Drawing with printmaking technology in a digital age.

Dr Paul Hamilton  
Lecturer and practicing artist  
Southern Regional College Northern Ireland, Huddersfield University & Liverpool John Moores University

hamiltonp@src.ac.uk

Summary

Hamilton considers printmaking to be a form of mechanised drawing and it is his intention to review the relationship between printmaking technology and visual dynamic content. The development of computer technology from the 1970s onwards and its integration into printmaking practise has given rise to the need for a re-examination of fine art printmaking as a form of mechanised drawing. Through the realigning of old technologies with the new, the visual language and working practise associated with printmaking processes have been altered, yet bridge traditional and contemporary artistic practise. The bridge offered to traditional and contemporary practise is evident by traditional printmaking’s adaptation of digital technology underpinned by historical referencing and the form of technology.

Eames (2004) argues that, ‘modes of working within the material world are extended in the digital environment whilst maintaining a sense of appropriateness of means’. ‘Appropriateness of means’ through the interrelationship between printmaking and drawing is virtually inseparable and the diversity of mark available from the range of print disciplines shows that printmaking offers the artist visual dynamic content through developing an understanding of technology whilst applying it throughout their practise. What has become evident is the immediacy of the computer to create images representative of drawing through simulation, therefore reducing the treatment of drawing, but possibly increasing the demand for printmaking as a mechanised form of drawing. The engagement with digital technology based on an understanding of traditional printmaking would foster an ethos of exploration of the innovative nature of print media, rather than it being regarded as an outdated medium, produced on obsolete equipment, under hazardous conditions.
Potential for ‘real innovation’ referred to by Whale (2002) can be realised through the creativity of drawing that is linked to the interaction of cognitive skills found inextricably within the human being and interaction with diverse media often associated with printmaking. The value of drawing is associated with the knowledge that drawing is the essence of creativity and its measure would lie in the individual artist’s ability to continuously express and create, using self-exploration and creative thinking through the process of drawing, linking together ‘interesting ideas’ and ‘technical know-how’, enhanced by assistance and interaction with print media. Whale (2002) talks about a negative side to computer technology that has affected printmaking:

Few printmakers really understand the new technologies they are working with, which means that there is little opportunity for them to adapt it. I would suggest that this is one of the main reasons why so many digital printmakers continue to incorporate traditional media - also to reassure themselves that their hard-won technical skills are still worth something. However, there are a small number of artists who are conversant with hardware or software and are doing interesting things. Technical know-how can never compensate for a lack of interesting ideas, but if you have both then I think there is the potential for real innovation.

In association with ‘the potential for real innovation’ With reference to computers, Krause (2002) suggests ‘that it is no longer necessary that drawing classes are conducted by students sitting around an object, gazing at it over a drawing board placed on an easel, with a pencil in hand’. Nevertheless it may be difficult to understand how students would react to sitting in front of a computer and the ecological impact of this situation would require further research. What could be offered are PDA (Personal Digital Assistants) in a scale comparable to a sheet of paper and a touch sensitive screen that allows for the variation of line due to pressure, creating the drawing directly onto the screen and then printed on a substrate of the artists choice. Eames (2004) practises drawing with new technology and describes her working method and her drawings as:

…simulacra or copies of things that have no original. The drawings explore the potential and present the visual outcomes of stratagems carried out within the complex and arguably infinite computing environment as extensions of my physically oriented visual thoughts and notions…My hope is that my engagement with the digital is on the basis of genuine exploration of opportunities and possibilities particular and peculiar to that realm as opposed to the imitation of manual technologies.
Computers could be seen as a threat to drawing, through their ability to allow the production of ‘instant art’, with little use of drawing skills, for example with functions within programs such as Adobe Illustrator’s ‘live trace’. To assure this does not happen and to counter the likely threat of computer’s simulation of creativity through a relationship with technology, students should be exposed more to quality drawing time, which can be devoted to visual research and the exploration of visual enquiry that would develop in-depth understanding of their subject, more so than pre-programmed simulation. How better could this be achieved that interaction with the range of traditional and digital technologies associated with printmaking. In the current digital climate ‘draughtsmanship’ and ‘printmaking’ are both under threat from digital simulation, however, Cohen (2002) believes in the importance of traditional core disciplines, requiring physical interaction:

…drawing, materials - have been abandoned and nothing has yet taken their place. Part of the problem is that computer-based art-making processes are medium-less and there are, consequently, no skill-based disciplines to learn.

