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# Digital Originals: Reproduction as a Space for Design

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## ABSTRACT

This paper reports findings from a qualitative study of a group of artists in the North of England. It focuses on the impact of digital technology on their printmaking and wider art practice. Four major themes emerge: apprenticeship, networks, authenticity and commodification. Each of the artists describes a long process of educational and professional apprenticeship. They reflect in detail on the value of networks of support not only in generating contacts for potential professional development but also in affirming their identity as an artist. Current practices around the production of Giclée prints are considered in detail and related to more general problems of what constitutes authentic work and the problems of commodification. After reporting findings from the qualitative study the paper presents initial concept design work around the notion of a “slow print”. It also discusses an experience prototype that reveals rather than conceals digital practice. It considers the notion of an original as a social practice and positions reproduction as a space for design.

## Author Keywords

Art, Design, Ethnography.

## ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI)

## General Terms

Human Factors; Design; Measurement.

## INTRODUCTION

The cave paintings of Chauvet are over 30,000 years old but they retain a freshness that can collapse a linear sense of time [6]. For the artist and critic John Berger, drawing is a somewhat mysterious activity, but it is as fundamental to being human as singing or dancing (ibid). But the making of marks requires technology: ochre on rock, pigment on plaster, oil on canvas, ink on paper, pixels on screen. Art is as old as our species but its practice has been transformed

by successive technologies. Until relatively recently images were confined to particular places: walls, canvases or pieces of paper. In the age of mechanical reproduction almost limitless print copies of an image became possible. Customs such as scratching plates so that further prints could not be made were used to limit the number of copies and convey value to particular editions through scarcity. For some, art's "aura" is closely coupled to originality and authenticity [e.g. 5]. Now that digital images are infinitely reproducible, this is having a profound effect on both the production and consumption of art.

The British painter and printmaker David Hockney, for example, has received much attention for his iPhone and iPad paintings. The images have been both produced and disseminated digitally, leading critics to ask what or where the “original” image might be [e.g. 2, 14]. Hockney is clearly delighted with the new technology but he notes that nobody yet knows how to make any money out of it [2]. He distributes small files to friends and hopes to make money from larger files (ibid). But, as those involved in the music and film industry would attest, the control of digital files is highly problematic [e.g. 41]. Hockney has often discussed the ability of the iPad to play back a drawing showing each mark as it is made; the gradual appearance of the finished work is in itself a compelling new aspect of digital reproduction [18]. Although Hockney has a relationship with Apple no Hockney app displaying his collection of iPad and iPhone images has yet emerged. Instead the work is projected on walls in galleries, displayed on tethered iPads, or printed on paper in books. Clearly Hockney is well established and successful enough to engage with the technology without worrying too much about how to sell new forms of work. But for new and struggling artists the question is more pressing.

In “The Shock of the New” the art historian Robert Hughes pointed out that every two years the American education system produced as many new artists as there were people in Florence during the Renaissance [24]. This startling observation was based on the 35,000 “arts professionals” graduating annually from American universities in the 1980s. In 2008 the UK alone more than trebled that figure with 119,590 undergraduates registered for courses in the creative arts [3]. Successive surveys of graduates of the creative industries indicate that graduate employment is

mixed and “portfolio based” for example, part time teaching is taken on to supplement creative commissions. Graduates themselves categorise the work they are involved in as creative although it is low status and badly paid (ibid). Such patterns of employment are the backdrop to the novelist Zadie Smith’s reworking of lines from the Allen Ginsberg poem *Howl*: “I have seen the best minds of my generation / accept jobs on the fringes of the entertainment industry” [34]. But it is argued that “the creative industries” (an aggregate category including film, music, art, advertising and design) play an increasingly important role in the economy and in developing innovations [31].

## **THE WORK OF ART IN THE AGE OF DIGITAL REPRODUCTION**

The ease with which digital files can be copied and shared presents profound challenges for every sector of the creative industries. In the music and film industry various forms of Digital Rights Management (DRM) technology have been developed to counter file sharing. However this technology is actively resisted by many users and those that accept it often find it extremely inconvenient [e.g. 41]. In the music and film industries the challenge is also often addressed as a legal problem. The music business in particular has campaigned for many years to convince its customers that file sharing is theft. Despite high profile court cases against particular individuals, persistent and dramatic advertising and even sponsored interventions in school curricula, copying remains rife (ibid).

