MEDIA WORKSTATION
Photocopying halftones

Ġorġ Mallia

Photocopying handouts seems to have become an integral part of the teacher's day. With photocopiers and image reproducers slowly becoming indispensable tools that all schools aspire to have, the teacher's need to supplement the text book, or to tailor-make material to personal approaches has found a helpful ally.

However, in the majority of cases, the handouts leave a lot to be desired.

First of all, in most cases, the handout is pasted up, with bits and pieces cut up from different sources. Most of these are definitely not the most homogeneous in nature (texture, grading, density, etc.), and when stuck together form a rather unseemly whole, with parts photocopying too darkly, and others less so to the point of illegibility.

Even so, that is not the greatest problem. The main difficulty is in photocopying continuous tone, actual photos, or, even worse original or printed colour photos.

It is not the intention of this piece to be too technical, suffice it to say that the nature of photocopying is such that the highlights of any continuous tone photo are emphasised, while the lowlights are dropped out, resulting in something like the example in *Fig. 1*.

> **" The main difficulty is in photocopying continuous tone, actual photos, or, even worse original or printed colour photos "**

Fig. 1
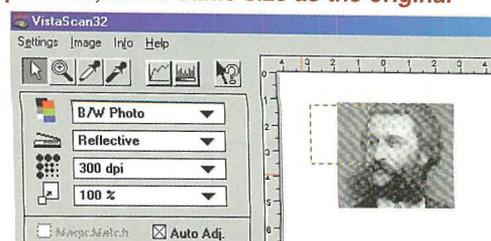**The b/w or colour photo pasted up and photocopied, resulting in high contrast**

If line drawings, toned in illustrations (using transferred dotted screens to shade in the "gray" areas), or highly contrastive pictures can be used, reproduction should be fine. However, if the exercise in the handout depends on the recognisability of the graded tone photo, pictures akin *Fig. 1* are not adequate.

So what can the resourceful teacher do to get recognisable photos on his/her handout?

Mainly, two things. In the first case, a lot depends on the teacher having access to a computer, scanner and laser or ink-jet printer.

The computer and the laser printer are the expensive ones, scanners and ink-jet printers can be acquired for little, nowadays. Once you are all geared up, familiarise yourself with the software (usually very user friendly, see *Fig. 2*), and you are ready to start scanning.

ĠORĠ MALLIA, M.A., lectures in Communication Studies at the University of Malta. He is a cartoonist; has published books of fantasy and fiction; has produced for print, radio and television; and taught in a secondary school and sixth forms. He is reading for a Ph.D in Instructional Technology at the University of Sheffield.

Resolution

What is important for the teacher to have is a working knowledge of resolution.

We calculate the resolution of a scan for printout in Dots Per Inch (DPI), or Lines Per Inch (LPI), while the resolution of an image on a monitor is calculated in Pixels Per Inch (PPI).
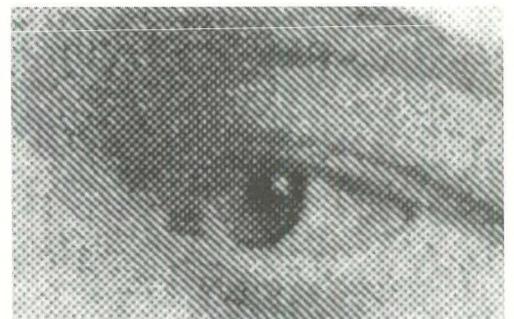
Fig. 3 - Note that what looks like normal graded toning in Fig. 4 is actually a matrix of graded dots that create the illusion of continuous tones

A lot depends on the output resolution of your printer. Most economically accessible laser printers at the point when this is being written average a 600 DPI printout, though 300 DPI laser printers are still available. The 300 DPI laser printer produces a large halftone dot, apparent to the naked eye, but which lends itself very well to 'normal' photocopying, with the copy losing very little from the original. The higher the resolution from than on, the more the possibility of contrasts and dropouts. Ink-jets are also suitable. Print out and stick on (if not using full-screen composition).

The other alternative is finding b/w pictures that have already been scanned and printed out, as in relatively low resolution newspaper and low-grade paper magazine photos.

Fig.4 is the result of the above efforts.

Fig. 4 - A 300 DPI scan, (though in this case output at a much higher resolution), reproduces well on photocopiers

Fig. 2 - Typical scanning software. Note that the picture is being scanned as a black and white photo, at a resolution of 300 dots per inch, at the same size as the original

Further reading

Bann, D. (1997). *The New Print Production Handbook.* . London: Little, Brown & Co.
O'Quinn, D. & LeClair, M. (1996). *Digital Prepress Complete.* Indiana: Haydn
Pollaris, M., Tas, J. & Vandezande, M. (1994). *An Introduction to Digital Scanning.* Mortsel, Agfa