It is reasonable to suggest that Cohen is referring to the interaction with the process and the media involved in its production of art when he speaks of the transformation of ‘art-making processes’ into a ‘medium-less’ form through the integration of computer technology into art production. The computer itself is the medium with which a digital or ‘tradicital’ print is produced and the software used in a prints production has constraints, qualities and limitations just as traditional media do.

Of concern to this paper, is the continuous development of the relationship between visual dynamic content and the form of technology that conditions the medium’s output. A drawing made with the aid of a computer and output by an ink-jet printer for example changes the emphasis from interaction to simulation and raises the question, is it the computer that makes the drawing, the ink-jet printer or the artist operating the computer or could it be the software conditioning the artist? Leah Hilliard (2000) states that her work can ‘only be implemented through digital technologies because of its innate quality of emitting light in the form of pixels’. Hilliard suggests ‘although the images I aim to create rely on software the end destination is not the screen but the wet ware of the brain’.
‘The wet ware of the brain’ is the common factor in printmaking and the bridge between digital and traditional printmaking processes. In traditional process the qualities of line available from the medium employed in printmaking have been unique to each discipline and the printmaker’s own interpretation of the process through his or her stylistic adaptation of the technology. The introduction of the computer would suggest further development of the medium resultant in unique visual qualities, due to the conditioning of output sources attributed to hardware and pre-programmed software. The quality of the computer line is similar in visual appearance to conventional drawing media, but possesses qualities that differ from traditional lines, this becomes more obvious as the computer line is enlarged and begins to demonstrate pixilation.

Illustration 1. Central Station. Paul Hamilton 2004. Collage 60 X 40 cm

Illustration 2. 600% enlargement

Illustration 3. 1600% enlargement

Illustration 4. 1600% enlargement of illustration 1.
The drawing process involves moving a line that carries emotion and reaches out in a way that touches our senses as well as informs both the artist and eventually the viewer. These emotions and feelings can be found within man from birth, and best channelled by using pencil, brush, pen and now mouse and drawing tablet. Stankiewicz's (2004: p. 318) believes ‘...the range of targets for visual literacy expands beyond artworks to include perceptual sensitivity...’. Eames (2004) describes the creative advantage of a relationship between technology and content as ‘a spirit of adventure and an aim to make technologies work’, which she believes raises ‘issues pertinent to all areas of visual practise, technological development and ultimately drawing as the beginning of visual conjecture.’ Exposure to traditional printmaking challenges us to consider the relevance of the computer to printmaking and how it can positively be integrated with traditional processes, through drawing as a method of reaching out to senses and informing the viewer through printmaking’s range of mark making processes.

Garner (2004) argues how technology is becoming accepted as the norm in Western society, ‘much of the developed world now takes for granted the sophisticated technology which enables us to construct, manipulate and communicate drawings via computers and which would appear to rival traditional media such as pencil and paper in its convenience and capacity’. A reduction in time consumption is something society is searching for and demanding, seeking stimulation and information much faster as technology advances. Tapscott argues that this however is not the case:

As systems become real-time, and as information moves at light speed, the metabolism of youth culture (and adult culture) is accelerating. This does not mean the rise of a generation that seeks immediate gratification as some have charged...this is a cynical view that can not be justified...The children of the digital age expect things to happen fast, because in their world things do happen fast.