The art market has traditionally worked on models of scarcity. Since the nineteen sixties original oil paintings have been sold for ever more staggering sums. In the first half of the twentieth century the art market began to provide returns on investments far greater than any other commodity. It has been argued that this is because it is the largest unregulated market in the world [25]. In 1981 “*Yo Picasso*” sold for \$5.8 million, in 1989 it was resold for \$47.8 million (ibid). The extraordinary sums paid for art has been linked to the rise of High Net Worth Individuals (those with investable assets over \$1million) and Ultra High Net Worth Individuals (those with assets worth over \$30 million) or HNWIs and UHNWIs. These people are largely associated with the finance industry and recently there has been much critical discussion of the link between the global expansion of the art market and increases in income inequality [13].

The scarcity model of value is best illustrated when an artist dies. Studies of auction prices indicate rises in prices immediately around the time of death [12]. As Damien Hirst remarks of his own Francis Bacon collection “he didn’t make many and he’s not making any more” [37]. Hirst applies this philosophy to his own merchandise, at his recent Tate exhibition a spotted skateboard was on sale for £480, a deckchair for £310 and a roll of wallpaper for £700 [36]. Aside from scarcity such an art market can also in part be characterised by the Verblen effect where items become

more desirable if they are perceived as fabulously expensive [27]. For many critics art has become a brand and it is produced to service the 1% who literally already have everything [13].

There are increasing calls to reject an art economy which works by creating a tiny elite of superstar artists such as Hirst drawn from an increasingly vast pool of unemployed talent [e.g. 24, 25, 13].

The work reported in this paper set out to investigate new and emerging models for the production and consumption of art.

## **ART AND HCI**

The field of Human Computer Interaction (HCI) has expanded almost as rapidly as the technology it studies. Although HCI began by focusing on workplaces, it followed computers into the home and from there into our pockets. There is a considerable literature on the study of museums and art galleries [e.g. 35]. There is an entire field which has built up around the production and study of interactive art [e.g. 8, 9]. Interactive Art has been recognised as genre for around fifty years though there is little agreement about how it should be defined. For instance some interactive artists insist that the actions of the human engaging with the artwork should directly influence what is happening, others claim that such expectations should be challenged so that predictability is impossible [8].

The Arts have also impinged on more mainstream HCI issues such as evaluation. As HCI’s focus shifted from the office where computing based activities centred around the accomplishment of tasks evaluation became problematic. Computing technologies in the home were often used for relaxation or fun rather than work [e.g. 7]. Metrics for evaluating speed, efficiency and accuracy were not necessarily appropriate for home based computing and other forms of evaluation began to appear building on traditions in the arts and humanities [e.g. 23]. Gaver, following Huizinga, proposed models of ludic engagement to evaluate home based systems such as the “video window”, a camera on his roof hooked up to a framed monitor in his bedroom [15]. Here Gaver presented a first person account of the system describing personal and family responses to the sunsets and skylscapes it displayed. Such subjective methods would have seemed quite scandalous only a decade or so ago to many in the field. But this kind of reflection on personal experience has a very long history in the humanities, in particular, literary criticism and, indeed, techniques of literary theory have also been adapted to evaluating design [e.g. 4].

Morrison et al recently noted that the fields of HCI and art are intersecting [30]. HCI methods developed to evaluate computer systems are used to evaluate interactive artworks while critical analytic traditions developed to critique art are applied to interaction design (ibid). The blurring of boundaries occurs not just in conference halls but also in

galleries. The Talk To Me exhibition at MoMA in New York [1] is currently displaying interactive designs such as the Prayer Companion which was the result of university based research in HCI [16]. This is not occurring without comment or controversy and there are purists amongst both artists and academics who would be much happier if it were otherwise. Given the pace with which cross-fertilisation occurs it seems that the protests of purists are made in vain.

## THE STUDY

This paper reports findings from a qualitative study of a group of practicing artists in the North of England. In depth interviews were conducted in their studios. Interviews lasted between three and four hours and began with a tour of the studio and a discussion of working practices often informed and illustrated by work in progress. Participants were then encouraged to engage in a spontaneous autobiography where they were invited to chart the development of their work and career. Particular attention was focused on sales, income and other employment in order to gain an understanding of the challenges of being a “jobbing artist” [28]. Interviews were subsequently followed up with informal meetings at for example, exhibition launches. Names have been changed throughout to protect anonymity.

