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Abstract
Examining an individual writer in a minute-by-minute case study framework provided greater depth of understanding of the agricultural news writing process.

Methods Of Observing Agricultural Journalists

Jean O'Brien Elefson

Examining an individual writer in a minute-by-minute case study framework provided greater depth of understanding of the agricultural news writing process. Categorizing behaviors into comprehensive classification was the prominent methodology of which all other methods followed. Behaviors were defined as cognitive, social-individual, and social-organizational behaviors. Behaviors were further refined into cognitive behaviors of planning, translating, and reviewing. Social-individual behaviors were clarified as interrogation of sources, colleagues, and editor. Finally, social-organizational tasks were defined as using documentation, verification, and observation. Further categorization is available from the author.

A pilot study of an expert agricultural science writer refined categorizations of behavior, initiated the charting record, and developed the coding scheme. Retrospective interviews with the writer were done to clarify the charting of behaviors.

An overview of data analysis and results showed the outcome of the study. Future research of expert and novice agricultural writers was recommended as well as applications in the classroom and in the work place of agricultural journalism.

The Problem

The lack of methods for observing agricultural journalists led to developing process-tracing methods to study a specialized writing process. The author conducted a study that investigated the social and cognitive behaviors of a professional agricultural magazine writer (Elefson, 1990, 1992, in press). The Social-Cognitive Framework of the Agricultural Science Writing Process was developed, discovering both the social and cognitive behaviors and transitions of behaviors that occur in the writing process.

Rarely have agricultural journalism researchers investigated the writing behaviors as have composition researchers. The essence of com-

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position research is that writing consists of a "process," not just the final "product" of writing endeavors. For 25 years, composition researchers have explored questions, initiated theory, and developed methods for examining the writing process. Their primary research methods involved investigating individual writers in detail to discover the writing process. However, composition research focuses on cognition and lacks the recognition of social aspects of writing that are crucial to research the journalistic writing process (Example: Rohman, 1965; Flower & Hayes, 1980, 1981, 1984, 1986; Scardamalia & Bereiter, 1982, 1986; Beaugrande, 1982, 1984).

In the journalistic news writing theories, social aspects of information gathering are emphasized, but not linked to the writing process (Example: Burkett, 1986; Selzer, 1983; Parsigian, 1987). And the current work on social-cognitive research shows some promise, but in its embryonic stages, the theory and methodology are weak for explaining or exploring or building upon each other's insights (Example: Stocking & Gross, 1989; Pitts, 1982, 1988, 1989).

This carves out a need for new directions in research to build a social-cognitive perspective in the writing process. This is particularly crucial for agricultural science news writing, where little guidance is available for writing in a highly specialized area.

Objectives

This research operates within a social-cognitive paradigm: the juxtaposition of social external reality & cognitive internal reflection. The objective of the study is to characterize social-cognitive behaviors of an expert agricultural science news writer. However, this was only an exploratory stepping stone to building a theoretical model and related methodologies that guide the research of guiding the agricultural science writer.

The specific objectives are:

1. To categorize the concepts of social and cognitive writing behaviors
2. To design charting for the writing behaviors
3. To devise coding schemes for categorizations of the writing behaviors
4. To choose an appropriate research subject to observe the subject's writing behaviors
5. To conduct a pilot study to operationalize the categorizations, charting, and coding schemes
6. To finalize the study to complete the methods of a social-cognitive behavioral observation study to determine how social and cognitive behaviors influence each other in the process of writing an agricultural news story.

Methods

Categorizations

The categorizations of social and cognitive behaviors were developed for use in observing the social task environment and the cognitive writing process. The social task environment included two levels of analysis: the individual level and the organizational level (Hirsch, 1977; Dunwoody, 1979). The agricultural journalist's social task environment involved the **social-individual** behaviors of specialized questions asked of *sources*, *associates* (the "inner club"), and the *editor*.

The **social-organizational** behaviors involved *researching documents, observing events, and verifying information* (Burkett, 1986). Specifically, researching documents was done in the electronic and print media, library resources, and public

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relations materials. Observation occurred in an organizational setting, shooting photographs, and attending field days. The verification area included behaviors that seek to substantiate information for the writing process through validating accuracy.

In the **cognitive** writing area, patterns of behavior aligned more closely with the original planning, translating, and reviewing components of the Flower and Hayes' problem solving model.

Flower and Hayes' **planning** behaviors of *generating, organizing,* and *goal setting* remained intact in the categorizations. However, with the lack of components they defined under **translating** behaviors, it was necessary to further refine that area. Through observation, translating was found to rely on behaviors of *translating notes, composing,* and *finalizing copy.*

A further refinement occurred in the **reviewing** behaviors, involving the content of review - *editing for language* and *editing for meaning.*

Charting

The observational process-tracing charting of social behaviors was interspersed with cognitive writing behavior observations as they happened. Following the lead of cognitive researchers, this method used a protocol chart that charted the nature and duration of social and cognitive behaviors of an agricultural writer. Each specific, observable behavior that occurred during the writing process was recorded on a chart and then coded. Charting apprehends a process as it unfolds and lays out movements in behavior so that patterns are apparent (Perl, 1979). Perl wanted to provide cognitive researchers with a method that was standardized and able to be replicated, and, also categorical with labeled behaviors.