(Tapscott: 1998, p.74)

What Tapscott is saying is more relevant in Western society, as the need for speed and demands on time becomes evident through cultural changes resulting from evolving technology. Through relatively recent scientific research Claxton (1998, p.3) voices reservations on the speed at which society is developing due to digital technology and extols the benefit of applying more time 'to making sense of situations that are intricate, shadowy or ill defined'. 'Making sense of situations' can be relevant to the complexity of 'situations' revealed by exploration with drawing, in turn, encouraging deeper observation. Supporting Claxton’s theory Eames (2004) believes ‘drawing promotes individual thought, action and, critically, reflection upon that action’.
The concept of 'individual thought, action' and 'reflection' is not limited to traditional materials, as drawing is not only pencil on paper, it can also be produced by a computer and drawing tablet, where the stylus is likely to be used to seek out and trace already imported images in the form of photographs or video footage. The digital media can also be used on site using laptops and PDAs to record scenes and visual information. Martha Bradford (2003) refers to challenges facing artists who use digital media and how work can be considered as ‘a reproduction of sort’. Faure Walker (2004) challenges us to consider that ‘what makes digital drawing an interesting prospect is the absence of old master models to follow’.

Walker continues, ‘you have to work out your own prejudices, mannerisms, bad habits’. There are many accomplished artists and illustrators that use computer technology for drawing, including French artist Bernard Dumaine (b. 1953). Dumaine describes his working method:

…having drawn ‘organic’ forms over the years, usually without a preparatory model or sketch, I now use a computer and graphics programs to create images which, once they’re printed, I sometimes paint traditionally with oils on canvas’.

(Dumaine: Grant et al, 2004 p. 20)

The implication of Dumaine’s reference to ‘traditionally’ painting with ‘oils on canvas’ would suggest an underlying need to attribute originality or authenticity through utilisation of traditional media. It would appear that the tactile aspects of traditional processes remain important to artists and the physical dimension is attributable to the relationship with technology and visual dynamic content. There can be a blending of traditions that appears to function as correlation between technology, simulation, representation and visual language. The use of the pencil on paper is far removed from the use of a computer for drawing, which can be a surreal experience, as the coordination of hand to eye is replicated by the eye following the cursor on the screen, instead of the pencil on the paper that would emit the graphite from the point of the pencil directly onto the substrate, rather than the simulation of line on a screen. However the remoteness of the digital process could be attributed to certain aspects of printmaking process such as for example screen printing where the interaction of the artist with the substrate is possibly less obvious than say the relationship between brush and canvas or pencil on paper.
Faure Walker (2004) examines the process of ‘virtual’ and ‘real drawing’ and states:

…at first sight we have the ‘real’ drawing, the hand-made, the honest craftsperson, skilled, attentive, observant, sensitive, and thoughtful; and on the other side we have the unreal, the simulated, the virtual, the system that mimics human intelligence without feeling anything, all at the press of a few buttons. But this is now largely a convenient myth. For a start pencil on paper is a technology, as is say a Wacom drawing tablet.

As Faure Walker (2004) states the simulated system that ‘mirrors human intelligence’ may be a myth but the technology to simulate art is available and not a myth. Taking the use of computer technology to another level is demonstrated in the work of Sawdon and McLennan (2003) who adopt computer scanning technology taking it to unusual extremes by ‘holding the scanner with the lid removed and moving it through space in relation to the object (subject) as the scan sequence progressed’. The resultant images display a visual language that emphasises the technology by which they were created. The emphasis is placed on the technology through the characteristic conditioning of the digital technology although the images appear organic-like in their composition and could possibly be mistaken as photograms, reminiscent of the work of Man Ray or Moholy-Nagy. It is important to stress that the output of digital technology is not always print based. Nevertheless it is the process of capture and the holding of the data that can be relevant to the printmaking process, in so much that the artist has the choice to output in a printed form.

The drawing process that most printmakers use is a method of seeing, thinking, selecting and sequential constructing of images for both the preliminary and end results in art making. In printmaking the end result is inextricably linked with the mechanical process involving plate preparation, which may incorporate intricate and precise dexterity resultant from interaction with and extension of the drawing process. To eliminate this traditional and fundamental interaction with digital process is to deny the very nature of printmaking and dilute the drawing process. When Cohen (2002) responded to Hamilton’s question regarding the positive or negative influence of the computer in art his response concerning, ‘traditional core disciplines - drawing, materials’ being ‘abandoned and nothing’ taking ‘their place’ with ‘no skill-based disciplines to learn’, he is referring to the plastic aspect of the medium and it is this interaction with pencil on paper for example that has a positive and beneficial interaction for the artist through feeling and spontaneity, offered from the physical interaction and the relationship with the technology.
The nature and value of drawing must not be ‘abandoned’ or relegated to the history books. This essential ‘skill based discipline’ must remain. It is imperative that more emphasis is placed on the importance of such a necessary part of art education and new initiatives developed to stop the decline, this should enhance the case for the development of printmaking which incorporates traditional and digital technologies in the drawing process.

