

VISUAL LITERACY: WHAT IS IT AND DO WE NEED IT TO USE LEARNING TECHNOLOGIES EFFECTIVELY?

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Abstract

Visual images are increasingly appearing in learning and teaching resources, delivered across a range of media in a variety of formats: digitally in Web-based materials and multimedia as well as in print and as transparencies. The proliferation of image-rich resources is due in part to the wide availability of digital images and access to the technology and graphics software that facilitates the creation and delivery of visual materials. As theory underpinning the modelling of learning shifts current practice towards the construction of knowledge based on tutor-student and student-student interchanges, communication skills including visual communication, and therefore visual literacy, become more critical to successful educational outcomes. This paper offers a definition of visual literacy and identifies some of the core competencies of a visually literate person. Also described is how the Learning Technology Support Service at the University of Bristol, UK, is beginning to address the need for visual communication skills development in staff, students and learning technologists by developing training in the visual design of online learning and teaching materials.

Keywords

Visual literacy, learning technology, ICT, learning and teaching, visual media, visual images, visual communication.

Introduction

Visual images are increasingly appearing in learning and teaching resources, delivered across a range of media in a variety of formats: digitally in Web-based materials and multimedia as well as in other formats such as print and transparencies. The proliferation of image-rich resources is due in part to the wide availability of digital images and access to the technology and software that facilitates the creation and delivery of visual materials. Furthermore, the use of visual media in learning and teaching is supported by research demonstrating that learner preferences and styles can more effectively be addressed (Gardner, 1993) and that enhanced learning and retention take place through the use of visual material (Paivio, 1971, 1986; Dwyer & Baker, 2001; Carney & Levin, 2002).

A keyword search for learning and teaching resources in almost any subject area on the Web is likely to return numerous examples containing visual content ranging widely in format, quality and quantity. These may have been produced by professional designers or by individuals whose access to Web publishing is unprecedented and is increasingly used in academic contexts. Commercially published textbooks and courseware also contain varying amounts of visual content. The academic use of images

gives rise to the question: what knowledge and skills are required to effectively learn and teach using visual media?

This paper aims to address this question by offering a definition of visual literacy and arguing that the group of competencies it represents are essential for teaching and learning in a highly visual world in which information and communications technology (ICT) are increasingly utilised in education.

Background and rationale

First generation learning and teaching technologies were primarily text-based and their applications often reflected traditional teaching methods based on cognitive or behavioural science. Technology has developed very quickly to where it is now possible to support visual and multimedia formats on wireless devices, often delivered at anytime to any place. In parallel, new methodologies for teaching and learning are becoming more learner-centred and as a result are more reliant on efficient and meaningful communication which models learning (Laurillard, 2001; Salmon, 2000). The use of new technologies is changing learning and teaching practice whilst moving toward more effectively meeting the needs and preferences of individual learners, many of whom may have been virtually inundated with electronic images in addition to being surrounded by mass print media. Students are being required to take more responsibility for their learning and are being offered opportunities to innovatively use image resources, all of which requires skills development.

Widened access to images and technology has made it possible to select, create and manipulate both still and moving images more easily than ever. Images can be downloaded from the Web in an instant. Further, easy to use graphics packages often come complete with ready-made 'clip art' requiring the user simply to choose from a selection of images rather than having to create them from scratch. These images can then be manipulated to change the dimensions, perspective, colour, contrast, shading, etc., to suit the user. These features of appearance and other characteristics are described by a number of authors (Dondis, 1973; Curtiss, 1987; Morgan & Welton, 1992; Moore, 1994) as the elements of visual language and are considered by some to be the fundamental grammar of visual message composition. It could therefore be argued that manipulating these elements is parallel to manipulating words in order to compose a desired message, and that the competencies required for composing and interpreting messages using images efficiently and effectively, that is, where they add value to meaning or provide additional cues, are vital to effective visual communication and are the basis of visual literacy.

Identifying the competencies of 'visual literacy'

Definition of the concept of 'visual literacy' is a complex matter, as there are many perspectives from which to consider what it means to be visually literate. For example, Schiller (1987) suggests that the various visual media (e.g. computer, video, print, etc) each has its own characteristic form and specific skills to learn. Dondis (1973) agreed that each medium has its own structure and methodology but these cumulatively enhance and enrich visual literacy.

