.

Other stakeholders were less enthusiastic about the communicative effectiveness of Partner in Progress: Wheat Resarch at OSU with policy/decision makers. Only two beneficiaries noted that the publication is a good source of information for that particular audience. Even more convincing evidence that the publication is not as effective as agents think with policy/decision makers was present in the survey data. The commodity group board members were asked to list the audience for Partners in Progress: Wheat Research at OSU, and of 17 stakeholder responses, only two listed terms closely related to "policy/decision makers"—"ag groups," and "organizations." Fifteen others listed numerous other potential audiences other than policy/decision (Table XXIII). However, the authors still viewed them as the primary audience.

Farmers and ranchers	Organizations	Crop advisers
OSU Alumni	Extension-related	People who request refunds
Farmers	Farmers	Ag groups
Farmers/Ranchers	Progressive	Agronomists
Educated	Elevators	Research-oriented
Involved with people	Anyone interested in wheat production	Very limited
Progressive producers	Other researchers and academics	Interested in OSU
People wanting to be in the know	Those interested in education	Farmers
Extension agents	Co-Op managers	Seed salesmen

Figure 2. Policy/decision makers' list of terms describing the Partners in Progress: Wheat Research at OSU audience.

In summary, agents unanimously agree that Partners in Progress: Wheat Research at OSU communicates effectively to policy/decision makers. A large majority of the other stakeholders failed to make this claim. Additionally, most policy/decision makers did not see themselves as the primary audience for the publication, though they found the information useful for educating progressive producers and a variety of other audiences.

Most Producers Were Not Served by the Reports

Logic dictates that for producers to be served effectively by Partners in Progress: Wheat Research at OSU, they must have copies of the publication to read. Clearly, as the findings for Objective 1 indicate, most producers interviewed had never before seen a Partners in Progress: Wheat Research at OSU publication. Table 6 showed that only one beneficiary had read the report before being presented with it in the interview situation. Also, data in Table 8, showing that wheat growers are not the primary audience for the publication, triangulate this finding. Table 23 demonstrates stakeholders' claims that the publication did not (or would not) communicate effectively with producers. It should be noted that there was marked disagreement on this issue, with two agents and one beneficiary claiming that the publication communicated well with producers, and two underrepresented citizens who didn't know if the publication communicated effectively with producers or not, but who thought it should.

Table 23

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Did Not (or Would Not) Communicate Effectively with Producers

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4 (#5 and #6 disagreed)	4/6
Beneficiaries	#9, #10, #11 (#10 disagreed)	3/5
Underrepresented Citizens	#12, (#13 #16 didn't know who the intended audience was but thought producers should be)	1/6

Four agents agreed that the publication would not communicate effectively with producers, already having admitted the publication was targeted toward an audience other than average producers. Two agents, however, thought Partners in Progress: Wheat Research at OSU communicated well with producers. The following excerpts exemplify the differing opinions.

> #1: I don't think a lot of the people who go to Experiment Station field tours and Co-Ops are going to be as attracted to (Partners in Progress reports). I would prefer something even a little different than just the typical fact sheet that has writing and picture both in it, but there are usually just one or two pages.
>
> #6: They ought to put (the Partners in Progress reports) in an envelope and mail them to the biggest producers in every county.

Beneficiaries also were divided in their evaluation of the reports. The key informant (#11) who was executive director of a wheat producers' association said he found it effective, but the average producer would have little use for it. The other producer (#10) who claimed Partners in Progress: Wheat Research at OSU was effective was characterized as an ardent reader.

> #11: Ninety-nine out of 100 guys, if you laid these on the counter at the Co-Op, or the grain elevator, aren't even going to pick it up. If they did pick it up they saw a graph or a chart, they're going to say, "Ah, that's alright," and leave.
>
> JM: Do you find value in this publication as an educational tool?
>
> #10: Yeah. Could I keep that (copy of the report)?

Agents gave Partners in Progress: Wheat Research at OSU a positive evaluation, beneficiaries and underrepresented citizens had little opinion of the reports' effectiveness in communicating with producers, or else they believed it was an ineffective tool with producers.

Producers Prefered Face-to-face Communication

One possible explanation for producers' disinterest or negative evaluations of Partners in Progress: Wheat Research at OSU became clear as this theme emerged. Most producers, including beneficiaries and underrepresented citizens prefered face-to-face communications over efforts to communicate through publications. Examples of such face-to face communication include Experiment Station field days, Extension seminars for wheat producers, and tours of variety trial plots. Table 24 shows stakeholders' claims supporting this finding. Fourteen of 17 stakeholders agreed that face-to-face

communication was an important way for Oklahoma Agricultural Experiment Station to disseminate research results.

