Divided Attention: Television as popular interface
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Abstract:
This writing is a theoretical and observational investigation into the use of precious real estate, the television screen. It will outline a series of observations and present examples of verbal encroachment into our visual video world. It is an invasion we all have observed. Possible explanations and implications are presented.

Introduction
...what ideas are convenient to express inevitably become the important content of the culture. (Postman, 1985)

We began with a clear vision and an unblinking eye of the images being presented on the TV screen. Over recent years a number of visual elements have been added to broadcast and cable television. These embellishments contend for our attention and parallel the multitasking of modern personal computing. The television screen we look at is becoming crowded.

How we communicate through media has an impact far beyond the screen. Media used for communication biases the ideas communicated and therefore the ideas utilized by society (Innis, 1954).

Reviewed in broad strokes is the development of the use of the television screen, both in terms of the time based and spatial modes. The pace of images has accelerated over time, a temporal phenomenon which has been followed by an increase in visual density of screen use. Observations of current screen use are used to support hypotheses about the nature of television screen use.

Media: Television Images And Graphical Content
Of particular importance to this investigation is the competition between video or photographic images, (mechanical or digital re-creations of reality) and inserts of graphics, data, and information (created interpretations).

Video images, like photographs, are a window to a different time or space. In photographs and images there is an assumption of truth (Mitchell, 1991). There is richness in the image that is presented, a captured view, and a veracity that comes from their creation, in contrast to graphics that are included on screen.

What is written about a person or an event is frankly an interpretation, as are handmade visual statements, like paintings or drawings. Photographed images do not seem to be statements about the world so much as pieces of it, miniatures of reality that anyone can make or acquire. (Sontag, 1973, p.4)

While historically, we implicitly trust moving or still images; drawn images, consciously created graphics, and text all are products of potentially biased human thought. They are not automatically recorded and neutral observations. This conflict between seeing for ourselves and reading someone else's observation is the pitched battle on our television screens. We must choose between the real (the image) and the interpretation (the added statements).

Most recent media research has focused on the simple aspects of content: what is presented is what is supposedly communicated. A divergent school of thought, including McLuhan (1964), Carey (1967), Postman (1992), Meyrowitz (1999), have recognized the importance of the means of communication rather than the content. What we watch may be interesting, but how it is presented, the use of the medium may be more important in what it says about our society and culture. These small developments will change how we understand and think, according to Postman:

New technologies alter the structure of our interests: the things we think about, they alter the character of our symbols: the things we think with. And they alter the nature of community: the arena in which thoughts develop. (p. 20)

This different understanding presages changes in our culture per Carey (1967), as differences in media choice and use will reorganize and color the content, the information that is presented.

Any given medium will bias social organization, for it will favor the growth of certain kinds of interests and institutions at the expense of others and will also impose on these institutions a form of organization. (p. 9).

Even small, gradual changes will have a significant effect. McLuhan notes the power of general trends of media and the importance of the media themselves (1964):

The effects of technology do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception steadily and without opposition. (p. 18)

As with other communication media, the very nature of the media shapes the content, and changes the ideas
expressed and disseminated throughout society; consequently change in media affects the ideas discussed and utilized in society at large.

The nature of television has changed significantly over the past fifty years. Through changes in the use of the television medium, our way of thinking, learning, and knowing has also changed. It has become, moreover, more than a simple electronic box with moving pictures.

**A background of the landscape of television**

Early in the life of television, it presented one video image telling just one story. It was truly television ...far seeing...looking through the screen at a scene far away. All that was required for our attention was the moving image.

We can imagine the first viewers transfixed by the very existence of a television picture, giving all of their concentration to the flickering images. We occasionally see that today with very young children or television primitives, people who have grown up without substantial television experience. Only rarely does a single video image capture our full and undivided attention.

Once viewers learned how to watch television, much of what television presented was merely monitored by viewers, with intermittent concentration and engagement. Viewers have learned to adjust their concentration as needed. Television’s pace and methods often allowed for multiple activities; people read in front of the television, ate in front of the television, and engaged in romantic activities in front of the television. Bathroom and water use increase during commercial breaks of significant broadcasts such as the Super Bowl.