In the empirical data, a vertical minute-by-minute charting was done. This is due to practical considerations of using an accounting ledger that had 30 spaces in a vertical block to account for every half hour. A sample drawn from the pilot study on June 21, 1988 shows the first ten minutes (see Figure 1).

A more detailed description of the chart explains that the researcher indicated that the writer wrote down a telephone number, organized notes, sent an outgoing telephone call, left a message, sent another outgoing telephone call with no answer, talked for four minutes with the editor about a story lead, and chatted for a minute with the editor about agricultural news.

To jump ahead to code those behaviors, this sample shows that the writer used the categorized and condensed cognitive and social behaviors - he spent time organizing his writing process and communicating with the editor (see Figure 2).

Categorizations Refined and Coding Scheme Developed: Pilot Study

The pilot study showed that the proposed categories, as gathered from heuristics of news selection behaviors (Burkett, 1986), were superficial in completing the entire observation of social behaviors of an agricultural journalist. While behavioral catego-

1. Wrote #	6. Talk with Editor
2. Org. Notes	7. "
3. "	8. "
4. Out Phone - Message	9. "
5. Out Phone - NA	10. Talk ag news with E.

Figure 1: Social-Cognitive Behavior Protocol Charting, an Example

ries needed to expand to reflect the variety of behaviors that occurred, the elaborated categories still fell within the theoretical framework of individual and organizational behavior and cognitive behavior codings.

After the daily process of charting stories, nightly coding was completed so that the transfer from charting to coding was fresh in the mind of the investigator. An eight hour day of charting usually took approximately two hours to code. The coding can be done generally by coding the 12 major social-cognitive behaviors. It can also be more explicitly coded with an appendix available from the researcher. It depends on the researcher's purposes and objectives.

Social-Individual Categorization & Coding Scheme

Interrogation with sources of information encompassed the widest variety of behaviors, involving, not surprisingly, the traditional journalistic heuristics of who, what, when, where, and why questions. It is interesting to note that the "what" category predominated the questioning. With the assortment of "what" questions asked, the "what" category was further differentiated to include: situation, attribute, and finances. There were also people (who) questions, reasons questions (why/how), timing questions (when), and location questions (where). The reasons category was linked with people questions, asking questions for people's involvement in activities .

The colleague area of individual social behavior constituted more categories than anticipated. Communication within the office setting constituted interactions with not only colleagues, but with their editors as well. Dunwoody's (1979) "inner club" was at work. Discussion with editors involved specific talk about cutlines, headlines, and graphics for particular stories. Conversations with colleagues meandered from talk about recent interviews, giving and taking advice, professional association business, etc. The condensed coding scheme of social-individual behaviors (see Figure 3).

Social-Organizational Categorization & Coding Scheme

On the social-organizational level, the behaviors clustered within the framework of documentation, observation, and verification as suggested by Burkett (1986). The documentation of the observed agricultural journalist revolved around li-

1. ORG	6. ETA
2. ORG	7. ETA
3. ORG	8. ETA
4. ORG	9. ETA
5. ORG	10. ETA

Figure 2: Social-Cognitive Behavior Coding Scheme, an Example

Code	Behavior
Interrogation	
ETA	Talk with Editor
ATA	Talk with Associates
QUE	Question Sources

Figure 3: Coding Scheme of Social-Individual Behaviors

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brary resources, such as: books, maps, research papers, and government documents. Public relations materials also played a role with press releases and press conference proceedings. The electronic print media were used via periodicals and tapes. The observation aspect involved photography, attendance at field days and agricultural programs. Verification of information involved substantiation of information through confirming results and validating accuracy (see Figure 4).

The cognitive writing process aspect of the social-cognitive framework used the same three writing components of the Flower and Hayes' model: planning, translating, and reviewing.

True to Flower and Hayes, the planning component contained the traditional generating, organizing, and goal-setting. Translating, however, is an area that Flower and Hayes neglected in their concentration on planning and revision. Translating was further elaborated to include translating notes, composing, and finalizing copy. The review aspect was revised from the reading and editing components to the more specified editing components relating to language usage and meaning (see Figure 5).

The Subject

An associate editor of a bimonthly farm magazine in St. Paul, Minnesota, was chosen as the agricultural science writer for this study. He was chosen for his membership and leadership in the American Agricultural Editor's Association (AAEA). In consultation with the president and secretary/treasurer of AAEA, they approved the subject as an "expert agricultural science writer." AAEA elected the subject to the AAEA Board in 1986.