Table 24

Stakeholders' Claims That Face-to-Face Communication Is Their Preferred Method of Receiving Wheat-related Information from the Oklahoma Agricultural Experiment Station

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4, #5 (#6 disagreed)	5/6
Beneficiaries	#7, #8, #9, #11	4/5
Underrepresented Citizens	#12, #14, #15, #16, #17	5/6

All but one agent agreed that face-to-face contact with audience members, including producers and policy/decision makers, was an important key to effective communication. Agents #3 and #1 noted that contact through events such as open meetings of the Oklahoma Wheat Commission and Experiment Station field tours were important methods of making face-to-face contact with stakeholders.

> #3: I try to attend their board meetings every month. I usually try to take somebody from the Wheat Improvement Team so they can have that contact. Face-to-face, I think, is really important.

#1: I think field tours are perhaps one of the best ways information is conveyed to the stakeholders.

Two of the agents indicated that face-to-face contact with producers was limited because no position existed in the Oklahoma Cooperative Extension Service for a state wheat specialist.

#2: We don't hire extension specialists to deal directly with the farmers, and consequently farmers don't depend on OSU for information as much any more.

#5: We haven't had a state wheat specialist for years. I've basically assumed those responsibilities because there was no one here to do it, but I still have all my Experiment Station research responsibilities.

Beneficiaries and underrepresented citizens, alike, said they get information from the Oklahoma Agricultural Experiment Station through face-to-face communication and through word of mouth from other producers who had contact with Experiment Station or Cooperative Extension Service communications. The following excerpts were typical of beneficiaries' and underrepresented citizens' claims.

#7: Yeah, we use publications, but (we get information from the Oklahoma Agricultural Experiment Station) mostly by visitation and word of mouth.

#12: Most people will just let somebody else try (new production practices). And chances are somebody knows somebody that heard about it from a research station.

Beneficiary #12, the key informant, made a point about the importance of face-to-face communication in the agriculture industry.

#12: Agriculture is not like the rest of society, especially production agriculture. Personal service is always more important than convenience or price.

In convincing wheat producers to pay their dues to his wheat producers' association, #12 claimed, face-to-face communication served as his most effective form of communication.

#12: I can send out bulk mailers out the wazzoo, but as long as they've never met me, I can just as well have been anybody. But if I've made a contact personally, or if they've had a chance even talk to me—even if they've had a chance to argue with me—they'll send it in.

In summary, one possible reason Partners in Progress: Wheat Research at OSU might not serve stakeholders well was that they prefered to communicate with wheat experts in face-to-face situations, such as field days, variety trial demonstrations, and other types of producer meetings. Agents agreed that face-to-face communications were key, but a shortage of personnel prohibited face-to-face contact with producers.

Other Publications Provide Practical, Applicable Research Results to Producers

Twelve of the 17 stakeholder interviewed claimed that producers read other publications to get information about wheat production and management practices. Table 25 shows the frequency distribution of these claims.

Table 25

Stakeholders' Claims That Other Publications Provided Practical, Applicable Research Results to Producers

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #5 #6	4/6
Beneficiaries	#8, #10, #11	3/5
Underrepresented Citizens	#12, #13, #14, #15, #17	5/6

Stakeholders making this claim listed a variety of publications that they think producers use to glean technical information regarding production and management practices. The most commonly mentioned publications were The High Plains Journal, Successful Farming, Progressive Farmer, Farm Journal, and the Oklahoma Farmer Stockman. Analysis of these publications helped determine that all, on occasion, had published articles based on or focused on wheat research performed by Oklahoma Agricultural Experiment Station researchers.

One underrepresented citizen, noting that he is overwhelmed by the reading he is asked by agricultural communicators to do, said he gets several monthly publications at no charge through the mail.

#13: Now, they don't even charge us for Farm Journal, Progressive Farmer, Oklahoma Farmer-Stockman, Cotton Grower Magazine. We get all these

publications free. And so we can't even get all those read. It's got to be good, otherwise, we won't read it.

A review of six of the publications that producers claimed to receive by mail showed that they were markedly different from Partners in Progress: Wheat Research at OSU in several ways. The articles within them were short in comparison to the articles in Partners in Progress: Wheat Research at OSU. They all contained more photographs and other types of simple graphic information unlike what appears in the Partners in Progress publications. Most were written in a less formal and less technical style than that of the Partners in Progress publications.

In summary, stakeholders—agents, as well as beneficiaries and underrepresented citizens—generally were aware of other publications that contained wheat production and management information, and many would read them before they would take the time to read Partners in Progress: Wheat Resarch at OSU. This is a possible reason Partners in Progress: Wheat Research at OSU was not seen by stakeholders as an effective communication tool for producers.