If students do not feel comfortable with drawing due to a misguided sense of lack of ability resulting from little exposure or fear of the representational aspects of their efforts, it may result in printmaking being utilised as an alternative drawing medium. With a reluctance to draw more emphasis can be placed on the final outcome rather than creative process and may result in a ‘dumbing down’ in creative understanding and content. Students at an early stage must be challenged with drawing’s ability to enhance learning and creative development. Students should appreciate the value of drawing and how it will enhance their creative development and add impact to the visual qualities of their work. This is not to say that computer technology has only a negative response, Garner (2004) refers to Goldschmidt who suggests, ‘computer based drawing can require the maker to approach the creative task with a greater level of predetermined ideas about both the subject and the process.’ Goldschmidt’s statement is somewhat misleading and must be challenged as it is reasonable to suggest that those using the computer and pre-programmed software are dependent on the ‘predetermined ideas’ of others namely those who have programmed the effects within the software.

To overcome the reliance on ‘predetermined ideas’ through reliance on computer software in art and design, print media offers art the integration and application of old and new technologies in a creative manner. However, Arisman (Heller, S. & Arisman, M. 2000: p. xxi) voices concern over why many choose to employ the computer as a means of drawing, attributing their choice to reason based on ‘speed, greed, shortcuts and avoiding the practise itself’. Drawing practise needs to be re-assessed with regard to the integration of computer-generated drawing and its effect on drawing standards.
Cohen states:

If a photographer takes a picture, we do not say that the picture has been made by the camera. If, on the other hand, a man writes a chess-playing program for a computer, and then loses to it, we do not consider it unreasonable to say that he has been beaten by the computer. Both the camera and the computer may be regarded as tools, but it is clear that the range of functions of the computer is of a different order to that of the camera. Tools serve generally to extend or to delimit various human functions, but of all the many tools invented by man, only the computer has the power to perform functions which parallel those of the mind itself, and it's autonomy is thus not entirely illusory.

When an image is translated using computer software and output as a line drawing via an ink jet printer it could be argued that to make the drawing original or personal the addition of pencil by the hand of the artist, would add authenticity. This is a fallacy and could be associated with the hand colouring of black and white photographs at the advent of photography, in an attempt to make them resemble a watercolour painting or the process of additional work on the surface of prints to add authenticity. Andy Darley (Hayward et al: 1994, p.40) suggests that ‘those in the visual arts who are attempting to work with computers’ are ‘characterised by an unquestioning and celebratory acceptance of the potential of the computer as both medium and metaphor’. In the hands of computer programmers and artists such as Cohen the machine can produce imaginative and original images, which suggest human dexterity. The simulation of human perceptual processes by computer technology is discussed by Cohen:

… I believe that my behaviour in programming the machine to simulate human art making behaviour, is in itself primarily art making behaviour, and I have proceeded by attempting to deduce from the requirements of the venture as a whole, what perception-like abilities may be appropriate'.
Cohen’s argument is that artists should be aware of programming through training at undergraduate and post-graduate levels, to aid control and extend the ‘authentic gestures of the hand’ to progress the communicative nature of art, regardless of the medium though King argues:

…the sophistication and complexity of modern computer graphics software means that the need for artists and designers and animators to programme is significantly reduced.

(King: 1995: p. 7)

Computer programming to which Cohen refers to is of little interest to most artists that are using the computer for drawing. American artist Bonnie Meltzer utilises computers in a simpler, more user-friendly manner in the creative processes of her artwork:

With Painter Classic or PhotoShop I can draw directly into the computer. Instead of big pads of newsprint I can draw on any colour paper with the click of the paint bucket. Painter’s tools simulate traditional art materials, and the Wacom pen is pressure sensitive so the lines and shapes are more like “real” drawings than you would think.