Interviews and field notes were coded using a grounded theory approach [19, 11]. Data were first categorised using summative open codes. These were then grouped into larger themes. Establishing connections between these themes became the basis of the emergent “theory” where theory is understood as a broad description rather than a predictive model [11]. Each of the themes is illustrated with transcribed quotations in the sections below. Qualitative studies of this kind do not claim to report findings which generalise to larger populations. The aim of such studies is not to provide representative data on a particular demographic but rather to gather rich and in depth understandings of a small number of cases [e.g. 33].

## THE PARTICIPANTS

The participants work in traditional media (painting, drawing, printmaking and sculpture) and digital media. All but one of the interviewees, Toby, graduated over a decade ago. They are engaged to various levels and in different sectors of the art market. Only one participant, Ewan, makes a living solely from the art he produces. Another, Toby, receives a modest income “*probably less than the minimum wage*” through a Community Interest Company (CIC) he and a friend established to provide studio spaces for artists. The others have a “portfolio” of moneymaking and wider activities that they engage in to generate income and enable the continuation of their practice. Four have been involved in formal teaching (Billy, Dave, Ewan and Gareth) in the post compulsory art education sector and two (Dave and Gareth) continue to do so. Billy now runs informal classes from his studio.

The paper’s two key informants sit at extremes of an art-market spectrum. Ewan is a painter whose “hyper-realist”

figurative works take months to complete. He is represented by a London dealer and can command prices of several tens of thousands of pounds. His output is very small, and constitutes original oil paintings. Of the artists interviewed he is probably the best known internationally.

Mike’s output on the other hand combines his work as a graphic designer and sometime illustrator with more “*fine art*” output. This centres on the production of digitally generated images using software packages such as Photoshop and Illustrator. He makes prints, signs and numbers the copies as limited editions, and sells them through numerous commercial galleries, cafes and shops. He notes: “*A lot of people can’t comprehend that there isn’t an original [...] I’ll get calls saying ‘I’ve seen your prints but I’d like to buy the original’.*” Mike estimates that he has nevertheless sold “*four five hundred*” prints over recent years across outlets around his home city. However, half way through the interview he declared: “*I’m giving it all up...I should have really said this at the very start shouldn’t I? I’m not really giving it up I’m just kind of putting it on hold for a short while.*” He is taking on the franchise of a noodle bar in the city with his partner in what he describes as “*bordering on a mid-life crisis*”. Given the amount of time and money invested in his career to date: “*I’m doing completely the opposite to what I’ve always done and what I was trained to do and what I love doing.*”

Ewan and Mike then are at extreme ends of a scale in terms of contemporary careers in art. Analyses of interviews and field-notes led to the following themes: apprenticeship, networks, authenticity and commodification, with each one discussed below.

## APPRENTICESHIP

All of the participants have visual art related undergraduate degrees but they each described long apprenticeships in higher education and various forms of piecemeal employment. Two have postgraduate qualifications in fine art. Toby had access to a digital media suite at university but most of them concluded their formal art education before digital media entered course curricula. The most recently graduated, Toby, attended an elite institution that retains low staff-student ratios and demands high academic entry qualifications. Interviewees’ experiences of art education were mixed and its efficacy in preparing students to practice as artists was questioned. Mike says his illustration tutors were “*very, very good*”. However, he recognises that he was part of a system that was “*just churn[ing] them out, you know, thirty [students] in a class each year*”. On graduating he tried to make a living as a commercial illustrator in London. This proved “*very, very difficult because I had to work to pay London rent just to exist*”. Instead of attracting the daily work that was necessary to survive financially, he “*did bits and bobs*” of commercial work. Noting that the vast majority of illustrators lived in London he questioned how many actually made a living from it: “*It’s a nice way of spending*

*the time but to actually make a living out of it is amazingly difficult."*

Dave's preliminary "art training" was closely acquainted with "the market". While working in shipyards in the South of France he practiced street portraiture to earn extra income. *"It's quite hard doing that sort of thing publicly when you're not very good"* he remembers. He optimised sales by using gray paper and black and white chalks *"people kind of liked that [visual] drama"*. After returning to England and doing various jobs he eventually did a part-time foundation course, leading him to take a degree in fine art. In terms of being prepared for life beyond college Dave says the sum total *"practical information"* constituted *"a morning session about how to fill out an Arts Council grant form"*.