Findings for Objective 5: Accountability Goals

Another goal of Partners in Progress: Wheat Research at OSU was to provide accountability for the public funds spent by Oklahoma Agricultural Experiment Station researchers on wheat research. In evaluating the publication's worth as a way to demonstrate accountability, two important themes emerged.

1. The reports helped persuade commodity group members that wheat checkoff money was spent wisely on research.

2. The reports might have persuaded producers not to request a checkoff refund.

These two themes became the findings for Objective 5.

The Reports Helped Persuade Commodity Group Members That Wheat Checkoff Money Was Spent Wisely on Research

Eight of 17 stakeholders, including six of six agents, found value in this publication as an accountability tool. Table 26 demonstrates the frequency distribution of stakeholders making this claim.

Table 26

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Helps OAES Demonstrate Accountability

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4, #5, #6	6/6
Beneficiaries	#9, #11	3/5
Underrepresented Citizens		0/6

Agents were the most confident in the publication's effectiveness with policy/decision makers, namely members of the Oklahoma Wheat Commission, in terms of demonstrating accountability. Six of six agents made this claim. The following excerpts are indicative of the group.

#3: Yes, I think it serves that purpose (persuading Whet Commission members). I'm sure that at those meetings either the individual scientists are asked to (demonstrate accountability), or else the deans convey a lot of that verbally. But this gives them a backup for that and something (Commission members) can refer to later. I think it serves its purpose, whether it balances out with how much (the publication) costs—that I don't know. I don't know how much it costs to produce.

#2: This publication is probably good as a way for the wheat commission to justify the research dollars they are sending to OSU.

Some beneficiaries recognized Partners in Progress: Wheat Research at OSU as an effective tool to demonstrate accountability to Wheat Commission members. However, accountability for wheat checkoff funds was not at the forefront of several producers' minds. This could explain why no underrepresented citizens valued the publication as an effective way to demonstrate accountability to Wheat Commission members. Beneficiary #8 exemplified producers' views of the accountability issue.

#8: It did come to mind that you need to have this stuff for accountability, bus as far as where the soft money was coming from, it didn't really come to mind.

In summary, agents firmly believe in the value of Partners in Progress: Wheat Research at OSU as an accountability tool to demonstrate that research funds from the Oklahoma Wheat Commission were spent wisely. Producers, in general, were not as conscious of the publication's objective of demonstrating accountability, and therefore did not value the publication for that purpose.

The Reports Might Have Persuaded Producers Not to Request a Checkoff Refund

Another goal of Partners in Progress: Wheat Research at OSU was to persuade producers not to request a refund of their checkoff contribution. The Oklahoma Wheat Commission was provided with 250 copies to distribute to producers. The publications were meant to help convince producers that checkoff-funded research underway through the Oklahoma Agricultural Experiment Station was beneficial for wheat producers. However, most producers interviewed in this study had never read Partners in Progress: Wheat Research at OSU; therefore, it is unlikely that the reports could have met this objective effectively. However, several stakeholders responded positively to the question "Could the report persuade producers not to request a refund?" All six agents, two beneficiaries, and two underrepresented citizens believed it could.

Table 27

Stakeholders' Claims That Partners in Progress: Wheat Research at OSU Might Persuade Producers Not to Request a Refund of Their Wheat Checkoff

Categories of Stakeholders	Stakeholders Who Made the Claim	Ratio of Stakeholder Claims to Total Number of Stakeholders Interviewed
Agents	#1, #2, #3, #4 #5 #6	6/6
Beneficiaries*	#7, #8 (#11 disagreed)	2/5
Underrepresented Citizens*	#13, #14	2/6

* Stakeholders #7, #8, #10, and #17 claimed that they did not normally give the wheat checkoff much thought.

Agents had great faith in the ability of Partners in Progress: Wheat Research at OSU to persuade producers, if only the distribution were better. Agent #3 described the situation most succinctly.

> #3: Definitely, it might be helpful in convincing some people not to request a refund, if it is made available. I just don't know to what extent we are getting it out to the people that need it.

Beneficiaries and underrepresented citizens agreed less strongly. Beneficiary #7 echoed agent #3's remarks.

> #7: Oh, yeah. If you can get them in the hands of producers, it will help [convince them not to request a refund].

The key informant, beneficiary #11, disagreed, noting that even if the publications were placed in the hands of producers, they weren't likely to read them.

> #11: If you laid these on the counter at the Co-Op, or the grain elevator, [producers] aren't even going to pick it up.

In summary, agents claimed that Partners in Progress: Wheat Research at OSU would be an effective tool to persuade producers not to request a checkoff refund if the reports were distributed more widely among the producers. Beneficiaries and underrepresented were less enthusiastic with their claims on this issue, though some agreed it could convince certain producers not to request a refund. The key informant, who had the strong contact with the spectrum of stakeholders, disagreed, noting that producers simply would not read the publication, even if it were delivered to them.

