Memory for Television News: Match and Mismatch Between Processing and Testing

Glenn Leshner and James R. Coyle

This study tested the roles of processing goals and retrieval cues on memory for television news. Encoding goals were manipulated either by having participants rate the overall meaning of eight television news stories (conceptually-driven processing) or by having participants rate the surface features of the stories (data-driven processing). Then participants were told either to think back to the stories they saw in order to complete a memory task, or were given no such instruction. Retention was measured by one of four tests, each of which reflected different processing requirements. Results showed that performance was enhanced when there was a match between encoding and retrieval requirements in three of the four tests. The results are explained within a transfer appropriate processing model, which emphasizes a match between the processing and retrieval activities of viewers.

Research on memory for media news, and in particular television news, has repeatedly suggested that people don’t remember very much of what they see, hear, or read (e.g., Findahl & Höijer, 1985; Graher, 1988; Gunter, 1987, 1991; Kellermann, 1985; Mundorf, Drew, Zillmann, & Weaver, 1990; Neuman, 1976; Robinson & Davis, 1990; Stauffer, Frost, & Ryboilt, 1981; Stern as cited in Barrett, 1973; Wagenaar, 1978; Wilson, 1974). This occurs despite people’s apparent affinity for news media in order to maintain informational control over their environment (Mundorf, et al., 1990; Roper, 1979). And yet, clear and significant relationships have been found between television exposure and learning across a variety of television content. For example, television news has been seen as an effective source of political information, acquainting voters with candidates’ positions on important issues and political and personal backgrounds (e.g., Chaffee, Zhao, & Leshner, 1994; Weaver & Drew, 1993). And for young citizens and immigrants, campaign media have been shown to aid in the political socialization process (Chaffee, Moon, & McDevitt, 1996; Chaffee, Nass, & Yang, 1990).

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Most often, memory for television news has focused on the ability of a viewer to consciously recollect a story's informational content (Graber, 1989). The tests of such memory generally measure recall or recognition of verbal information. One of the reasons people tend to perform poorly on such memory tests, it has been argued, may be due to a mismatch between the processing requirements of the task (watching television) and the memory tests themselves (Kellermann, 1985). That is, the mental requirements of the memory test are different than the mental requirements of the task of watching television. Does failure to perform well on such memory tests mean that viewers do not retain television content? Or might it be that such tests fail to measure all retained television content?

In an attempt to provide at least a partial answer to this question, this study compared the effects of what some have called differential processing modes (Blaxton, 1989; Craik & Lockhart, 1972; Jacoby, 1983; Roediger, 1990) on both explicit and implicit memory for television news. These processing modes—conceptually-driven and data-driven—have been proposed in psychology literature to explain seemingly independent performance on explicit and implicit memory tasks. By comparing effects of processing modes on explicit and implicit memory test performance, this study seeks to add to the literature on memory for television news in three ways. First, it tested implicit memory measures as a basis of observing television news memory retention. Second, this study employed a fresh manipulation of information processing modes that has the advantage of being less obtrusive to participants than many current manipulations, such as those that instruct participants to think about television content in a particular way. Third, it tested the notion that memory performance is enhanced when processing requirements match retrieval task requirements by comparing memory performance on both explicit and implicit memory tasks as a function of processing strategy. The literature reviewed here examines the arguments for differential processing accounts, explicit and implicit memory measures, and memory for television news.

**Differential Processing: Encoding and Retrieval**

Psychologists often distinguish between two types of memories for events—episodic and semantic (Tulving, 1972)—which are measured by explicit tests and implicit tests, respectively (Schacter, 1987). Explicit memory involves conscious, deliberate recollection of past episodes, and is usually tested by free recall, cued recall, and recognition. A prominent feature of these tests is that they make explicit reference to, and require conscious recollection of, a specific learning episode. Implicit memory is memory for information that was acquired about a specific episode, and is revealed on tests in which participants do not consciously or deliberately recollect information about that episode (Graf & Schacter, 1985; Schacter, 1987, 1990). Implicit memory tests measure retention of information that
does not require conscious recollection. Examples of indirect tests are word fragment-completion tasks or questions tapping general knowledge (e.g., Blaxton, 1989; Roediger, 1990).