After securing part-time art teaching Ewan was able to enroll on a part-time MA. This was taught by two reputable figurative painters: *"I thought well OK, I may as well be taught by somebody who's kind of involved in the [art] world I'm interested in."* The two years he spent developing a contemporary style proved professionally pivotal. Crucially, he gained (self) acceptance that *"it was OK to make figurative or realist paintings"* although this kind of work was not fashionable when he first studied.

After persevering for six years as a commercial illustrator in London Mike returned back to the north seven years ago to work as a graphic designer. He acknowledges the years since college have been financially challenging when he jokes *"I really should have done accounting or something"*.

On graduating Dave felt *"lost"* meanwhile *"thinking there wasn't a career [in art] for me"*. Although Dave *"never gave up on wanting to do [art]"* for several years he *"hardly did anything and drove vans for a living and just sort of left it behind"*. It was the break-up of a long-term relationship and a move back north and into the Billy's spare room that finally restarted his art making.

Billy's degree show attracted media attention and he appeared on several local news magazine television programs and subsequently national television. In retrospect he thinks he failed to capitalise: *"I was on the media...I should have done the Damien Hirst, I didn't, I didn't have the business acumen."*

Ewan's career also moved in fits and starts initially. The part-time MA course gave him the necessary structure and critical support to improve his own visual language and *"really kind of develop[ ] things"*. But he comments on the level of competition for West London commercial gallery representation: *"There's a heck of a lot of people trying to get into these places."* Ewan began to receive more favourable responses: *"[The work] was more resolved...it was just getting better."* Each painting was also beginning to take longer. Eventually he was asked to show one painting in a group show as a way to *"test the water"*. The gallery was *"right in the heart, you know, of where I'd*

*always dreamed of exhibiting"*. The painting didn't sell but Ewan was delighted with the whole experience: *"I thought that was it, I'd kind of arrived [...] they had it next to a Damien Hirst woodblock print and I thought well bloody hell, this has got to be good, this is kind of a start."* As with Billy, Hirst was a reference point for contemporary success.

## NETWORKS

Each of the artists was involved in a range of networks with other artists and supporters. Ewan was the most well connected internationally and acted as something of a role model for the other artists he knew locally. Billy aspired to follow Ewan's route to international markets. Billy in turn influenced Mike and Phil. Studios were important to all of them. For some, they were a means of galvanising sociality and mutual practical support (e.g. group exhibitions, skills and resources). Others sought a space to work in solitude.

Three of the artists have studios at home, including Mike who uses a spare room from which he also runs commercial graphic design activities. Dave has a purpose-built studio in the garden. Billy meanwhile drives out to a rented farm building which is terribly cold in the winter until the stove heater is fired up. All three have been involved in "open studios" for several years. Artists make a submission of work to be included in an annual event to a committee. If selected their personal studio space is publicised as part of a network spanning the city. Studios are opened up over two consecutive weekends for people to visit, look at and prospectively purchase work. Discussion in the interviews around the open studios reveals mutual practical support.

Mike knew Billy socially and met some of the others involved in open studios. This led to him participating as an exhibiting artist and organising a joint exhibition with Billy for which they borrowed his partner's business premises *"we converted the hair salon downstairs into a gallery"*. As an illustrator and graphic designer, Mike has acquired several years' experience using vector and photo-editing software tools. He mentions Illustrator, Quark, InDesign and Photoshop during interview. However, Billy exposed Mike to other printing processes enabling him to apply his commercial knowledge to the production of material saleable artifacts.

More recently, Toby and his friend immediately rented a shared studio on graduation intending to continue their experiences of university. They were expecting *"a huge amount of critical discussion"* with everyone *"taking about art"*. The two soon found that they *"weren't kind of interested"* in the commercial concerns of the other studio holders who practiced graphic design and furniture making. And financially: *"You'd look at your dole money [unemployment benefit] of 50 quid a week [...] as compared to £25 a week for the studio and it just seemed...it wasn't really...[viable]"*. Toby left the studio and has since channeled considerable energy into developing a CIC and shared studios. *"It was to do with that*

critical discussion and building a network of like-minded people” he explains, but as a consequence “*I haven’t really made much work at all since leaving [university]*”. This pattern of early financial struggle was common to all of the artists and remained a feature of working life for most.

