Research to Practice:
Helping Teachers Adopt the Picasso Model
of Graphic Communication

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Teachers are creating more and more media products that involve or perhaps should involve graphics. All sorts of graphics can be used to adorn and enhance media products from PowerPoint slide shows to web pages. The viewing audience has come to expect graphics just as virtually every medium today involves graphics. Logos, color, animations and more decorate and embellish every television commercial, billboard, product and publication. As people get more experience with the imagery throughout our environment they can actually get better at the "interpretation of visual media" (Tyner, 1998, p. 107). This paper focuses on the challenge of creating the best or most appropriate imagery to maximize the communication value of graphics.

Concepts and information of all sorts can be represented through visual imagery (Borg & Staufenbiel, 1992). Not all graphics serve the same purpose. Some enhance or delineate screen displays while others convey and represent information and more (Pettersson, 1993). Text seems almost omnipresent in media but graphics can be important for improving screen displays (Schaefermeyer, 1990; Aspillaga, 1992). Communication can depend on the appearance and overall design of graphic imagery (Descy, 1995; Van Brakel, et al., 1995). Research has shown that computer screen displays can affect learning (Costello, 1995; Hathaway, 1984) and retention (Aspillaga, 1991).

Specific audiences can have specific needs and graphic imagery should communicate specifically to that unique demand (Emery, 1993). The communication value of imagery means simply that graphics can affect the learner's understanding of material. It should be no surprise if students are easily bored with black and white textbooks or perhaps ignore lecturing instructors. Traditional books are already being replaced by electronic media. For example, students at Empire High School in Vail, Arizona, are giving up traditional textbooks completely to be replaced by electronic media (Wired News, 2005). Electronic media has long been packaged with traditional textbooks (Turner & Land, 1988; Roblyer, 1999), and now, so-called electronic textbooks serve as modern alternatives to print media (Desberg & Fisher, 1998; Galloway, 2003). As teachers learn to build web sites to support their own teaching graphics and clip art can be highly desired elements. There are more than enough resources on the web to not only support, but to encourage graphic development in web pages (Sharp and Sharp, 1997).

Graphics can help students better relate to and understand information. PowerPoint presentations, unfortunately, are often designed exclusively with text. Graphics, on the other hand, can…

> include information not discussed in the text, although it is related to the text discussion. Sometimes they contain information stated in the text, but present it in a more visual form. At other times, they may contain a mixture of information from the text and information not in the text, making connections apparent. Whatever their content, graphics displays have been found to improve students' comprehension. ((Roe, Stoodt & Burns, 1998, p. 185)

Tyner (1998) outlines research attesting to how people think, learn and express ideas through visual imagery. She elaborates further on research into the value and importance of "visual literacy" (p. 105).

Classification systems for graphic communication, information or effectiveness are difficult because judgments are likely considered subjective or ambiguous. Tiemens (1993) provides seven categories to account for visual imagery: (a) duratiron, (b) transition, (c) framing, (d) view angle, (e) orientation, (f) motion, and (g) content. While this classification system might be useful, Tiemens calls for the need to organize or classify the use and application of graphics and visual imagery to better analyze their value. Communication value, the conveyance of ideas through visual representations, is difficult to analyze and catalog without rules and codes for the application of graphic imagery. Misanchuk and Schwier (1995) further attest to the problem of lacking protocols for guiding the design of graphics and screen imagery for instructional purposes.

The Picasso Model

This author proposed a six-level hierarchy for classifying the role of graphics in communication (Galloway, 2000) and suggested a value system for evaluating graphic imagery. The model was further refined, now called the *Picasso Model,* as a two by three matrix to better account for both categories and levels of usage. Galloway (in press) found that preservice teachers were surprisingly aware of how their graphics would be classified. Subjects included graphic imagery in personal web sites which were examined by an independent panel of experts. When impressions of the experienced panel were compared with those of the subjects themselves, both groups had highly similar impressions of the communication value of the imagery. However, extremely few cases were judged to be of a high communication value. This suggests that, with a better understanding of the importance of or uses of visual imagery, teachers might be able to achieve higher level graphic representation and communication in their media products.

The Picasso Model provides for a sequenced classification of imagery "value" from the simplest to the more complex levels of representation (Figure 1). The model's name was drawn from the notion that if a picture is worth a thousand words, it should at least be able to represent one idea.

Figure 1. The *Picasso Model's* 6 levels of graphic use and communication role.

Class	Simple	Complex
Design/Layout	1. *Basic Shapes*	2. *Advanced Shapes*
Decorative	3. *General/Random*	4. *Thematic*
Representational	5. *Simple Concepts*	6. *Relationships/Analogies*

The *Picasso Model* still considers the hierarchical structure of higher forms of communication. It may be more difficult and time consuming to create graphics at higher levels. Perhaps by sharing with teachers examples of the different levels both the distinction and value

can be better illustrated. This paper makes a call for all educators to strive for better media products and higher communication value, as defined by the Picasso Model, especially if used in instruction.