Meltzer employs a Wacom tablet and an Apple PowerBook computer and applies new technology to one of the oldest forms of visual communication, drawing, by recording visual information in a traditional manner. The computer in Meltzer’s case is used to simulate pencil on paper or brush on canvas. If the computer is to be used more widely as another drawing medium, the advance of technology will undoubtedly become more apparent in printmaking. With advances in technology the use of drawing may become less appealing if simulation renders similar effects to traditional media, faster, more efficiently and with less training.
Paul Brown (1994) argues:

Most artists to date have used computers as tools, using pre-packaged software that emulates traditional techniques for artefact production like painting, drawing, photo-retouching and so forth...despite their limitations these graphic arts systems have proved of value: they are non-toxic or significantly less toxic than traditional media; they can significantly enhance productivity and, despite the often strong signature of the particular system in use, they have proved the viability of this meta-medium to handle a diversity of styles and methods, ranging from the formal and often geometrical languages of Structuralism to the free association of Surrealism and Abstract Expressionism.

(Brown: 1994, Hayward et al, p. 234-235)

Brown refers to the ‘often strong signature’ of the computer produced by the conditioning of the technology being evident in traditional printmaking technology due to the mechanical nature of the processes involved. Drawing is a major factor in the strong signature of the various traditional print disciplines and regardless of the print process employed, drawing using the various tools will be resultant in a recognisable footprint. The high dependency printmakers have had on drawing may be regarded as a negative influence on the popularity of printmaking in tertiary level education, but if this is taken as an opportunity to enhance the artist’s work by adding a unique signature, this would be beneficial as a process of non-conformity. Drawing in printmaking could inhibit students if they are not versed in the process of drawing and would undoubtedly influence those in control of the financial budgets if they only see extra hours of staffing costs to raise standards that they regard as achievable through computer technology, at a fraction of the cost. The implications of understanding technology in printmaking could be determined by its correlation with the diverse media assimilating drawing with technology in the form of mechanised drawing.

Rather than emphasis being placed on digital media alone, announcing the obsolescence of traditional printmaking media, it would seem appropriate to blend traditional with digital, increasing the creative capacity of printmaking. Faure Walker (2004) argues ‘to the uninitiated a drawing or paint program must have nothing in common with the feel of pencil and paper...it is a world of menus, options, processes, and short cuts’. It is however this ‘world of menus’ that is becoming more evident in art today and Tapscott & Caston (1993: p. xii) argue the interaction with materials is threatened by what is seen as a ‘paradigm shift’ which is ‘fundamentally a new way of looking at something’. The ‘new way of looking’ could be encouraged by the inclusion of traditional drawing with the mechanical/digital perspective offered by printmaking as part of the learning processes adopted by learning institutions.
As technology advances it will become more likely for students to omit drawing from their repertoire of visual experience if it is likely to be pre-programmed into a computer, producing representations from a primary or secondary source, such as a photograph captured by a digital camera. However there is still necessity for traditional processes. Brad Holland (2000: Heller & Arisman p. 20) recalls in the 19th century the invention of the camera made a ‘realist of the man in the street’ and the computer has made ‘anybody a desktop Cubist’. Holland goes on to say that ‘machines won't replace art any anymore than wheels have replaced feet’. The camera has been and continues to be an ally to printmaking and art in general, broadening access as has the computer and like the camera, will establish itself as a means of creative expression that could be enhanced by the positive relationship between printmaker and technology formed since the dawn of printmaking.

An attempt to replicate traditional processes is evident in the recent phenomenon of computer driven drawing, which has reached the high street in the form of, a computer-drawing booth, located in many shopping centres across the U.K. and throughout the world. The booth titled Van Gogh’s Workroom produces ‘drawings’ of the subject taken from digital photographs and rendered in four simulated mediums, pencil, charcoal, chalk or brush. The sitter poses in the booth facing a digital camera and is photographed four times giving a choice of pose for execution by a simulated drawing process.