Summary of Findings

Through qualitative analysis of data collected primarily through interviews with stakeholders, five themes emerged. Each theme consisted of two or more codes, which became the findings for this study. In some cases, the confirmability of the findings of this study was enhanced by triangulation with other data collection techniques, including Likert-type survey questions, open-ended survey questions, artifact analysis, and participant-observer field notes. Additionally, the findings of this study were reviewed by other researchers as well as by stakeholders to further confirm the accuracy of this description of the case of Partners in Progress: Wheat Research at OSU. Figure 3 demonstrates the claims that became the major findings of this study.

1. What types of readers comprise the groups of people who use the Partners in Progress reports as information sources?	1. Many producers had never seen Partners in Progress: Wheat Research at OSU. 2. Agents believed policy/decision makers were the primary audience for Partners in Progress: Wheat Research at OSU. 3. Identification of the audience was unclear among beneficiaries and underrepresented citizens. 4. A small faction of ardent readers existed.
2. For what purposes do people read the reports?	1. Some read to keep up with Oklahoma Agricultural Experiment Station research progress. 2. Some read to gather information for use in making policy and public decisions. 3. Some progressive producers read to educate themselves about wheat production and management practices.
3. What are the audiences needs and expectations regarding writing style, level of technicality, and design, and what is the order of importance of these needs?	1. Audience needed less technical information and more visual information. 2. Publications needed to be shorter. 3. Short, bulleted statements were beneficial. 4. Audience desired applied research results. 5. Agents believed audience would benefit from electronic communication.
4. Do these reports effectively attain the Experiment Station goal of disseminating research results to producers for the purposes of sharing practical research-based information for producers to use?	1. Agents thought the reports were effective for policy/decision makers. 2. Most producers were not served by the reports. 3. Producers preferred face-to-face communication. 4. Other publications provided more practical, applicable research results.
5. Do these reports effectively attain the Experiment Station's goal of disseminating research results to stakeholders for the purpose of demonstrating accountability?	1. The reports helped persuade commodity group members that wheat checkoff money was spent wisely on research. 2. The reports might have persuaded producers not to request a checkoff refund.

Figure 3. Summary of research objectives and respective findings.

CHAPTER 5

Summary, Conclusions, and Implications

Overview

This chapter summarizes the rationale and objectives, theoretical framework, research design, and findings of this study; to provide conclusions based on the findings; and to propose implications of these conclusions for future Experiment Station communication efforts as well as for future stakeholder studies in agricultural communications.

Summary

Rationale and Objectives

Partners in Progress: Wheat Research at OSU was initially conceptualized as a communications tool to help publicize the research efforts of the Oklahoma Agricultural Experiment Station and to educate policy/decision makers about progress in research, as well as to educate producers about recent research findings that could positively impact wheat producers in Oklahoma. The Partners in Progress reports were intended to be targeted toward a more specific audience and were supposed to have been written for a more specific purpose than previous Oklahoma Agricultural Experiment Station progress reports. Informal feedback from known members of the audience to Oklahoma

Agricultural Experiment Station Associate Director, D.C. Coston, had indicated that the publications were well-received and effective in accomplishing their communicative task (D.C. Coston, personal communication, September 14, 1998). Still, decisions related to style, level of technicality, and functionality of design had been based on supposition at best, because no formal research had been done on audiences for this specific type of publication. As this type of publication evolved, Oklahoma Agricultural Experiment Station administrators and the agricultural communicators working with them needed research-based data about their audience with which they could justify decisions regarding content, style, and design.

Analysis of qualitative data collected through a variety of methods, the most prevalent of which was personal interviews, revealed several important findings related to the five objectives of this study, which were the following:

1. What type of readers comprise the groups of people who use the Partners in Progress reports as information sources?

2. For what purposes do people read the reports?

3. What are the audiences' needs and expectations regarding writing style, level of technicality, and design?

4. Do these reports effectively attain the Oklahoma Agricultural Experiment Station's goal of disseminating research results to producers for the purposes of sharing practical research-based information for producers to use?

5. Do these reports effectively attain the Oklahoma Agricultural Experiment Station's goal of disseminating research results to stakeholders for the purpose of demonstrating accountability?

Theoretical Framework

The concept of qualitative stakeholder research (Guba & Lincoln, 2000) was combined with the concepts of audience analysis (Ong, 1975) and agricultural publication planning and assessment (Risdon, 1990), providing the theoretical framework for this study.

Research Design

Qualitative researchers Guba & Lincoln (2000), and those who followed them, argued that qualitative case study methods are appropriate for collecting stakeholder input of this nature. The result of in-depth qualitative stakeholder research is generally a rich, thick description of stakeholders' views of programs that affect them (or should affect them), which should lead to a deeper understanding of the case under investigation. Tucker (1996) agreed that agricultural communications researchers could benefit from the qualitative perspective borrowed from the social sciences.