Importantly, several studies have shown that implicit and explicit memory can be independent or dissociated from one another (see, Schacter, 1987; Roediger, 1990, for reviews). Large differences have been found between experimental groups for explicit memory tests, but implicit tests often showed no differences under the same manipulations, and in some cases showed completely opposite results (Graf, Mandler, & Haden, 1982; Graf & Schacter, 1985). The instructions given to the participants prior to the tests were a critical element in the findings (Shimamura, 1986). For implicit tests, participants are normally told only to perform a given task, such as guessing words given only word fragments or word stems. For explicit tests, participants are normally told to think back to the prior learning episode to construct their answers, such as on free recall or recognition tasks. Implicit memory measures reflect unconscious learning because participants are often unaware that they know the material when tested explicitly but perform at normal or even heightened levels on the implicit tests. Therefore, implicit tests tap a form of retention different from traditional explicit tests.

These memory performance dissociations have caused some researchers to speculate that dissociations between performance on implicit and explicit memory tests suggest two distinct memory systems (Cermak, Talbot, Chandler, & Wolbarst, 1985; Tulving, 1983). Others, however, suggest that many dissociations between standard explicit and implicit memory tests may reflect the operation of different cognitive procedures required by the tests. Rather than assume that implicit and explicit tests tap separate memory systems, the guiding assumption of such processing theories is that memory tests are composed of various component processes and dissociations between tests reflect the operation of different processes (Blaxton, 1989; Roediger & Blaxton, 1987; Roediger & Weldon, 1987; Roediger, Weldon & Challis, 1989). Hence, the key to memory performance, these researchers argue, is the match between the processing requirements of the study task and the retrieval requirements of the memory test. This notion has been referred to as transfer appropriate processing (e.g., Morris, Bransford, & Franks, 1977), encoding specificity (e.g., Tulving & Thompson, 1973), or processing account (e.g., Roediger & Blaxton, 1987; Roediger, Weldon, & Challis, 1989). Regardless of label, it is this notion that formed the basis for predicting memory dissociations in the current study.

Essentially, the transfer appropriate processing approach predicts that performance on a memory test will be enhanced to the extent that the encoding and retrieval activities required by the learning session and the subsequent test are similar. That is, both implicit and explicit memory rely on newly established episodic representations, and will portray differences between processing modes in terms of interactions between features of encoded representations and different demands posed by implicit and explicit memory tests. The processing modes that distinguish between memory
dissociations found in a number of studies are conceptually-driven processing and data-driven processing (Jacoby, 1983; Roediger & Blaxton, 1987). Conceptually-driven processing reflects person-initiated activities such as elaboration, organizing, and reconstruction; data-driven processing is initiated and guided by the information, data, or surface features of the items that are presented in test materials. Although both explicit and implicit tests can have data-driven and conceptually-driven components, it is argued that explicit memory tests that are most often used (e.g., free and cued recall) draw primarily on conceptually-driven processing whereas implicit tests that are most often used (e.g., word fragment completion tasks) draw primarily on data-driven processing. Performance dissociations between typical implicit and explicit tests are sometimes attributed to separate memory systems and not to differences between conceptually-driven and data-driven processes. But such performance dissociations may be the result of the type of test administered after a study or viewing session, and thus, may be an artifact of the specific tests used. Performance dissociations may also be explained by a level of processing framework.

To illustrate, experiments can be configured to conform to a 2 X 2 scheme proposed by Roediger (1990), which reflects the alignment of memory systems (denoted by explicit and implicit tests) and processing modes (data-driven and conceptually-driven). This scheme provides a way to categorize different memory tests (Figure 1), has direct implications for memory tests for television news, and may be a fruitful way of explaining the apparent disparate results in television memory research. For example, dissociations found between tests in Cells 2 and 3 could be (and often are) interpreted as evidence for separate memory systems. Such dissociations, of course, could also be explained by differential processing modes. One key feature of this approach is that memory (as measured by scores on the specific memory test) will be higher when the processing requirements of encoding and retrieval match than when they do not.

