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Format appears to matter less than story salience

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Introduction

Audiences for news continue to migrate online, and news organizations have responded in kind, embracing the Internet for disseminating content. Television newsrooms need audience share to attract advertisers just as print media fight to hold onto circulation numbers. As print and broadcast integrate with the online platform, significant questions continue to arise about how the news is packaged and presented. The core issue remains--what is the best way to present a news story for those most interested in that story?

The earliest efforts to deliver news over the Web took traditional story forms and put them online. Newspapers typically uploaded text and photos, and television stations uploaded scripts, script summaries, and video. As news delivery over the Web has matured, these formats have evolved to take advantage of the multimedia capabilities of the Internet. Although news organizations have continually experimented with story forms, more understanding is needed as to how specific format elements impact the audience.

The prospects for audience preference hold promise for news organizations. Readers and viewers online most often look for news coverage on sites belonging to traditional news organizations – such as newspapers, cable and network news – according to Pew’s State of the News Media 2013.¹ Newsrooms may also have an advantage over news portals such as Yahoo!News and aggregator sites such as Google News, because audiences with low involvement tend to be influenced by the proximate sources.²

One measure of website performance is "stickiness," which is the ability of websites to draw and retain visitors.³ Website draw is measured by individual visits, and retention is reflected by time spent. Customer satisfaction remains a driving force in stickiness,⁴ which stem from a combination of web user attitude toward a website, trust, and quality of the content.⁵

News organizations use a variety of techniques to maximize stickiness. One approach is to offer compelling content and stories that are timely, well written and salient. By following this approach a newsroom can hold a competitive advantage in amassing—and keeping—a loyal online following. But this raises fundamental questions about the nature of content. What properties of a news story have value and offer the greatest appeal to the audience? (It should also be noted that newsrooms are experimenting with alternative formats not available in other media, including slide shows and interactive presentations.)

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For television newsrooms, the easiest and most common practice has been to simply post the stories online that were created for its newscasts. But this "shovelware" approach is not effective with audiences, nor is it popular within TV newsrooms.⁶

Traditionally, TV news has determined story importance for the audience by the place in the newscast, visual prominence, and time devoted to the event.⁷ To assist the audience in knowing what was important, the field report, or news package, became the staple of TV news. The packaged report blends audio quotes and compelling video of an event with a field reporter's interpretative account of its significance. The more audio-video redundancy in the story, the higher the recall for this type of story format.⁸ But there is evidence that the traditional TV package may not translate well to the Web.⁹

Similarly, on the print-side, news organizations may be tempted to simply upload photos and story texts to the Web. However, some studies of story presentation indicate that traditional newspaper story forms may not work as well on the Web.¹⁰ It is easy and inexpensive to simply copy content distributed through traditional media onto a website, but doing so does not take advantage of the capabilities of the Web, such as linking, extending content (e.g. photo galleries instead of a single photo), and instant distribution. If the audience is not served, then the website and the organization lose relevance. The Web has its own conventions and restrictions, and online news stories need to be formatted differently from those distributed through print or broadcast platforms.¹¹

There are a variety of ways to measure storytelling effectiveness. Recall or recognition measures have been used extensively by scholars of mass communication for decades.¹² Other studies have used eyetracking or skin conductance or time spent reading a particular story to gauge interest, involvement, or salience of the story.¹³

Recall is often used to measure story effectiveness because it is a relatively stable indicator of information processing that also reflects interest, cognitive effort, understanding, or engagement. But some of the shortfalls of using recall are that it can also reflect prior experience or exposure to a story or set of facts, or even just a good guess. To control guessing, some studies prefer unaided recall,¹⁴ while others have successfully used aided recall items such as multiple choice.¹⁵

Despite these shortcomings, recall remains one of the most common, objective dependent variables in the study of news content. A person going to a news site and having higher recall of stories is probably having a more satisfactory experience than a person having lower recall (whether it is due to the individual or the stories themselves is part of this study). But in general, higher satisfaction should in turn lead to repeat visits that may reflect stickiness/habit/loyalty. Higher recall of a message can be interpreted as greater engagement (and some degree of satisfaction), which over time can lead to a habit of news consumption. This habit would be reflected in repeat visits to the website. Further, a website considered more valuable as a source of news will be relied upon and visited more often in the future.¹⁶

Recall And Message Effectiveness

Studies of recall for various modalities of news have produced a number of results. Print versions produced higher recall than broadcast¹⁷ except when audio-video components matched and reinforced each other, in which case broadcast produced higher recall.¹⁸ Stories rich in graphics tend to produce higher recall than plain text,¹⁹ and linear

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forms in traditional print and broadcast resulted in higher recall than non-linear forms.²⁰

Research by Pippis et al²¹ tested four versions of an online story and found that text alone or text with photos produced better recall than photos with captions or video. While this finding runs counter to those of the Poynter Eyetracking study noted above,²² it provides some direction for research. The Poynter study offered test subjects three prototypes online and on broadsheet including timelines, lists and fact boxes, and found that recall was highest on the presentations laden with graphics. In a five-modality study, Sundar²³ found that text and text combined with images, aided recognition and memory, however audio and/or video elements impeded the process.