Conducting a case study by definition (Stake, 2000), the researcher employed several methods of data collection, which allowed for triangulation of data, lending credibility, dependability, and confirmability to the findings (Merriam, 1998). Other methods to improve these characteristics included member checks and peer-review procedures.

Findings

Analysis of data resulted in the following 18 findings related to the five original objectives:

1. Many producers had never seen Partners in Progress: Wheat Research at OSU.
2. Agents believed policy/decision makers are the primary audience for Partners in Progress: Wheat Research at OSU.
3. Identification of the audience was unclear among beneficiaries and underrepresented citizens.
4. A small faction of ardent readers existed.
5. Some read to keep up with Oklahoma Agricultural Experiment Station research progress.
6. Some read to gather information for use in making policy and public decisions.
7. Some progressive producers read to educate themselves about wheat production and management practices.
8. Audience needed less technical information and more visual information.
9. Publications needed to be shorter.
10. Short, bulleted statements were beneficial.
11. Audience desired applied research results.
12. Agents believed audience would benefit from electronic communication.
13. Agents thought the reports were effective for policy/decision makers.
14. Most producers were not served by the reports.
15. Producers preferred face-to-face communication.

16. Other publications provided more practical, applicable research results

17. The reports helped persuade commodity group members that wheat checkoff funds were spent wisely on research.

18. The reports might have persuaded producers not to request a checkoff refund.

Conclusions

The following conclusions drawn from the findings are directly related to the five original research objectives. These conclusions apply specifically to the Partners in Progress: Wheat Research at OSU communications situation, and are not necessarily transferable to other communications situations. Rather, the conclusions are intrinsic in nature, providing insight into how communicators and administrators in the Oklahoma Agricultural Experiment Station might improve this communication effort.

Objective 1: What type of readers comprise the groups of people who use the Partners in Progress reports as information sources?

The intended audience for Partners in Progress: Wheat Research at OSU was public policy/decision makers and wheat producers. However, most wheat producers had never seen the publication before. Therefore, they could not be the real audience for the reports, or else the publication missed its target audience badly. All public policy/decision makers who participated in this study had seen the publication before, but most failed to list themselves as primary audience members for the report.

This leads to the conclusion related to Objective 1: The audience for Partners in Progress: Wheat Research at OSU was unclear to stakeholders and had been misidentified by agents.

Objective 2: For what purposes do people read the reports?

Beneficiaries and underrepresented said they read, or would read, Partners in Progress: Wheat Research at OSU for three main reasons. Some read to keep up with Oklahoma Agricultural Experiment Station research progress, some read to gather information for use in making policy and public decisions, and a small number of progressive producers read to educate themselves about wheat production and management practices. Agents agreed, in general, that these were the purposes that stakeholders had for reading the reports, though some said the reports would not serve producers well, especially if the producers were looking for practical information related to wheat production and management practices.

Therefore, the conclusion for Objective 2 was that Partners in Progress: Wheat Research at OSU serves three main purposes: Marketing the Oklahoma Agricultural Experiment Station by informing stakeholders of research progress; Informing public policy/decision makers about research progress to help them make policy decisions (e.g., how to allocate Oklahoma Wheat checkoff funds earmarked for research); and educating a small group of progressive producers who actively seek research-based information regarding wheat production and management practices.

Objective 3: What are the audiences' needs and expectations regarding writing style, level of technicality, and design?

Stakeholders' opinions were clear on findings related to this objective. Analysis of data revealed that Partners in Progress: Wheat Research at OSU audience needed information that was less technical and more visual. The publications need to be shorter, and the short, bulleted statements explaining research progress highlights were very desirable to stakeholders. Possibly the most important finding related to Objective 3 was that most stakeholders agreed that if producers are to be a primary audience of Partners in Progress: Wheat Research at OSU (which has proven to be an unresolved issue), the content of the publication should be focused on information that has practical meaning to wheat producers and that can be applied in their daily operations. In addition, agents saw electronic communications, such as World Wide Web sites, as an effective tool to use in communicating with producers. Few producers, on the other hand, made this claim, though some believed producers are on the verge of using the Web as a primary medium for obtaining information.

Therefore, the following conclusions can be made: (1) The reports must be short and should contain more graphics and graphical elements that are simple and easy-to-read; (2) the reports must focus heavily on applied research, and (3) though agents would prefer to begin relying on the World Wide Web more heavily as a communications medium, only a few producers are ready to embrace this medium.

Objective 4: Did these reports effectively attain the Oklahoma Agricultural Experiment Station's goal of disseminating research results to producers for the purposes of sharing practical research-based information for producers to use?