**Figure 1**

**Study Design: Memory Tests Categorized by Memory System and Processing Type**

<table>
<thead>
<tr>
<th>Type of Processing</th>
<th>Data-Driven</th>
<th>Conceptually-Driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory System Test</td>
<td>Explicit (Episodic) Tests</td>
<td>Implicit (Semantic) Tests</td>
</tr>
<tr>
<td>1) Graphemic Cued Recall</td>
<td>2) Word Fragment Recall</td>
<td></td>
</tr>
<tr>
<td>3) Semantic Cued Recall</td>
<td>4) General Knowledge</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Figure 1 adapted from Blaxton (1989) and Roediger (1990). Cell entries are examples of the respective test type, and are the memory tests used in this study.*
Explicit and Implicit Memory Measures

Explicit memory measures instruct the individual to remember information from a prior experience. These include many memory tests that news researchers often use, including free recall, some types of cued recall, and recognition. All explicit memory tests require the participant to consciously and intentionally remember a previous event in memory and to recollect specific information (e.g., What was the weather forecast on this evening's news?). Two explicit tests—graphemic cued recall and semantic cued recall—were used in this study and were adapted from Blaxton (1989). Graphemic cued recall involves providing participants with words that are physically similar (visually or aurally) to words that appeared in the prior episode (watching television news) but are not similar to those words in their meaning. Participants in this study were instructed to use a word as a cue to generate a word heard during a previously viewed television news story.

The second explicit memory test was semantic cued recall. This test involves providing participants with words that are similar in meaning to words that appeared in a prior episode but not at all similar visually or aurally. As with graphemic cued recall, semantic cued recall required participants to use a word as a cue to generate a word heard during a previously viewed television news story. Both graphemic cued recall and semantic cued recall are explicit tests because they require participants to generate a word by consciously remembering from a prior experience.

Implicit memory measures are influenced by participants' previous exposure to information but make no reference to these prior events. Implicit tests do not demand conscious recollection but they provide evidence of memory where individuals may not actually be aware that they are remembering. These types of tests may be especially useful for measuring retention of television content because information thusly retained may prove to be beneficial to viewers even if they cannot or do not remember the specific learning episode. Two implicit memory tests—word fragment completion and general knowledge—were also used in this study and were adapted from Blaxton (1989). Word fragment completion, perhaps the most commonly used implicit memory test in research, requires participants to complete missing parts of a word. Participants are not told to produce a word heard during a prior episode, but told simply to complete a task. Hence, any performance advantage in the test over the likelihood that the word would be completed by chance is thought to be due to tapping memory that is not consciously expressed. General knowledge tests also do not ask participants to complete the task by remembering a word from a prior episode, nor does the question refer to the prior episode. But a given answer to a seemingly unrelated question that also is a word from a prior episode is thought to reflect incidental learning as well (Blaxton, 1989).

These four tests, as Figure 1 shows, have also been categorized as conceptually-driven and data-driven tests. Word fragment completion and graphemic cued recall are thought to be data-driven tests because both tests rely on physical similarity to
materials from the prior episode. Semantic cued recall and general knowledge are thought to be conceptually-driven tests because the semantic information provided in the word or question themselves would prime the answer in memory, rather than a physical similarity.

**Memory for news in media studies**

Almost without exception, the media studies that show poor memory for news have used recall, aided and unaided, or recognition measures (i.e., explicit tests) of memory retention (see Gunter, 1991; Kellermann, 1985). Often, these studies have pitted learning from television against learning from newspapers. In general, learning from television is found to be poor, especially when compared to learning from newspapers (DeFleur, Davenport, Cronin, & DeFleur, 1992; Robinson & Davis, 1990; Robinson & Levy, 1986; Stauffer, Frost, & Rybolt, 1981; cf. Wicks & Drew, 1991). Furthermore, studies of memory for television news almost always focus on the propositional meaning of the verbal content of a story (Newhagen & Reeves, 1992). These studies try to capture memory for what was said.

Rather than suggesting that people’s memory for television news is poor, it might be more accurate to say most media studies reveal that people’s memory for what is said in most television news stories is not very good when measured by explicit memory tests.