A study by Karlis, Guerazzi, and Grant²⁴ examined the effectiveness of television packages online using a two-by-three experimental design. This design showed the relationships between video format, time spent, and recall for online news. Test subjects viewed a traditional broadcast-type news package, a disassembled package, and raw video with text. Results showed users spent significantly more time with the raw video format than with the other two formats. Time spent was strongly correlated with post-test recall of elements of each story, but there was no direct relationship between format and recall.

Factors other than recall may be useful in evaluating the relative effectiveness of news formats. Individual perception of the website may be important. Sundar and Limperos²⁵ found that Websites providing live video feeds, including text, are perceived as more genuine than sites that offer text alone, but they also noted that it may be inappropriate for traditional measures of media to be used with new delivery platforms like the Web.

There are a number of variables that can be studied to assess the effectiveness or appeal of an online news story. Sundar²⁶ identified four criteria that consumers use to judge the news: credibility, liking, quality, and representativeness. For example, credibility is enhanced by the use of quotes²⁷. Packaging and presentation are important, because stories deemed professional are treated differently from stories that are deemed as casual or less professional.²⁸

The importance of salience or inherent news value is another consideration. Conway and Patterson²⁹ found that when stories are online, traditional salience "cues" are missing. In print and broadcast, story location plus the amount of space or time indicates its relative importance. But online, story presentation is more fluid, and multiple stories can be accessed simultaneously. The online format lends itself to choice, enabling the individual to choose content that is of interest to him or herself.

Based upon this review of the literature, two sets of dependent variables were identified for use in this study: subjective measures assessing attitudes toward the content, and objective measures reflecting behaviors toward the content. Taking the factors noted by Sundar,³⁰ Chyi and Yang,³¹ and Conway and Patterson,³² attitudes toward the content included three measures; *perceived appearance of the content*, *value of the content*, and *perceived cognitive impact of the content*. Perceived quality of appearance refers to professional packaging and completeness of the information. Perceived value refers to judgments about the utility of the story to the individual, and perceived cognitive impact of the content refers to judgments about the salience and engagement due to the 'newsworthiness' of the story.

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In addition to these subjective measures, previous research also suggests consideration of a set of objective measures. These include total time spent on the individual story components (reflecting attention) and recall of story elements (reflecting information processing).

Hypotheses

Since news value has been identified by its appearance (structural elements), its nature (news characteristics), and perceived value by the audience members (reflected in its appeal and ensuing information processing), a number of intriguing relationships may be posited that help us understand how to "build a better story."

Appearance is an important filter. Story content judged to be relatively low in the quality of its appearance will lower overall perceptions regarding cognitive impact and value of that content.

H1a: Perceived appearance will be positively correlated with perceived cognitive impact.

H1b: Perceived appearance will be positively correlated with perceived value.

Where appearances are relatively equal, perceptions about the cognitive impact will be more impacted by the topic itself and modality factors like images, graphics, audio, video material. These factors will lead to higher evaluations in terms of interest and value.

In general, visual channels are considered more 'rich' than text only, with audio somewhere in between.³³ Information richness is defined as "the ability to change understanding within a time interval,"³⁴ which reflects the greater potential for moving and still visual images versus text.

With richness considered as a factor, the measurement items about value will be the most important criteria. These items reflect the meaningfulness of the experience and may serve as a predictor for future news consumption. Perceived engagement of the content reflects the perceived importance of the event. Therefore,

H2: Perceived cognitive impact increases with the richness of media content.

H2a: Perceived cognitive impact of the video version will be greater than for the photo version.

H2b: Perceived cognitive impact of the video version will be greater than for the text version.

H3: Total time spent viewing a story will be positively correlated with perceived value.

H4: Recall will be positively correlated with perceived value.

Perceived appearance (professionalism in packaging) will vary with format, but reflect consumer expectations of visual components such that:

H5a: Stories with photos will have higher perceived appearance scores than text-only stories.

H5b: Stories with video will have higher perceived appearance scores than text-only stories.