More recently Brill, Kim and Branch (2000; p.9) suggest that the assumptions underlying a concept of visual literacy are that '*images communicate meaning, and literacy means being able to read and compose*'. They conducted a study to solicit a working definition of visual literacy. The consensus of the visual literacy scholarly community resulting from their research defines visual literacy as '*A group of acquired competencies for interpreting and composing visible messages. A visually literate person is able to: (a) discriminate, and make sense of visible objects as part of a visual acuity, (b) create static and dynamic visible objects effectively in a defined space, (c) comprehend and appreciate the visual testaments of others, and (d) conjure objects in the mind's eye.*'

This operational definition from the experts in the field may serve as a basis for beginning to understand what one needs to know and be able to do in order to be visually literate. In practical terms this means that to be an effective communicator one should be able to create or select appropriate images to convey a range of meanings from concrete information to concepts and abstract expression, as well as being able to read, interpret and derive meaning from the visual messages created by others.

This raises a further question - can visual literacy be taught and learned? To answer this it might be helpful to identify some 'processes' in visual literacy, for example processing and storing visual information and visual thinking and some of the 'products', for example message design and visual media production. Clearly, operationalising the concept of visual literacy is a complex undertaking and many approaches can be envisioned. However, in analysing the competencies and desired outcomes a picture of what needs to be taught and learned begins to form and a visual literacy curriculum to emerge. The overall aim of teaching visual literacy should be to acquaint learners with the principles of visual communication, which can then be put into practice in a variety of settings and subject areas.

Visual literacy and learning technologies at the University of Bristol

One of the greatest technological impacts on both Further and Higher education management and academic activities has been the Worldwide Web and Web-related technologies, which are capable of delivering and supporting vast amounts of visual data. While traditional methods and media remain vital to the education process, at the University of Bristol, UK recent experience has seen an increase in demand for access to new technologies. In parallel has been the demand for information and training in the integration of these technologies into academic practice and the creation of online resources including the effective use of images and visual elements such as colour, layout, etc. To meet the demand, the Learning Technology Support Service (LTSS) regularly provides a range of workshops, seminars and support services.

In the past academic year (2001-02) a workshop entitled 'Designing Online Learning Materials' was added to the repertoire and offered once per term. The content of the workshop included an overview of the considerations influencing instructional and visual design decisions, for example pedagogic approach and aims, learning objectives, resource and other constraints, accessibility, etc and the elements of design. The workshop activities were built around the construction of a design brief which when completed would outline the content and visual features of an electronic resource and serve as a blueprint for development. The activities included evaluation of the design of electronic resources and hands-on Web page construction incorporating visual elements. The principles of visual literacy and effective visual communication underpin the core of the content.

When asked what they hoped to gain from the workshop, typical answers from participants were to be able to make materials less boring, to make use of image collections, to find out how to create or find images and put them in materials and to improve appearance and navigation of materials. Workshop evaluation feedback typically called for more hands-on opportunities and time learning to use image composition and manipulation software and guidance in the effective use of images. Further resources and workshops are planned to address this feedback. The need for visual communication skills is not limited to Web-based technologies. They are also required for use in presentations, slides, handouts and research papers. The visual communication content of related workshops and resources is currently under review. It will therefore be essential for the LTSS advisors to develop their own visual literacy.

Opportunities and conclusions

An operational definition of visual literacy has been identified and an argument made that visual literacy skills are required for effective learning and teaching. The question of whether the effective use of learning technologies requires visual literacy has been addressed. It has been suggested that these skills can and must be taught and learned, not only by academics and students but also by those working as learning technologists.

Increasingly, computer mediated communication (CMC) tools such as email and discussion boards are being used as a means for developing tutor-student and student-student relationships. Effective visual messages can help bridge the gap between face-to-face and mediated communication by providing visual information and cues to augment text. Clearly it can be argued that to use information and communication technology effectively both tutors and students need to be empowered to communicate visually. Equally, the use of technology may contribute to the development of visual literacy skills by providing increased and flexible access to resources. Dake (1994; p.132) argues that visual thinking skills are not *technology*

specific'; they can be taught using any media. However, learning and teaching with visual content mediated by technology may serve to enhance visual literacy skills.

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