However, the way the news is currently packaged and presented may, unfortunately, predict weak effects when measured by explicit memory tests. That is, the structure of television news, and mass media messages in general, promote semantic (implicit) memory storage rather than episodic (explicit) storage. Kellermann (1985) says, “The heavily scripted nature of mass media content suggests that many of the specific details of media messages may not generally be stored in LTM [long-term memory]” (p. 105). For television news, the structure or script may include the introduction of a person in a difficult situation, then a reporter “stand-up” in which the broader issue is revealed, then the return to the impact on the individual person and perhaps resolution. To the extent that the story adheres to a familiar script or structure, the need for long-term memory storage of the specific message and the elements therein is reduced (Kellermann, 1985). Yet this is exactly the sort of propositional meaning that recall and recognition tests attempt to measure.

By concentrating on propositional or episodic meaning, current research may be assuming that individuals process all television the same way. “Focusing on recall from episodic memory presupposes the goals of individuals are episodically versus semantically based, or that they ‘should be,’ in terms of information processing” (Kellermann, 1985, p. 95). An alternative is that effects of traditionally underdemanding, non-salient newscasts may be revealed on implicit memory tests. Outside media research, this is most often tested by comparing poor performance on free recall tests (a test best classified in Figure 1, Cell 3, Blaxton, 1989) with better performance on such implicit tests as general knowledge or comprehension (a test best classified in
Figure 1, Cell 4, Blaxton, 1989). The comparison, therefore, is simply between these two test types—performance on one (e.g., general knowledge) tends to be better than performance on the other (e.g., free recall). Such evidence could suggest that people process media information through two separate memory systems.

The current study addresses this apparent problem via an experimental design adapted from a conception of the processing level by memory system schematic shown in Figure 1 (Blaxton, 1989; Roediger, 1990). That is, what pattern of dissociations in the tests shown in Figure 1 (if any) would occur if the study task involved watching television news stories? According to transfer appropriate processing approach, performance would be affected largely by the processing type (data- or conceptually-driven) the viewer engaged in at the time of the viewing session and the degree to which the mental requirements of the processing type matched those of the test (Jacoby, 1983). Research in advertising has shown that memory for ads increased when such a match occurred. For example, ad recall improved when the encoding and retrieval requirements of study (ad exposure) and retrieval (ad recall) matched (Friestad & Thorson, 1993; Keller, 1987).

Therefore, a transfer appropriate processing approach would suggest that viewers who encode material in a data-driven mode would perform better on the data-driven tests than viewers who encode material in a conceptually-driven mode, because the processing level and the test requirements match (Blaxton, 1989; Roediger & Blaxton, 1987; Roediger & Weldon, 1987; Roediger, Weldon & Challis 1989). The reverse should also be true, and both should be true regardless of whether the tests tap explicit or implicit memory. The transfer appropriate processing approach to television news would specifically predict for the current study that (1) participants engaged in conceptually-driven processing will perform better than those engaged in data-driven processing on conceptually-driven tests—semantic cued recall and general knowledge tests, and (2) participants engaged in data-driven processing will perform better than those engaged in conceptually data-driven processing on data-driven tests—graphemic cued recall and word fragment completion.

If the data support these hypotheses, and thus exhibit the predicted pattern of dissociations on memory tests, then they will have demonstrated the importance of the appropriate match between encoding and retrieval activities in testing for television news memory.

Method

Design and Procedures

In this study, processing mode (two levels: data-driven vs. conceptually-driven) was varied in a between-subjects design. The participants in both conditions were asked to complete a short questionnaire, which contained the manipulation, after viewing each news story. The manipulation occurred before participants watched any of the television news stories. Prior to watching, participants were instructed to
examine the questions on the first page of their booklet and were told that these would be the dimensions on which they would rate every story. The level of processing manipulations used in this study were similar to those ones utilized by Roediger, Weldon, Stadler, and Riegler (1992), in which they had participants study words and pictures rather than television new stories. To encourage data-driven processing, they instructed their participants to count the total number of letters in a target word or in the name of a target picture. The idea was to encourage participants to focus on perceptual attributes of the stimulus materials. The perceptual attributes of television news presumably include aspects of the audio and video, without much regard to what is being said. Thus, participants in the data-driven processing condition for the current study were encouraged to encode the news stories in that mode by rating the story’s pace, audio quality, picture clarity, camera work, and the reporter’s voice on seven-point scales. In addition, participants were also asked to briefly describe any aspect of the audio or video quality they wished. By asking participants to focus on these surface qualities of the news presentation, we intended to encourage data-driven processing of the news stories.