(Note that no difference is expected between appearance scores for the photo and video versions.)

The final hypotheses address the relationships among story, format, and recall. The study that inspired this investigation³⁵ tested the relationship among these variables,

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using three different video formats as the treatment. Although that study found no direct relationship between format and recall, it did find significant, direct relationships between format and time spent viewing the story, and between time spent viewing a story and recall of the story. Accordingly:

H6a: Format will be a significant predictor of time spent viewing a story.

H6b: Time spent viewing a story will be positively correlated with recall of the story.

Method

Following previous research³⁶ a controlled experiment was determined to be the best method for assessing differences in both subjective and objective impacts of news formats. The first step in this experiment was creating two sets of experimental treatments. This study employed a 3x2 factorial design. Three different presentations were created for two different news stories: A text-only version, a text version with captioned photos, and a text version with video. These story forms were arranged to control for order effects, resulting in six different paired treatments (see Table 1). Because the experiment was carried out with the same laptops at universities on separate coasts of the United States, it was necessary to separate the samples several weeks apart, to allow for data collection from the first sample to be gathered before sending the computers, to the second location. Because of the delay between samples, two relatively undated "evergreen" feature stories were produced. The first story (Story A) explored press freedom for journalists in the United Arab Emirates. The second story (Story B) reported on living conditions for immigrants in the UAE.

To collect data for this study, a prototype website purportedly containing news for college students was created. Because the study utilized two stories and three conditions for each story, a total of six treatments were created, with each treatment loaded on a different laptop computer. Each treatment included both stories, with a different version of each story. Subjects were randomly assigned to one of the six laptops and then were asked to review the site pre-loaded on the laptop. When they were finished, they were instructed to click on a link that asked a series of questions about the site.

Measures

In order to quantitatively assess appearance, perceived cognitive impact, and value of news stories, a set of Likert scale statements were generated. For measurement consistency, an equal number of items were generated for each of the three characteristics:

a. Appearance of the Content

The story was professionally presented

The story was well written

The story seemed complete

The story was presented in a way that was easy to understand

b. Perceived Cognitive Impact of the Content):

The story made me think

The story made the topic more salient

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The story made me care more about this topic

The story captured the importance of the topic

c. Value of the Content

Reading the story was worth my time

The story was useful

I'm now interested in more stories on this topic

I will mention this story or topic to someone else

Appearance of the content is an important descriptive aspect of a news story. How stories are presented and organized may affect perceptions about the content of the story. Perceived cognitive impact of the story is the inherent news value, or importance of the story, without regard to salience. This is how journalists have traditionally evaluated their work. Journalists have typically used these measures to judge how well they are serving the community and the needs of the audience. The set of statements reflecting value of the content assesses the content from the audience members' perspective.

Time spent viewing each story was measured by recording each viewing session using Debut screen capture software, noting the start and end time viewing each story, and then subtracting the start time from the end time to yield the total time spent viewing that story. Recall was measured as the number of correct answers to a seven item, multiple-choice test for each story (with four choices for each question). Finally, respondents were asked to report their gender.

Subjects

Respondents were undergraduate students, recruited with flyers posted in the common areas of student housing on two large public university campuses. They were provided with refreshments as an incentive to participate. The study, in the common areas of university housing, took place between 9 a.m. and 3 p.m., with students walking through the dorms, on their way to and from class. The number of students walking through the dorms varied, with most congested time during the noon hour, and the least congested time in late afternoon. No activities were taking place in the common areas of the dorms that would have distracted students from the study.

Six computers were set up with one for each of the six treatments. Student volunteers were randomly assigned to one of the six treatments and asked to browse the website that appeared on the computer. They were instructed when finished to click a link to a questionnaire that evaluated the website. In addition to variables described above, the post-test included a set of masking questions about the general nature of the website. The 180 subjects were almost evenly split by sex, with 48% males and 52% females.

The data from the post-test questionnaire were combined with the dataset containing the time data and the identification of the treatment. These data were then analyzed using SPSS v. 19.0.

Results

This section reports the results of the individual hypothesis tests. Before testing the hypotheses, descriptive statistics and scale reliabilities were computed. The internal

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consistency (coefficient alpha) of each of the three, four-item scales for each story was computed; all alphas exceeded .72

H1a: Perceived appearance will be positively correlated with perceived cognitive impact

Hypothesis 1a was supported with strong correlations observed in each of the conditions (Story A: $r=.615$; $p=.000$; Story B: $r=.640$; $p=.000$). Put simply, the more that test subjects favorably regarded the appearance of the website, the more likely they were to believe it was accurate and complete.