The initial finding of this study also helped to answer the question posed by Objective 4. Producers were not reading Partners in Progress: Wheat Research at OSU, because it had not been distributed to them. Some stakeholders, including agents, beneficiaries, and underrepresented citizens, agreed that even if the reports were more readily available, many producers would not take the time to read such lengthy and technical documents. Also, because producers prefer face-to-face communications, and because other less technical publications are readily available to them, producers may not read the reports. Agents, however, do think the reports are effective for policy/decision makers (many of whom are producers) and more progressive producers, though the policy/decision makers saw their constituents (i.e., wheat producers) as the primary audience.

Therefore, the conclusion related to this objective is that the reports do not fully achieve the goal of disseminating practical research results to producers because producers are not receiving the reports. This conclusion points back to problems with clear identification of audience and purpose and with distribution.

Objective 5: Did these reports effectively attain the Oklahoma Agricultural Experiment Station's goal of disseminating research results to stakeholders for the purpose of demonstrating accountability?

Stakeholders agreed that the reports might help persuade commodity group members that wheat checkoff money was spent wisely on research. Agents felt most strongly that these reports were effective in accomplishing this task. But because wheat producers were unfamiliar with Partners in Progress: Wheat Research at OSU and its purpose, many failed to recognize this important purpose and did not comment on the report's effectiveness in terms of demonstrating accountability. Several beneficiaries and underrepresented citizens noted that, hypothetically, if the reports had reached producers, they might have persuaded producers not to request a checkoff refund.

Therefore, the conclusions for Objective 5 are that the reports, because they were distributed effectively to public policy/decision makers, agents believed, served the purpose of accountability with that portion of the audience. Producers, including underrepresented citizens and other beneficiaries not on commodity boards, were not as well-served by the reports because the producers did not read the reports. However, some producers indicated that the publication did demonstrate OSU's wheat research progress. Again, problems with communicative effectiveness appeared to have stemmed from lack of identification of audience and purpose and from inadequate distribution.

Summary

In 1909, A.C. True, Director of the Office of Experiment Stations, speaking at the annual meeting of the Experiment Station Committee on Organization and Policy

(ESCOP), noted his awareness of agricultural research publications that failed to communicate clearly because of the target audience was ambiguous (Knoblauch, et al., 1962, p. 62). More than 90 years later, this problem persisted in the Partners in Progress: Wheat Research at OSU effort. Ambiguity in audience and purpose, combined with poor distribution of the publication, led to perceptions of limited benefits for stakeholders, though agents and some policy/decision makers still valued the publication. Figure 4 summarizes the conclusions resulting from this study.

1. What types of readers comprise the groups of people who use the Partners in Progress reports as information sources?	The audience for Partners in Progress: Wheat Research at OSU was unclear to stakeholders and had been misidentified by agents.
2. For what purposes do people read the reports?	Partners in Progress: Wheat Research at OSU serves three main purposes: 1. Marketing the Oklahoma Agricultural Experiment Station by informing stakeholders of research progress; 2. Informing public policy/decision makers about research progress to help them make policy decisions (e.g., how to allocate Oklahoma Wheat checkoff funds earmarked for research); 3. Educating a small group of progressive producers who actively seek research-based information regarding wheat production and management practices.
3. What are the audiences needs and expectations regarding writing style, level of technicality, and design, and what is the order of importance of these needs?	Three conclusions can be made relating to audience needs and expectations: 1. The reports must be short and should contain graphics and graphical elements that are simple and easy-to-read; 2. The reports must focus heavily on applied research; 3. Though agents would like to begin relying on the World Wide Web more heavily as a communications medium, only a few producers are ready to embrace this medium.
4. Do these reports effectively attain the Experiment Station goal of disseminating research results to producers for the purposes of sharing practical research-based information for producers to use?	The reports do not fully achieve the goal of disseminating practical research results to producers because producers are not receiving the reports. This conclusion points back to problems with clear identification of audience and purpose and with distribution.
5. Do these reports effectively attain the Experiment Station's goal of disseminating research results to stakeholders for the purpose of demonstrating accountability?	The reports, had they been distributed to more stakeholders, might have been effective at persuading stakeholders had they been distributed more widely. Because they were distributed effectively to public policy/decision makers, agents believed, the reports served their purpose with that audience.

Figure 4. Summary of conclusions related to objectives 1-5.

Implications

The above conclusions imply that improvements can be made in the Partners in Progress: Wheat Research at OSU communications effort as well as with other communications efforts between Oklahoma Agricultural Experiment Station researchers and stakeholders.