To encourage conceptually-driven processing, Roediger et al. (1992) instructed their participants to think about the real-world object that the word or picture connoted and then rate it for pleasantness. The idea for this manipulation was to encourage participants to focus on the conceptual attributes of the stimulus materials. In the current study, the other group of participants was encouraged to encode the news stories conceptually by rating the story’s meaningfulness, personal relevance, importance, informativeness, and seriousness on seven-point scales. In addition, participants were also asked to think about and briefly describe any connections they could make between the story and anything in their own life. By asking participants to focus on how the story’s content linked to their own past experiences, we intended to encourage conceptually-driven processing of the news stories.

The stimulus materials included eight news stories, about two minutes each. Target stories were selected from actual newscasts in television markets that were not in the locale in which the study occurred. Additionally, stories were selected so as not to be locatable in time nor were any of the stories selected likely to have been previously seen by our participants. Four random orders of the target stories were used. One-hundred-and-three college-aged participants were tested.

**Measures**

After viewing and rating all of the news stories, participants received one of four memory tests: graphemic cued recall, semantic cued recall, word fragment completion, or general knowledge. As shown in Figure 1, graphemic cued recall and word fragment completion have been classified as data-driven tests, while semantic cued recall and general knowledge tests have been classified as conceptually-driven tests (Blaxton, 1989). For the graphemic cued recall test, participants were presented with a series of words that were perceptually similar to the target words from the audio
track of each news story. For instance, suppose the target word was “noise.” The participant was given the cue word, “poise.” For the semantic cued recall test, the cue for the target word “noise” was “clamor,” which is similar in meaning to the target word but not at all perceptually similar. Because the graphemic cued recall and the semantic cued recall are explicit memory tests, participants were instructed in their test booklet to produce a word heard during one of the news stories. Participants taking the graphemic cued recall test were told: “Each word below looks and/or sounds like a word that you heard in the news stories. Use these words below to try to recall a word from the news stories.” Participants taking the semantic cued recall test were told: “Each word below is a synonym for a word that you heard in the news stories. Use these words below to try to recall a word from the news stories.”

The word fragment completion task required participants to complete a partial word by filling in dashes with letters to create a meaningful word (i.e., n_ _ s_ for “noise”). The general knowledge item for the target word “noise” was, “Name a type of pollution other than air or water.” Because word fragment completion tasks and general knowledge tests are implicit tests, participants were not instructed to think back to the news stories to answer the questions, but to merely complete the task as best they could. Participants taking the word fragment completion test were told: “Complete each word fragment below. There is not always one right answer. Just write down the first word that you think of.” Participants taking the general knowledge test were told: “For each question below, write down an answer. There is not always one right answer. Just write down the first answer that you think of.”

Forty target words were used for each test and the target words were the same for all four tests. Each target word appeared in one news story at least twice, and appeared in no other story. Also, each target word was germane to the news story in which it appeared; target words were directly related to the story’s gist. Common words such as “the” and “that” were not used as targets. Examples of the targets and their respective cues for each test are shown in Table 1. Only responses that matched the target word were scored as “correct,” even if the task was successfully completed with a different word. Four random orders of target words were used for each test type. Normative data were gathered before the experiment to determine the average nonstudied completion rate for each test (graphemic cued recall $M = 3.6, N = 30$; word fragment completion $M = 7.2, N = 30$; semantic cued recall $M = 5.5, N = 38$; general knowledge $M = 5.4, N = 40$). These data were used to control for mere guessing—the likelihood of a target word generated in a test without prior exposure—of the target words in the experimental treatments.

**Results**

The two hypotheses generated from the transfer appropriate processing account were tested by examining the differential test performance by the processing type manipulation. According to the transfer appropriate processing theory, memory test performance should be enhanced if there is a match between the level of processing
### Table 1
Sample Items in News Stories and Tests