Ewan meanwhile, although in a shared studio complex, prefers a more solitary working environment: “*I can only say that [the studio] works for me ‘cause it’s quiet and nobody bothers me.*” While in his northern studio “*nothing happens up here and that’s kind of alright, you can just get on with it*”. This is in sharp contrast to time he spends in London as a gallery-represented artist: “*It’s all a hundred miles an hour but kind of things can turn on a conversation you know and something will happen*” (such as an invite to show work overseas). Each painting takes several months to complete necessitating long periods of concentrated working. As his practice and career have developed he has sought artistic interaction outside his immediate shared studio complex. “*I just had an email from an artist friend in New York who sends me through things. [He’s been] within the same sort of market that I am for a lot longer and that’s very much a supportive sort of system.*” Ewan is part of an international network of hyper realist artists who exchange information on, amongst other things, particular technical challenges.

Each of the artists then depended on networks of support. Family and personal networks were crucial, both Billy and Dave had partners who had supported them financially. But professional networks of friends and mentors were also vital. Ewan’s former tutor is represented by one of the most prestigious galleries in London: “*They’ve got better clients, wealthier client more influential clients...there’s a hierarchy of clients.*” Ewan had introduced Billy to gallery contacts in London and he had made some modest sales as a result. Billy in turn was encouraging Dave to show his work locally and organised an exhibition where they showed their work together. Networks stemming from tutors at university through to gallery contacts and other artists were vital in terms of generating sales but also affirming their identities as artists. Ultimately the galleries held the key to the most valuable networks of all: the client lists. This point will be returned to in the section on commodification.

### AUTHENTICITY

All of the participants acknowledged that identifying themselves as “artists” had been problematic for them at some stages of their careers. They recognised the “imposter syndrome” common in many professions. For Dave “*it’s only recently I’ve felt comfortable saying it: I am an artist*”. A sense of inauthenticity could also apply to certain aspects of their work such as Giclée prints. The word “giclée” was coined by Jack Duganne in 1991 based on the French word gicler meaning “to squirt or spray” [39]. It refers to high quality prints using fade resistant inks. The neologism was devised to avoid the connotations of “ink jet” printing or

“computer generated” (ibid). Epson printers and other large format printers were used initially and the machines were very expensive. Now fade resistant printer systems are far cheaper. Both Mike and Billy had rigged up home studio printers to use bottles of pigmented ink rather than the ubiquitous low quality dye cartridges (see Figure 1).



Figure 1: Billy’s Printer

For Billy and Phil a print from an ordinary home printer was just “a photocopy”. To be a Giclée, a print had to use fade and discolouration resistant pigment inks and also be printed on very high quality paper. Billy had shown Mike how to modify a printer so that these conditions could be satisfied. His studio printer also uses inks as rigged up in Figure 1 enabling reproductions to be made at modest cost which retain a level of conservational permanence. Unlimited copies of graphic artworks can then be generated for exhibition and the market from the digital file of the image.

But Mike has experienced an inherent “snobbery” against this kind of digital art, even amongst fellow artists. “*Ooh, you’re not computer are you?*” he mimics. A similar lack of enthusiasm is perceived within certain gallery systems: “*I have trawled galleries up and down the country and [90 percent] just won’t even go near [digital] prints.*” Because “*anyone can run off a print*” Mike appreciates the galleries’ anxiety. He asserts that some people pass off poor quality reproductions as the more conservationally robust Giclées. While “*in a few years it’ll be faded*” the challenge for the untrained eye is that “*looking at it, you can’t tell the difference*” between a Giclée and an inkjet print.