H1b: Perceived appearance will be positively correlated with perceived value.

Hypothesis 1b was also supported, again with strong correlations observed in each of the conditions; (Story A: $r=.423$, $p=.000$; Story B: $r=.529$; $p=.000$). This result means that test subjects who approved of the appearance tended to value the site to a greater degree.

The second set of hypotheses predicted that subjects would find the website more informative if the media used carries more information.

H2a: Perceived cognitive impact of the video version will be greater than for the photo version.

Hypothesis 2a received mixed support. The mean cognitive impact of the video version (14.8) was greater than the photo version (13.9) for Story A ($t=-1.9$; $p=.03$). For Story B the hypothesis was not supported; the photo version (14.8) was rated to have greater cognitive impact than the video version (13.6; $t=2.22$; $p=.015$). So, the subjects found the video version more informative and interesting than the photo version for only one of the two test stories.

H2b: Perceived cognitive impact of the video version will be greater than for the text version.

Hypothesis 2b was also supported for Story A (video version mean=14.8; text version=13.6; $t=-2.37$; $p=.01$), but no difference was observed between the video version and the text version for Story B. As with Hypothesis 2a, test subjects found the video version more informative and interesting than the text version only for Story A.

H3: Total time spent viewing a story will be positively correlated with perceived value of the story.

No relationship was observed in either condition between the amount of time spent viewing the story and the perceived value of the story.

H4: Recall will be positively correlated with perceived value.

As with Hypothesis 2, Hypothesis 4 was supported for Story A: ($r=.171$; $p=.02$); but was not supported for Story B.

H5a: Stories with photos will have higher perceived appearance scores than text-only stories.

H5b: Stories with video will have higher perceived appearance scores than text-only stories.

Neither Hypothesis 5a nor Hypothesis 5b was supported in either condition, with no significant difference observed in perceived appearance scores in any of the treatments. Test subjects did not appear to care whether video or photos were added to text stories.

H6a: Format will be a significant predictor of time spent viewing a story.

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H6b: Time spent viewing a story will be positively correlated with recall of the story.

These two hypotheses are based on the (name omitted to preserve the integrity of the review process)³⁷ study of online video formats. Unlike the previous study, there was no relationship between format and time spent viewing a story, so Hypothesis 6a was not supported. But Hypothesis 6b was supported, with a strong relationship between time spent viewing a story and recall of the story (Story A: $r=.489$, $p=.000$; Story B: $r=.460$; $p=.000$.) The longer that test subjects spend viewing a story, the more they will remember it, but the time spent did not differ significantly among the three versions of the story.

Analysis and Discussion

Summary

Analysis of the hypotheses that were supported and those that were not supported yields some interesting insight into online news. The most important finding may be the consistently strong relationships among the subjective evaluations of the value of the content, the appearance of the content, and how informative they found the content to be. These strong, consistent relationships suggest that another factor might be at work; perhaps it is the content itself that predicts the perception of all three. As discussed below, further research, using a much larger number and variety of stories, should help to understand the relationships among these perceptual variables.

On the other hand, the mixed relationships between story format and these perceptual variables suggest that, in the case of stories that include a prominent amount of text, the format (text only, text with pictures, and text with video) may be less important as a predictor of these perceptual variables than the story itself.

Consistent with Karlis, Guerrazzi, and Grant,³⁸ we found that the only significant, direct predictor of recall was the amount of time spent viewing a story. The finding may be of greatest interest to news organizations, as time spent is also the most important factor in maximizing the revenue from online news. The more time a person spends with a story, regardless of the format, the more opportunity the news organization has to surround (or interrupt) the story with advertising messages that contribute to the financial support of the newsroom.

The question within a newsroom might then be: What is the best way to maximize the amount of time spent on a news story? This research suggests that format is a much less important measure than salience of the story. It almost seems anticlimactic to report that relevance or salience of a story is much more important than how a story is reported, but that finding can also be empowering for journalists who can be guided to choose the format of a story based upon the best way of telling that story rather than prescribing a treatment because one format is believed to be more acceptable to consumers than others.