Much of television was, at first, a linear presentation of a series of images. Scenes could be accelerated, and scenes would be art directed, but it was, in the end, a linked series of images. News occurred on a set with logos and graphic information presented on camera, not super imposed on screen. What we saw was true because we saw it on television.

As we move toward a "hypertext" society, with diminished attention spans and impatience (Campbell, 1997), our principal visual venue, television, has followed suit. We have learned to accept and mentally access a larger amount of visual information. Busy, full, or overly kinetic are subjective qualities that have been accepted by society, as seen through the increased pace of commercials and broadcast television. Television screen design follows the capability of a society accustomed to visually rich and complex viewing, one which is seeking a simple, declarative bottom line.

Since it’s inception, television has changed in a number of ways: We have seen an acceleration of video content. As the medium developed, more has been presented on the same screen. Scenes were accelerated to capture or maintain our mental commitment, and camera shots multiplied. More and faster commercials were added. The average 60 second languid commercial of 1960 of has been replaced by 30, 20 and 15 second "spots". (MacLachlan & Logan,1993).

Over the years, the temporal visual image has been intensified. More visual information is being presented in a given period of time in a sequential, linear manner. There are other examples of this increasing pace in presentation.

For example, the instant replay is an extension of this phenomenon. Instant replay has “enhanced” our enjoyment of televised sporting events. Intense brief actions were replayed to fill in periods of lesser activity. This increases the average intensity of visual stimulus and helps to maintain viewer attention.

In the early 1980’s, multiple story lines began to be presented concurrently within the same program. Viewers now need to be able to understand and monitor three or four story plot lines in an hour drama. It is generally recognized that the first substantial use of multiple and continuing plot lines occurred with Hill Street Blues (Bochco, et. al., 1981) in the early 1980s. This is now common. For example, in a recent episode of Nash Bridges (Cuse, 2001) there were three plot and sub-plot lines; a primary plot line, a secondary serious plot line, and a tertiary humorous plot line. Greater viewer concentration is required during programming of this type.

This represents a layering of information delivered through the television broadcast. The presentation is now multi-linear. More than one conceptual line is being presented, and each line needs to be followed to its conclusion. The lines may intersect but generally do not overlap.

Recently we have begun to see conceptually similar changes in the layout of the screen itself. The broadcast screen image is more complex and more information is being presented at any one time. Over the past years additional visual elements have been added to the broadcast television screen; they contend for our attention, and provide us with a richer but not necessarily better visual experience. There are a number of different visual intrusions and they are found in a variety of networks and programs. Some brief descriptions follow.

**Split Screen:**

An easy example of the manipulation of screen design is the use of multiple video or still images on screen, the presentation of two or more separate images concurrently. Like multiple story lines in a program, split screen shots increase the cognitive effort required to fully understand the broadcast. A widespread example of this use of screen space is the video interview where both parties are presented on screen at the same time. Use of split screens also often finds the multiple images placed in a digitally created frame.
Labels:
Most interviews and images are now presented with legends, titles, captions or summaries that describe and categorize the video images. For example, an interview will generally include a caption with the name and location of the person being interviewed. Additional information such as the affiliation, title, or advocacy may also be included.

Live on tape:
Temporal conditions are now often labeled. A graphic tag is now added to designate “Live” interviews. Contrary to the common use of the term “Live”, such a tag may mean that the interview was live between the interviewer and subject, not necessarily “live” at the time it is viewed or broadcast. The use of recordings is so endemic and accepted that in a break with previous practice, “Live” needs the annotation as opposed to “Taped Earlier”.

Network Logos:
Logos of network and/or local station are now added to most television broadcasts. Originally done intermittently, they are now generally present on all channels most of the time. These allow the viewer to always be able to verify the viewed channel. (“Am I watching CNN or the Comedy Channel?”) The first corner logos were originally inserted as a means to increase brand recognition particularly during rebroadcast by others of copied video materials (Brandweek, 1993). Most channels now use network “bugs” to brand their broadcasts. The phenomenon is international with bugs present on such diverse networks as ESPN, the BBC, and Al Jezeera.

Data inserts:
For many broadcast types, it is now common practice to insert data into the screen area. Sporting broadcasts now often include scores, downs, diagrams of the current situation, penalty status, and other data about the event. News shows now commonly present time and temperature information during regular broadcasts. These data inserts may repeat information that is verbally communicated during the television program or may add information ancillary to the broadcast.