He had 12 years of agricultural writing experience, combined with farmer practitioner experience on a 60-cow dairy farm in partnership with his father. Through his career, the subject wrote for *Holstein World*, *The Northeast Improver*, *The*

Code	Behavior
DOC	Consult Documents
OBS	Observe News
VER	Verify Information

Figure 4: Coding Scheme of Social-Organizational Behaviors Cognitive Categorization & Coding Scheme

Code	Behavior
Planning	
GEN	Generating ideas
ORG	Organizing material
SET	Setting goals
Translating	
INT	Interpretation of Notes
COM	Composing
FIN	Finalizing Copy
Reviewing	
LAN	Reviewing for Language
MEA	Reviewing for Meaning

Figure 5: Coding Scheme of Cognitive Writing Behaviors

Dairystate, and *The Farmer* magazine. He's also done free-lance stories for *Successful Farming*, *Farm Industry News*, *National Hog Farmer*, and *The Wisconsin Agriculturist*.

Variability

For variability, it is necessary to measure a single subject several times, claims McCall (1980), or to assess many different subjects or events in order to obtain data. This study opts for observing a single subject several times. However, the emphasis is not on precise measurement as in most quantitative many-subject studies. Rather, this exploratory study looks at overall general trends, using both qualitative and quantitative analysis.

Construct Validity

Construct validity is evident in the categories designed for observation in this study. Constructs deal with the defined concepts that comprise the basic components to be studied. A relatively straight-forward replication of cognitive writing behaviors was developed, as refined from the problem solving writing theory of Flower and Hayes (1980). The social task environment required more original work because composition researchers primarily concentrate on cognition. However, in the agricultural journalism profession, the social aspects are crucial. In general the social levels of analysis were guided by Dunwoody (1979) and Hirsch (1977) and the heuristics by Burkett (1986).

Content Validity

Content validity checks whether categories provide accurate and comprehensive measures of knowledge, skills, or understandings (Borg and Gall, 1983). This research attempted to use a variety of measures used in previous research plus a pilot study to provide accurate and comprehensive measures of behaviors to code the content of the task environment and the writing process.

Reliability

Reliability was developed primarily in quantitative research, based on the assumption there is a single reliability which if studied repeatedly would give the same results. Qualitative research, however, is not seeking to isolate laws of human behavior. Instead, it seeks to describe and explain the world as those in the world interpret it (Merriam, 1988).

The investigator used three of the techniques as suggested by Goetz and LeCompte (1984): the invest-igator's position, triangulation, and an audit trail. The social context of the observation was within the writing environment at Webb Publishing and the agricultural information gathering environment. The researcher in the study lived among the writers at Webb Publishing in their work environment for six weeks. As Van Dijk (1988) notes, the accessibility of researchers to the press is a difficult barrier to overcome.

Triangulation, especially in terms of using multiple methods of data collection, strengthens reliability (Merriam, 1988). The multiple methods of observation and retrospective interviews attempted to result in reliable data.

An audit trail needs to be left to describe in detail how data was collected, how categories were derived, and decisions were made throughout the inquiry. A record book keeps elaborate records on original charting made of observations and circled information for retrospective interviews. A second book that translated charted notes into codes was also kept and may be referred to in an audit. Then data analysis began.

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Summary of Overview of Data Analysis

Although the analysis of data will not be described in detail, the methods of designing the research were established to be analyzed with recent capabilities of home computer analysis. The iterative process of feeding the data to the computer to discover results led from the analysis of individual stories to the composite stories' analysis.

Data analysis centered around the central question about how social and cognitive behaviors influence each other in the process of writing an agricultural science story. The methodological charting recorded a chronological sequence, indicating what happened through time. After the charting was coded, the data foundation could produce graphic techniques that indicated the sequences, patterns, and time allocations of individual stories. Descriptive statistics and descriptive analysis explained the graphs. Then a composite story analysis developed transitional frequency matrices, probability matrices, state transition diagrams, and calculated z scores to determine transitional significance.

Summary of Results

Results showed these cognitive behaviors dominated the writing process: organizing material, generating ideas, composing and finalizing copy, and editing language. The peak of cognitive behaviors occurred during the middle time period. The social-individual category showed a predominance of talking with associates while the social-organizational category showed a predominance of consulting documents. Cognition is the hub activity, significantly following social-individual and social-organizational behaviors.

Implications of the Research in the Classroom & in the Profession

With methods developed in an initial exploratory investigation into the writing process of an ag journalist, more research needs to determine if other professional ag writers exhibit the same behaviors. Further, what behaviors do novice writers exhibit? And what is the missing link that professional writers have but novice writers do not have? If missing link(s) can be discovered, can they be incorporated into the classroom or the work environment?

Another possibility would be to do long-term research with novice writers to determine at what approximate point they become professional writers. The point would be determined by the written product, but a careful periodic study of the behaviors could show a growth or cutback of certain behaviors that could be connected to evolution of a professional writer.

The results of this study were incorporated into the classroom of the author in teaching an Agricultural News Writing course. The Social-Cognitive Framework for the Agricultural Science Writing Process was presented to students and then used in the classroom to emulate the students as writers and associates, and the teacher as editor. With knowledge of the ag writing process, students were scored with an evaluation model based on the behaviors of the professional writer.

In the professional work environment of agricultural journalists at newspapers, agri-newspapers, and agri-magazines, this research could also be used for consultant writing coaches who periodically evaluate the writer's product that the publisher produces. Editors could also use the scientific knowledge of writing behaviors for performance reviews of their ag journalists.

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