<table>
<thead>
<tr>
<th>Target</th>
<th>Word Fragment</th>
<th>Graphemic Cue</th>
<th>Semantic Cue</th>
<th>General Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>toddler</td>
<td>t_d___r</td>
<td>coddler</td>
<td>youngster</td>
<td>What type of child is in the “terrible twos” stage?</td>
</tr>
<tr>
<td>paralyze</td>
<td>p___l_2_</td>
<td>realize</td>
<td>immobilize</td>
<td>What could happen to a person who is thrown from a horse?</td>
</tr>
<tr>
<td>mammals</td>
<td>ma__a_s</td>
<td>trammels</td>
<td>whales</td>
<td>Name a classification of animals.</td>
</tr>
<tr>
<td>vertebrae</td>
<td>v_t_b_a_</td>
<td>vertical</td>
<td>spine</td>
<td>What is another term for the spine?</td>
</tr>
<tr>
<td>blindfold</td>
<td>bl__f_l_</td>
<td>billfold</td>
<td>blinker</td>
<td>Name something associated with firing squads</td>
</tr>
</tbody>
</table>

required by the test and the level of processing engaged in during the viewing session. if there is a processing mismatch between test and viewing, then the test performance should be hindered.

The results for the two hypotheses are shown in Table 2. For the graphemic cued recall (data-driven test), an advantage due to a processing match would occur if participants in the data-driven study condition showed a greater percentage of “correct” responses (i.e., produced target words found in the news stories) than those in the conceptually-driven study condition. There was a slight increase in graphemic cued recall for those in the data-driven study condition, but the increase was not statistically significant ($t_{23} = 0.93; p = n.s.; d = .38$).

For the word-fragment completion test (data-driven test), an advantage due to a processing match would occur if participants in the data-driven study condition produced significantly more correct responses than those in the conceptually-driven condition. There indeed was a significant increase in word fragment completion for those in the data-driven study condition ($t_{22} = 1.80; p = .043, d = .74$). Thus, for those participants in the processing condition (data-driven) that best matched the type of retrieval activities required by the tests (graphemic cued recall and word fragment completion), there was improved test performance, although the difference in test performance was significant only for the word fragment completion test.

The results for the conceptually-driven tests (semantic cued recall and general knowledge) were more conclusive. For the semantic cued recall test (conceptually-driven), participants in the conceptually-driven study condition scored higher than those in the data-driven study condition ($t_{24} = 1.91; p = .034; d = .74$). For the general knowledge test (conceptually-driven), participants in the conceptually-driven study condition also outperformed those in the data-driven study condition ($t_{26} = 3.54; p = .001; d = 1.34$). According to the transfer appropriate processing account,
Table 2
Proportion of Words Correctly Recalled, Completed, or Accessed on the Four Tests as a Function of Processing Strategies

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>News Story Exposure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data-Driven</td>
</tr>
<tr>
<td>Data-driven</td>
<td></td>
</tr>
<tr>
<td>Graphemic cued recall</td>
<td>.23 (.14)</td>
</tr>
<tr>
<td>Word fragment</td>
<td>.37 (.19)</td>
</tr>
<tr>
<td>Conceptually-driven</td>
<td></td>
</tr>
<tr>
<td>General knowledge</td>
<td>.20 (.06)</td>
</tr>
<tr>
<td>Semantic cued recall</td>
<td>.29 (.15)</td>
</tr>
</tbody>
</table>

Note: Cell entries are the percentage of correct responses. Numbers in parentheses indicate the percentage increase in test score above mere guessing (exposed minus not exposed performance). *p < .05; **p < .01, p < .001.

performance on these two tests—semantic cued recall and general knowledge—should be enhanced for those engaged in conceptually-driven processing during the viewing session. The results support that prediction.

To summarize, performance on all four types of memory tests corresponded to predictions made by transfer appropriate processing, with performance on three of those tests statistically significant.

Discussion

This study sought to examine alternative ways of assessing memory for television news. The type of memory test was an important factor in measuring retention of information contained in television news, especially when there was a match between processing and testing activities. The roles of the viewer's perspective at encoding and the kind of cue used to initiate the retrieval process were examined in terms of the transfer appropriate processing account (Blaxton, 1989; Roediger & Blaxton, 1987; Roediger & Weldon, 1987; Roediger, Weldon & Challis 1989) and the theoretical distinction between episodic and semantic memory (Tulving, 1983).