Supplemental Information:
In addition, a wide variety of networks and individual programs now include a wide range of information that is not related to the primary visual presentation. For example, CNN now includes a news ticker that is constantly moving across the bottom of the television screen. Business networks often have a stock ticker at the periphery of the screen for up to the minute stock reports. The use of news tickers increased greatly in the aftermath of the September 11 terrorist attacks. Some television networks have been continuing the ‘ticker’ even during commercial breaks.

Digitally implanted information.
Supplemental information has also begun to be digitally included inside the video image as part of the image. While most data graphics are included superimposed on front of the video image, this type of supplemental graphics is integrated into the picture, reflecting a change in the way we understand the video images themselves. The most wide spread example of this is the use of a yellow line inserted into football games to signify yardage needed for a first down.

Bordering:
Many broadcasts now present the principal video image as framed on two sides by graphic elements. Perhaps the most wide spread use of this technique is CNN’s Headline News which adopted this as the principal format for their broadcast schedule in August, 2001. Local news broadcasts use this real estate for special announcements such as school closings. That area not used for announcements is often filled with branding graphics.

At the forefront of the current viewing landscape is the television screen of sporting events. Score, period, time, and penalty are all displayed in an upper corner; network icon in the lower right; additional data presented on other areas of the screen. Less viewing area is devoted to the presentation of the event itself and more is devoted to interpretive or informational graphics.

The medium of television has evolved from a medium with a dominance of subjective images to one presenting objective data. Television has shifted from a “cool” medium to a “hot” medium.

A hot medium is one that presents a lot of information in one sense; it bombards the receiver with information or, in another favorite phrase, is high definition. A cool medium, or one in low definition, is a medium that presents relatively little information; the receiver must complete the image, must add values to what is presented to him and is thus more involving or participational. Print is a hot media, television a cool medium. (Carey, 1976, p.18)

How this shift is evident is revealed through research focusing on the use of screen area in television broadcasts. Our televisions are becoming more like computers.

Research Methodology
Jacob Nielsen's methodology of interface evaluation may help provide an insight into the use of the television screen. Nielsen, a renowned and functionally
oriented expert on the graphic user interface for computer interactivity, evaluates screen design by area (2000). Quantitative information is developed from an evaluation of the screen area dedicated to content. Nielsen contents screen area use in a computer interface should reflect information importance. Extending his argument, an examination of television screen design can reveal changes in our visible culture and values.

Thirty minutes of broadcast and cable television was videotaped from six different television venues. News and sports programs were selected due to their increased use of on screen graphics and data inserts. The television material selected was a half hour each from CNN, CNN Headline News, NBC’s The Today Show, CBS broadcast of a professional football game, the shopping network QVC, and a local television newscast from Minneapolis. Each example of programming was chosen for their broad or typical exposure.

First, each programming sample was reviewed for general screen layout; this layout was recorded and areas were calculated for various screen elements such as network ID (bug), titles, news ticker, etc.

Second, each sample was re-viewed and areas of use of various elements were scored on a time basis. The area used for a live or still video image was considered the principal content of the broadcast. Other areas were viewed as inserted data.

Minor areas between data inserts and the screen boundary were considered part of the data insert even though they may still show the principal video image. Data inserts that were transparent and still allowed the principal video image to be perceived were not considered part of the principal video image. It appears that these minor areas are used to provide a visual sense of continuity and provide little content delivery; hence their inclusion in the “non-image” portion of the calculations. Commercials were removed from the time analysis. Commercials were present on all programming reviewed including the shopping channels.

Each programming sample was then represented in terms of layout and screen use. Inserts were toned to the same coverage as appeared on screen.

Figure 1
CNN Screen Design
Findings
While use of screen real estate varied between programming samples, similarities in screen use were found. First, in most of the programming, there were times when the entire screen remained free of inserted graphics or data. Full screen images appeared from 0% to 11.7% of the total time in the thirty minute sample. Second, the reverse was also true. In all of the programming, every area of the screen was used for graphics or data during the recorded sample at some point during the thirty-minute sample. This ranged from 0.3% to 29.7%.