1. Oklahoma Agricultural Experiment Station administrators and communications professionals should decide definitively on a specific audience (either policy/decision makers or wheat producers) and focus on communicating well with that audience through Partners in Progress: Wheat Research at OSU. Risdon's (1990) model for publication development is a good model to follow because it calls for careful audience analysis and planning before any writing ever occurs. Once the audience is chosen, audience members should be made aware that the publication targets them specifically and that they should read it for a certain purpose. It is now more important than ever that Experiment Station publications be marketed to a specific target audience. A basic prerequisite for all writing, development of a target audience--the fictional audience described by Ong (1975)--that authors can envision as they write will aid in communication effectiveness.

2. Whether the chosen audience is policy/decision makers or wheat producers, the publication should be shortened in terms of overall length and in terms of length of individual articles. Little, if any, research exists on the time agricultural producers spend reading publications, but participants in this study indicated the need for short, easily readable publications and articles. The lack of knowledge on this subject indicates the need for more investigation on the reading habits of agricultural producers.

3. Oklahoma Agricultural Experiment Station administrators and communications professionals should consider marketing its shorter, more practical publications to wheat producers. Publications like Production Technology reports and

Extension fact sheets contain the short, more visual information that producers indicated they need. Findings related to these issues are congruent with previous case study findings by Wanjohi (1993), Boone and Smith (1996), and McGinley (1993) that readers of agricultural publications generally desire more visual information, especially photographs.

4. The Oklahoma Agricultural Experiment Station could benefit from an increased emphasis on placing wheat-related news releases in regional farm magazines. This communication method is a long-standing tradition among agricultural communicators at land-grant institutions. However, the findings of this study, which show that many of the participants received national and regional farm publications at no cost, demonstrate that communicators can solve some problems with distribution of research-based information by getting the information into these magazines in the form of news stories.

5. An emphasis on face-to-face communications with stakeholders is necessary. Stakeholders participating in this study agreed that face-to-face communication is the method most preferred by both the audience and by the communicators. This supports Tilley and Crowley's (1998) findings that social relationships are important to wheat producers as they consider whether to request a checkoff refund. The cost-effectiveness of face-to-face communications should be studied carefully; however, some stakeholder claims in this study indicate that though face-to-face contact is relatively expensive in terms of time and money, it is also a highly effective form of communication with producers.

6. Communication efforts employing the World Wide Web should continue to be developed, although it was not yet acceptable as a primary medium for wheat producers in Oklahoma. The finding that many producers participating in this study did not use the World Wide Web as a primary information source is important. Though the Web may be the wave of the future, communicators still must choose media that are most effective at

the time in terms of reach and impact. More research on the agriculture industry's use of the World Wide Web is necessary and will continue to be necessary as agricultural communicators continue to track the needs and preferences of their audience members.

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Appendix A

Institutional Review Board Approval

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD

Date:	March 18, 1999	IRB #:	AG-99-021
Proposal Title:	"AUDIENCE ANALYSIS AND DEVELOPMENT OF GUIDELINES FOR A NEW TYPE OF OKLAHOMA AGRICULTURAL EXPERIMENT STATION"		
Principal Investigator(s):	Dr. Rob Terry Jeff Miller		
Reviewed and Processed as:	Exempt		

Approval Status Recommended by Reviewer(s): Approved

Signature:

Carol Olson

Carol Olson, Director of University Research Compliance

March 18, 1999
Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modification to the research project approved by the IRB must be submitted for approval. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

Please complete the following questionnaire. In sections 1 and 2, list as many responses as you like.

1. List words and phrases that characterize the group of people who read *Partners in Progress* reports.

2. List reasons why people read *Partners in Progress* reports.

3. Place an "X" in the box above the statement that best describes your opinion about the following aspects of the *Partners in Progress* reports.

Writing Style

Depth of explanation

Needs more detail	Contains an appropriate amount of detail	Needs less detail	No opinion
☐	☐	☐	☐

Reading level

Too low for most readers	Appropriate level for most readers	Too high for most readers	No opinion
☐	☐	☐	☐

Length of sections (individual stories)

Too long for most readers	Appropriate length for most readers	Too short for most readers	No opinion
☐	☐	☐	☐

Length of sentences

Too long for most readers	Appropriate length for most readers	Too short for most readers	No opinion
☐	☐	☐	☐

Length of paragraphs

Too long for most readers	Appropriate length for most readers	Too short for most readers	No opinion
☐	☐	☐	☐

Tone

Too conversational for most readers	Appropriate tone for most readers	Too scientific for most readers	No opinion
☐	☐	☐	☐

Level of Technicality

Terminology/vocabulary

❑ Too technical for most readers	❑ Appropriate level for most readers	❑ Too basic for most readers	❑ No opinion

Statistics and numerical information

❑ Too technical for most readers	❑ Appropriate level for most readers	❑ Too basic for most readers	❑ No opinion