The data indicate that the transfer appropriate processing framework provides a reasonable explanation of how people remember television news. When encoding conditions and the retrieval requirements of memory tests matched, participants scored higher on three of the four memory tests. More specifically, participants who were encouraged to engage in data-driven processing upon exposure to the news stories by rating the stories’ surface features scored higher on one of the two data-driven tests (word fragment completion) than participants who rated the stories based on more global evaluations. Also, participants who were encouraged to engage
in conceptually-driven processing upon exposure to the news stories by rating the stories' meaningfulness, relevance, importance, etc., scored higher on the two conceptually-driven tests (general knowledge and semantic cued recall). Memory test performance was enhanced based decidedly on the degree to which retrieval processes and encoding processes matched. These results, along with findings from cognitive psychology and advertising, suggest that retention of television content is best assessed when processing goals are accounted for.

However, several caveats are in order. First, we used test items taken solely from the audio track of the news stories. Television news is much more than spoken words—it also includes moving pictures and on-screen graphics. How might the transfer of processing approach explain memory for other information contained in television news stories, such as the video content? How might all four test types be developed to measure retention of such content?

Second, prior research is in conflict about the effect of modality changes between the study and testing sessions. Some research had found that a modality shift (for example, seeing a pictorial representation and being tested with text) sometimes affects data-driven processing (eliminating performance dissociations) but not conceptually-driven processing (Roediger & Blaxton, 1987; Weldon, & Roediger, 1987). Other research has found no such limiting effect of modality shifts (David & Hirshman, 1998). Although the current study adds to this debate, its results do not clarify the matter. Performance on the graphemic cued recall showed no significant dissociations, but performance on the word-fragment completion test did. Future research needs to examine if picture memory for television news content exhibits a stronger modality effect than the propositional-type memory that was measured in our study.

The implications of this study for television researchers are several. First, it seems cogent to test viewers of television content in multiple ways, in accordance with a levels of processing approach. Successful memory measurement depends on using the type of test that matches the processing mode used by the viewer (Bettman, 1979; Duke, 1989; Morris, Bransford, & Franks, 1977). This argument has been forcefully made in the media research arena (Duke & Carlson, 1993). Second, it is sometimes not clear which processing level a particular memory test may match, for example, picture recognition. It would be useful for a variety of memory tests to be pretested and their cognitive requirements documented so that such tests could be classified according to processing level.

Future research should extend the current study by increasing the variety of television news stories that were tested here. In this study, stories were chosen to reduce the likelihood that any of our participants would be familiar with them. Consequently, none of the stories were about salient news events. Clearly, much of the variation in news memorability is determined by the story attributes (e.g., amount of coverage, importance, newsworthiness), the attributes of the viewing individual (e.g., personal relevance, involvement, prior knowledge), and the interactions between the two (e.g., viewing conditions, viewing level of processing).
The results of this study have implications for television news practitioners as well. Such practitioners have intuitively realized that perceptual or surface features of their product may encourage viewers to focus on these features (i.e., engage in data-driven processing) rather than on the conceptual content. For example, distracting video (e.g., poorly shot, composed, or edited) or audio (e.g., whiny narration voice, static, audio drop outs) detracts from the content of the story, hence, reducing the likelihood that the viewer will absorb the story's crucial elements. Television news viewers likely engage in both levels of processing over the course of a story, segment or program, however, and news professionals may deem it their responsibility to encourage conceptually-driven processing through the production of their news products. Our data suggest that this is a wise goal. Certain techniques used by television news producers may inhibit conceptually-driven processing through the use of special effects, elaborate set designs, and other means that may distract viewers from the news content itself. For example, Thorson and Lang (1992) found that memory for the verbal content of a televised presentation decreased after the presentation of a videographic for participants who were unfamiliar with the content of the presentation. A useful research endeavor would be to document these television production techniques and the extent to which they inhibit viewers from conceptually processing news content.

References


Notes

1 An implicit/explicit memory task distinction parallels what has often been referred to as a semantic/episodic memory distinction. But the latter pair has come to mean a distinction between memory systems rather than a distinction between tasks (e.g., Blaxton, 1989; Graf & Schacter, 1987; Tulving, 1983).

2 Level of processing has been conceptualized to be a continuum, with conceptually-driven and data-driven as the extreme values. In reality, people probably engage in both, to varying degrees, in any “study” situation.

3 In order to replicate Blaxton (1989) and keep the stimulus set and the procedures manageable, only words from the audio track served as target items.