The layouts themselves followed some consistent rules. Most inserts were located at the periphery of the screen. Logos generally remained in the lower right hand corner of the screen. And most data inserts retained a consistent layout within the program itself. It appears that while few media wide rules are present, screen designers recognize that consistency is valuable.

Images of the screen data are presented below along with specific observations. Areas used for data are filled with a grey tone equivalent to their use as data graphics. For example, the ID bug used for NBC's Today Show is present on screen 78% of the broadcast time and is filled with 78% grey. This percent is also displayed in the graphic in either contrasting black or white. For visibility, areas with less than 5% difference in grey tone are bordered in a contrasting color dashed line.

Figure 2
CNN Headline News Screen Design

CNN [Figure 1]
CNN’s use of screen area includes a consistent use of the network bug in the lower right hand corner and extensive use of introductory titles in the lower portion of the screen. A ticker is constantly included at the bottom of the screen.
**Implications**

As part of a natural evolution in any media, there is a tendency toward complexity and the baroque. This may be one explanation as to what is happening with television. This complexity may also represent the result or intensification of a twentieth century view of the world; one which began with Picasso and Einstein, a multiplicity of viewpoints often described as Post Modern. We now experience a truly Post Modern television world, not only allowing our own interpretation of the presentation, but also encouraging our own selection of visual input. We choose what we focus our attention on. We choose what we watch on screen.

This is also evident in film, with such movies as Time Code (Figgis, 2000); Run, Lola, Run (Twyker, 1999); and Dancer in the Dark (von Trier, 2001) portraying multiple, simultaneous moving images for our selection.

This use of data/graphics and the insertion of information into the television screen roughly parallels the popular acceptance of the computer’s graphic user interfaces. The introduction and popularization of the graphical user Interface with the introductions of the Macintosh operating system in 1984 and the Windows operating system in 1986 may have foreshadowed a change in our relationship with the screen.

These changes in our television screen may be a reaction to the development of a newer and competing media form, i.e. the computer. As an ‘old’ media, television may be attempting to adapt to new, interactive uses embodied in computing and the internet. The screen designers for television may overtly or subconsciously copy other visual sources such as the graphic user interface. They may have internalized the semantics of the computer screen as an aesthetic or they may be consciously using the computer screen as a design concept.

Much has been made of the coming “convergence” of the internet and television, and while both elements do interact, the nature of that convergence presented here is different than as generally described. Most observations
of “convergence” focus on the use of the Internet to provide additional streams of entertainment, instead of the television being used to provide increasing amounts of data. The popular understanding of “convergence” is one in which the Internet will become more like television, i.e. a secondary or additional medium for broadcast of television-like content. The reverse appears to be true. Television is becoming more like the crowded screen of the computer. We are now multi-tasking our television, viewing without the benefits of interactivity.

There also appears to be a desire for, or at least presentation of, objectivity in information.

The way the information is presented also changes the nature of the reality shown on screen. There has been a shift to more objective information instead of subjective images. This observed phenomenon may represent our desire for a better, more objective understanding of subjective visual information. This may mean that for the public to understand video images today, the experience must be made objective and quantified. Everything is labeled and explained. We can easily imagine the announcer saying “This picture is about police brutality. Rodney King was struck with police batons 143 times.”

…new technologies change what we mean by “knowing” and “truth”; they alter those deeply embedded habits of thought which give to a culture its sense of what the world is like, a sense of what is the natural order of things, of what is reasonable, and of what is necessary, of what is inevitable, of what is real. (p. 12)
Now television has changed visually, and the changes on screen will affect how we use the medium. One can anticipate the implications of these changes, implications about what we view, what we see, and what we understand and hold as truth. Our aesthetic choices in the graphic arts may include more subjective information and labeling. Pictures will be less understood, less valued, unless described by others. Seeing will have lost much of its veracity, unless labeled as such.

Sources:


With television, we now know what is real. It is written on the bottom of the screen.

1 *In this article, the terms “data insert”, “graphics”, or “graphic insert” are meant to include all on screen constructions that are not part of a video or photographic image. The terms “picture” and “image” are used to connote video or photographic images. Broadcast is used here to describe the wide public distribution of a television signal, not the method of distribution, and may include material actually broadcast through the air as well as distributed by cable.