Illustration 5. Van Gogh’s Workroom. High Street Mall, Portadown 2003
Illustration 6. Drawing medium selection window. 2003

The example shown in illustration 8 demonstrates the ‘pencil’ simulation mode, which the computer proceeded to translate by a form of simulated drawing from the captured image, done with a simulated hand, which creates a mistake and is rubbed out with a simulated rubber. As the drawing unfolds the same process is relayed on a monitor outside, so passers-by can share in the procedure. The final drawing produced on an A4 sheet of paper is framed with a simulated gold swept frame.

The computer generated drawing booth is an indication of how drawing may develop in the future. At present the images produced by ‘Van Gogh’s Workroom’ are stylistic and somewhat void of visual impact, but given that there were also options for caricature demonstrates that future software developments could produce better simulations, offering the sitter a wider choice, including the option of colour. This technology if developed will offer the possibility of accepting students with little drawing ability onto various art courses, if they have the capability to operate the computer. This is not to say that the computer will replace the drawing process merely that the computer is like printmaking, a mechanised form of drawing.

Drawing with digital media will continue to develop and the technology associated will become more sophisticated as programmers and engineers develop further their understanding of the technology and determine what artists require through research and development. This development however is not to say that traditional technology will become redundant. Digital technology has evolved alongside, and indeed from traditional technology, and as artists and printmakers develop their relationship and understanding of both platforms, new art will evolve that demonstrates the benefit of this relationship to visual dynamic content.

Faine (1997) sees the computer as a ‘useful tool’ but fears that ‘an unimaginative operator will encode the information in such a way that the full potentiality can never be explored’. Hodes (1997) warns of the computer as a means of seduction into ‘distraction’ through the ‘endless possibilities’ which it offers but goes on to say that for her it operates as a ‘catalyst’ allowing her to ‘understand more intensely’ how she might ‘construct’ her prints. It would seem that mechanised drawing in the form of printmaking offers a complex composite experience that offers the artist’s opportunity to enhance their work through the development of a relationship with technology that embodies digital and traditional platforms, ‘from which vision might be said to emerge’, Hansen (2004: p. 101).

The contemporary framework for printmaking would appear to promote experimental and reflective learning through the pedagogy of the printmaking studio attuned to the interaction between drawing and printmaking technology. In contrast the use of technology as drawing, be it digital or traditional within a printmaking studio is a stimulus for enrichment, promoting cross fertilisation between traditional and digital platforms as demonstrated in illustrations 9 & 10 both of which have been created by the author using traditional and digital processes.

The challenge for educationalists is to continue to adapt new technologies as a creative force. Brown ((2006: 30) quotes Richard Diebenkorn who believes ‘a successful artwork stands for the artist’s being. It contains the whole person’, if this is the case the need for a holistic experience from interaction with printmaking technology is a likely key to creative success. Bartholme (Brown: 2006) gives insight into printmaking as a creative force:

I was always amazed at what artists would pull from a medium that they did not engage with on a regular basis or maybe had never engaged before. And I always felt that the greatest product of that was this synergistic momentum that would come at some point in the project when everyone realised that we were in fact going to finish this print and it was going to be greater that the sum of all its parts.

(Bartholme: Brown. 2006, p. 33)

The key to successful fine art printmaking in the 21st century will be an increasing awareness of the value of technology in learning and creativity, encouraging a greater understanding of ‘synergistic momentum’. It is becoming increasingly imperative to find effective methods of improving students learning outcomes, the capabilities of fine art printmaking provides an ideal platform to do this in a creative and stimulating manner. Developing technical competence through technology enhances experimenting with the creative process, focusing on visual qualities from the range of media associated with digital and traditional fine art printmaking.
Bibliography


Cohen, Harold talking to Paul Hamilton via email dated 17-06-2002


Krause, Dorothy. In conversation with Paul Hamilton 06-06-2002


Meltzer, Bonnie Computers in the Artist’s Tool Box Page 1. www.computerbits.com/archive/2001/1000/artistoolbox.html


Whale, George. In conversation via email dated 22-04-2002