Description of experimental methods

❑ Too technical for most readers	❑ Appropriate level for most readers	❑ Too basic for most readers	❑ No opinion

Design Preferences

Layout

❑ Layout should be more like a magazine	❑ Layout should remain the same	❑ Layout should be more like a technical report	❑ No opinion

Tables

❑ Useful to most readers	❑ Useful to some readers	❑ Not useful to readers	❑ No opinion

Graphics: graphs, charts, photographs, and/or illustrations

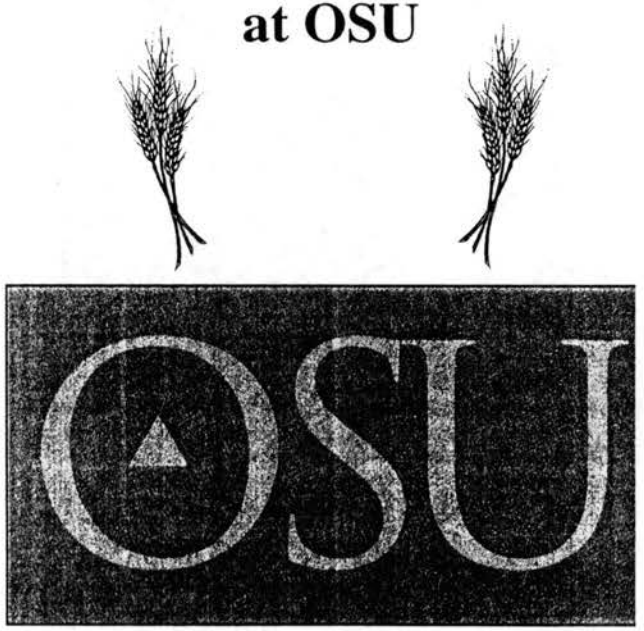
❑ Useful to most readers	❑ Useful to some readers	❑ Not useful to readers	❑ No opinion

Ink Color(s)

❑ More color would add to the effectiveness of the report	❑ Color has no bearing on the effectiveness of the report	❑ More color would diminish the effectiveness of the report	❑ No opinion

A STUDY BY THE
OKLAHOMA AGRICULTURAI
EXPERIMENT STATION
OF THE READERS OF

Partners in Progress... Wheat Research at OSU



Appendix C

Informed Consent Form

Human Subjects Consent Form--*Partners in Progress* Study

You have consented to participate in a study titled *Audience Analysis and Stakeholder Input for a New Type of Agricultural Experiment Station Report* by Jefferson D. Miller. The study evaluates the effectiveness of communication efforts between Oklahoma State University wheat researchers and wheat producers in Oklahoma. By consenting to participate, you are acknowledging that ...

- you agree to participate in an interview with the researchers working on the project;
- you understand that the researchers intend to solicit your opinion on several aspects of Experiment Station communication efforts;
- you understand that your responses are anonymous and that the only people who will see the data you provide will be Jefferson D. Miller and his colleague in research, Dr. Kathleen Kelsey;
- you understand that your participation is voluntary, and that you may withdraw at any time;
- you understand that there will be no harmful effects resulting from this study.

If you have questions regarding this study, please contact any of the following people:

Jefferson D. Miller
456 Agricultural Hall
Stillwater, OK 74078
(405) 744-0461

Dr. Kathleen Kelsey
466 Agricultural Hall
Stillwater, OK 74078
(405) 744-8137

Sharon Bacher, IRB Exec. Sec.
University Research Compliance
203 Whitehurst
Stillwater, OK 74078
(405) 744-5700

VITA

Jefferson Davis Miller

Candidate for the Degree of

Doctor of Philosophy

Thesis: AUDIENCE ANALYSIS AND STAKEHOLDER INPUT FOR A NEW TYPE OF EXPERIMENT STATION RESEARCH REPORT IN OKLAHOMA

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Oklahoma City, Oklahoma, on March 24, 1968, the son of Craig and Amy Miller.

Education: Graduated from Mustang High School, Mustang, Oklahoma in May 1986; received Bachelor of Arts degree in English from Northeastern State University, Tahlequah, Oklahoma in May 1991 and a Master of Arts degree in English from Oklahoma State University, Stillwater, Oklahoma in May 1995, and Doctor of Philosophy in Agricultural Education from Oklahoma State University in May 2001.

Experience: Employed by Oklahoma State University as a graduate teaching assistant in the English Department, 1992-1994. Employed by Oklahoma State University as a communications specialist with Agricultural Communications Services, 1994-1999. Employed by Oklahoma State University Department of Agricultural Education, Communications, and 4-H Youth Development as a lecturer, 2000-present.

Professional Memberships: Agricultural Communicators in Education, Agricultural Communicators of Tomorrow (Adviser)