Illustrating the Difference

Level 1 is the lowest form of graphics usage – in terms of communication value – and generally includes basic, abstract geometric shapes (boxes, lines, circles, arrows, etc.) used mainly to separate or delimit screen areas, to create borders, separate text, and perhaps provide some color. These are general shapes and may decorate screen appearance or focus attention on other screen components. While very basic in design, such imagery may still be very important in setting up screen layout.

Figure 2 illustrates level one with a phrase or simple word that might be improved or emphasized with a box enclosure. Also, a simple line can be used to separate or delineate screen area. They tend to convey nothing in themselves but can be important additions to an otherwise uninteresting display.

Figure 2. Examples of graphic imagery – Level 1

OK
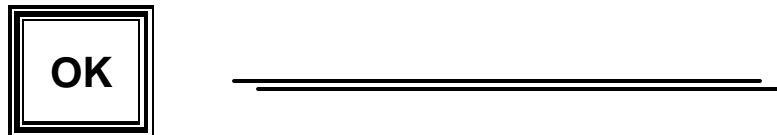
Level 2 is still a matter of design and layout but includes more sophisticated imagery. Graphics are more likely to be commercially designed for the role they play. These may be clip art images such as a notebook, window or stage, courtyard or patio, but still used to delimit screen areas, provide borders or containers, focus on screen content, etc.

Figure 3 shows level two with a combination of basic graphics that accomplish essentially the same thing as level one but with a more sophisticated approach to illustration. On the left graphics have been combined to direct attention. On the right

Figure 3. Examples of graphic imagery – Level 2

Welcome

Read This
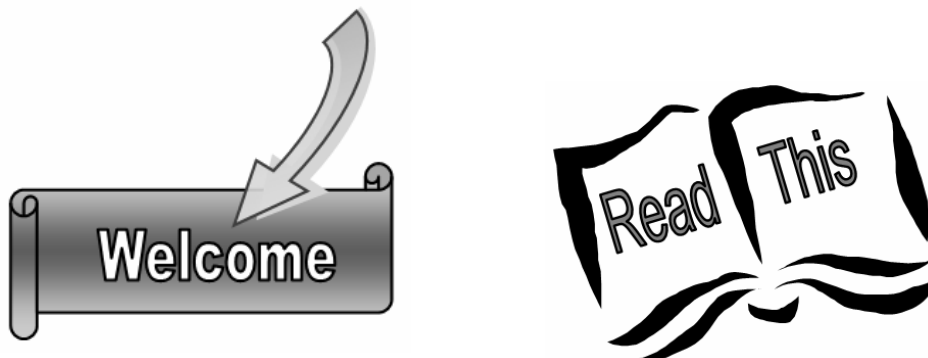
Level 3 however is more decorative. Shapes and images, drawn or commercial might be placed generally or randomly around the screen. A smiley face, stick figure, a star or the sun, etc., literally decorate but might serve no specific communication purpose. Figure 4 shows just a few samples of such imagery, commonly called clip art, which might be randomly displayed on a product.

Figure 4. Examples of graphic imagery – Level 3

This sort of thing might be very common especially if graphics are added as an "after-thought" to an otherwise text-based product. On the other hand, it should be noted that many of these sorts of graphics can be used differently. For example, if used in an evaluation report a smiley face might suggest a more positive assessment. If used in a personal message, a heart might suggest intimacy. In such cases, these otherwise generic symbols might rise to communicate real ideas and specific notions.

There is a virtually infinite number of lines, shapes, colors and components that can combine to create imagery of all sorts. The *Picasso Model* does not attempt to classify imagery based on such an incalculable array of variables. Instead, it attempts to account for the communication role and value that such imagery might serve. Any higher communication value might raise any imagery to a higher level in the model.

Level 4 is still decorative but supports or creates a theme or focuses attention on a particular idea. For example, an apple or school house for teachers, a car or stop light for drivers, a compass or sextant for explorers, etc., provide a thematic decoration.

Figure 5. Examples of graphic imagery – Level 4 – displayed with associated topic area.

Level 5 makes a significant advancement in communication where clip art and graphic imagery convey and represent ideas. They may instruct or be referenced in instruction. The images themselves are not mere decoration and are intended as the focus of the display. For example, triangles for instruction on geometry, a clock for telling time, component parts for constructing machines, all serve to convey actual ideas in the web page's message.