Limitations and Strengths

The bicoastal sampling of 180 students enabled a wider range of responses to capture the phenomenon under study, but not enough to argue the findings are generalizable to the U.S. population. Still, the findings should be more robust than if the

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study were limited to a single data collection site location. However, as recorded by the Debut screen capture software, 34 of the students did not see any of Story A and 47 did not see any of Story B. Post hoc analysis indicated that the students who did not spend any time with a story scored significantly lower on recall of the story. The average number of correct responses for Story A was 3.56 for those who did not spend any time with the story vs. 4.71 for those who saw the story ($F=15.05$; $p=.000$). The average number of correct responses for Story B was 2.19 for those who did not spend any time with the story vs. 3.36 for those who saw the story ($F=16.26$; $p=.000$). This finding reflects both the result of Hypothesis 6b, demonstrating the relationship between time spent with a story and recall, and the fact that the student subjects were not entirely ignorant of the subject of the two stories (by random chance the number of correct responses would have been 1.75).

The stories used in the study were selected because of the neutral setting of their location; the United Arab Emirates, which has no greater salience to students at either one of the two large universities from which the research sample was drawn. However, as in many studies of this type, the salience to students may have been less than optimal. Stories that seemed more directly related to undergraduates may have been followed by a larger number of students, reducing the problem of test subjects not reading or viewing any of the stories. For example, topics revolving around college financing, study skills or career prospects may have elicited a more loyal following.

The investigation excluded students who majored in journalism and mass communications. Their fields of interest may have been found to relate to their impressions of the stories. Even with that exclusion, it is possible that students' majors may have been related to salience or other variables, but the number of subjects was not large enough to do a separate analysis that included major as a predictor variable.

Implications

Despite its limitations, this study has important implications for media organizations and sponsors of their content. For newsrooms, the most prominent finding might be the strong, positive relationship between the amount of time spent viewing the story and the recall of the story. If time devoted to a story is related to the salience of a story, this relationship suggests that media organizations consider offering “deep” content for stories that have the highest salience to the public. As an enhancement, news managers may do well to maximize use of online sidebars to stories, expanding the breadth of their deepened coverage.

News organizations may increase audience time spent on a story by not only choosing topics with greater salience and value, but by reporting them in relevant terms. Reporting techniques to increase relevance may include localizing international stories, relating stories to personal finances, illustrating impact on personal health, and appealing to audience demographics.

The results of the study also suggest that reporters should be able to exercise educated independence in deciding which story formats to use. Whether the medium is audio, video, text, graphics or a combination, stories that are salient and professionally presented, while offering perceived value, may expand opportunities for advertising. The

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freedom that reporters are afforded in presenting their stories may allow for experimentation and implementation of new formats.

The results of this study are important to the news industry as a whole. Just as Google discovered a superior and efficient means to deliver advertising through its AdWords service,³⁹ so news organizations need to find a similar formula for delivering news and information quickly, efficiently, and in a way that derives maximum audience interest.

This study offers insights about the nature of journalistic information (colloquially defined and discussed as "news"). High-value news information is perceived different from low-value information or entertainment because the way it is professionally captured, packaged, processed, and disseminated. The end result is a story that holds enough characteristics of traditional journalism to be perceived as "news" and therefore higher cognitive processing (demonstrated by recall) and higher level information processing.

Notes

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³⁴ Richard Daft and Robert H. Lengel. "Organizational information requirements, media richness and structural design." *Management Science*, 32.5 (1986): 554-571.

³⁵ Karlis et al., "The effect of video formats in online news: A study of recall and stickiness."

³⁶ Sundar, "Multimedia effects on processing and perceptions of online news: A study of picture, audio, and video downloads;" Tewksbury and Althaus. "Differences in knowledge acquisition among readers of the paper and online versions of a national newspaper;" Eveland et al., "Learning from the news in campaign 2000: An experimental comparison of TV news, newspapers, and online news."

 FORMAT APPEARS TO MATTER LESS THAN STORY SALIENCE

³⁷ Karlis et al., “The effect of video formats in online news: A study of recall and stickiness.”

³⁸ Karlis et al., “The effect of video formats in online news: A study of recall and stickiness.”

³⁹ Karlis et al., “The effect of video formats in online news: A study of recall and stickiness.”

Story treatments paired on test computers

Table 1

Computer	Text only	Text with captioned photos	Text with video interview
1 N=31	Watch what you say: Students find studying abroad comes with censorship	Price of progress: Labor isn't free at any cost	
2 N=31	Watch what you say: Students find studying abroad comes with censorship		Price of progress: Labor isn't free at any cost
3 N=32		Price of progress: Labor isn't free at any cost	Watch what you say: Students find studying abroad comes with censorship
4 N=32	Price of progress: Labor isn't free at any cost	Watch what you say: Students find studying abroad comes with censorship	
5 N=29	Price of progress: Labor isn't free at any cost		Watch what you say: Students find studying abroad comes with censorship
6 N=25		Watch what you say: Students find studying abroad comes with censorship	Price of progress: Labor isn't free at any cost