Figure 6. Examples of graphic imagery – Level 5 – showing conceptual representatation.
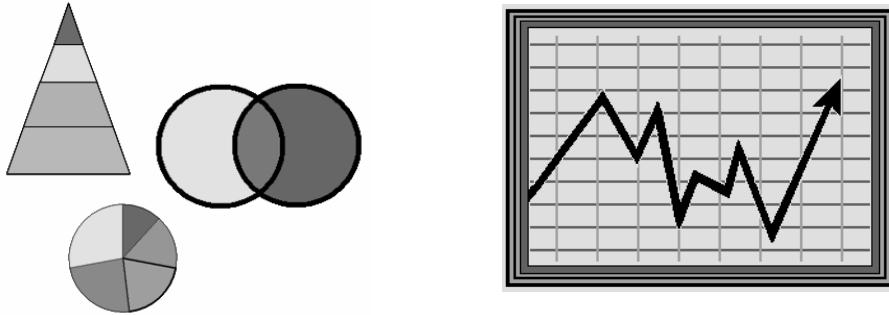
Level 6 is considered the highest level of representation where imagery conveys specific, complex ideas and concepts important in the communication. Such application might convey conceptual relationships in the imagery itself but more sophisticated and complex than level 5. For example, morphing an image of a rotating carousel into a ball swinging at the end of a tether might illustrate principles of inertia and centrifugal forces. Figure 7 below illustrates a rotational, planetary-orbital system that might "morph" into an illustration of atomic structure. Such graphic illustration can communicate sophisticated notions all without the need for text. Although animation or action is incidental to the point, here the graphic imagery itself serves to convey the complete idea.

Figure 7. Examples of graphic imagery – Level 6. *This illustration suggests a morphing animation from the planetary motion to that found in the atomic structure.*
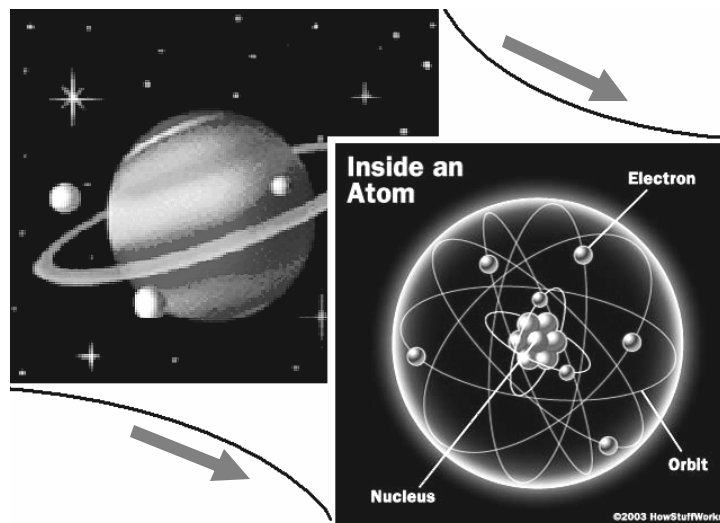
Of course, having a classification system doesn't ensure any reliability in perception for evaluating graphics usage. After observing teachers' use of graphics on web pages across a number of years, the author noted the almost exclusive use of simplistic and ornamental graphics that contributed little if anything beyond mere decoration. It was hypothesized that students are not aware of the communication value that graphics can have or perhaps students are biased in judging their own web page creations. To examine this further, the focus of this study addresses two general questions: (a) how, in terms of this classification system, do preservice teachers utilize graphics in their web pages, and (b) what are their perceptions of their own graphics usage relative to the model.

Discussion

Virtually all of the preservice teachers employed graphics in their web pages in a variety of ways. Interestingly, previous research has shown that teachers have a realistic view of their graphics and any shortcomings in terms of communication value based on the *Picasso Model* (Galloway, in-press). A number of unknowns remain. Perhaps teachers do not know how to create or employ graphics of higher levels. Sometimes searching for the right graphic or imagery that fulfills a specific purpose can be difficult. Certainly, not everyone has the skills to draw or create graphics from scratch.

There is no reason to think that higher-level graphics should take any longer to generate than their lower-level counterparts. On the other hand, bulk libraries of clip art can be easily browsed and selections quickly made with little concern for higher-levels of communication. Perhaps teachers feel pressed for time and unable to devote more personal resources to the higher applications of graphics.

If graphics are added as an after-thought rather than being an integral part of the product's inception then it seems unlikely that the imagery could do much more than decorate. Perhaps teachers should be encouraged to consider their message in the form of graphic communication in the first place. This may not be easy to do. Individual and personal attributes of imagination and creativity might be more critical for the task of using higher-level graphics. Perhaps not everyone is up to the challenge.

It may still be the case that instruction specifically targeting the nature of graphics communication, relative to the model, could elevate the usage of graphics in teachers' web pages. The mere exposure to graphics of all sorts does not necessarily mean that teachers know how to create them. Personal assistance with teachers in the field might be worth considering as a strategy for helping educators develop graphics. Specific instruction to find, recognize, select and categorize graphics based on the model might also be a useful strategy.

There is no reason to think that higher-level graphics will be adopted naturally or without direct intervention of some sort. It is suggested that an awareness of the communication value of graphics is the first order of concern and that the *Picasso Model* can provide that awareness.

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