The Giclées process is now central to Mike’s creative practice and, until recently, livelihood. However, the vast majority of the commercial galleries through which Mike would like to sell his work “*won’t even touch them*”. But some of Mike’s most vocal and affecting critics aren’t potential buyers but “*the more art people*” from within the open studio network. After one particular year’s open studio he completely changed his style. “*Originally I was doing work with a black line, quite a graphical cartoony style, and again, a lot of people are not too keen on that.*” However, it was the earlier work that seems to have been most popular amongst buyers. Mike found that “*they just weren’t selling as well and people were still buying these [earlier works] by the bucket load.*”

Mike explains how Billy suggested he might return to making “originals”. He could exploit a digital process and “*blow [the image] up and project it onto a canvas and paint it on so I’ve actually got an original*”. Hockney argues that projecting onto a canvas was a staple technique of the old masters [21]. But Mike considers this to be “*completely the wrong way round...because you’re supposed to have the original first and then from that you take the photograph and you sell that as the limited edition print*”.

Some of the other artists interviewed are ambivalent about the Giclée and related digital processes. Dave doesn’t “*place any value*” on the work he creates on a tablet computer. When a friend asked for a printed copy he replied: “*Yeah! Just have it*” seemingly concerned neither with (limiting) distribution nor in making money by selling a copy. For Dave it’s partly the absence of materiality that diminishes the digital print’s legitimacy. He talks of one “*being fooled*” into perceiving digital prints as art. For him, the appeal of making art concerns the tangible. “*I’m interested in the value of the object [...] it’s still an object, it’s been made, it’s been pressed by hand*” he says, alluding to the traditionally crafted mechanical print.

Notions of “limiting” the number of copies produced digitally are apparent in all of the artists’ work. Cultural practices that emerged from traditional fine art printmaking are appropriated and applied in the digital realm. Last year Dave began to sell reproductions of his original paintings and drawings. He uses a print-on-demand fine art Giclée reproduction service offered by a commercial reprographics company. Dave supplies the company with a digital file along with instructions on the quantity, paper quality and dimensions required. He collects and pays for the prints, then signs and numbers each one as part of a notional edition of 100 although 100 are never printed. He then frames and makes them available for sale. Original drawings and paintings that sell for £120 directly (or £200 through a gallery accounting for their mark-up) are available as framed Giclée copies for £50-£55. £35 of this is spent on Giclée printing and framing. Asked if buyers “get” the digital Giclée prints Dave replies: “*It’s only if you can keep the costs...the prices right down that people will buy into it.*”

With digital print editions a notional figure is decided, as the digital reproduction process negates the need to print the whole edition up front. He says that limiting the number of copies in a signed edition seems to have “*a bearing*” on sales. People tell him that he should have limited that number further to imply greater rarity: “*it would have made [buying the picture] more attractive*”. When asked why the editions are limited to 100 and not some other figure he concedes that the number is arbitrary: “*I just plucked it out...of my.. out of my own personal bubble*”. He adds that “*it’s only in theory that there are 100*”. The higher edition numbers are never reached but if 100 copies of the particular print were sold he would not make any more.

While Mike’s sold between four and five hundred Giclées, his most popular limited edition has reached 65/100. Most of his editions only ever sell up to the “*mid-twenty*” point. The limit of the edition then is aspiration based. Limiting editions to 100 perhaps implies a greater degree of success for an artist than producing limited editions of 20 and perhaps this is more appealing to buyers. Buyers also seemed to value signatures.

The practice of signing artworks is relatively new. Jan van Eyck’s “Arnolfini Marriage” from the fifteenth century is considered one of the earliest and best known examples of an individual artist’s signature [e.g. 40]. There was debate amongst the participants about where and whether to sign paintings and prints. Billy signed his paintings on the back feeling that a signature would spoil the abstract images he was making. Ewan also questions the importance of signatures but says the buyers ask for it. In the past he has incorporated his signature into the image itself, as a carved name on a tree or across a car number plate. This seems to be in part as a bit of fun and in part to prevent the written words intruding visually onto the illusion he’s creating in paint.

Dave recalls a tutor on his foundation course berating him for signing a piece of work saying “*I don’t mind you signing your work when you’re famous but not until then*”. It was as though Dave had to acquire a level of critical and/or commercial success before his work warranted personal authentication. Currently, he doesn’t sign the original paintings as it would “*kill*” the work by taking “*all the attention*” away from the art. However, he does sign the digital prints. All of the artists had signed work because that was what customers wanted.

As each of these artists was attempting to make a living from their work, commercial concerns and indeed commodification itself was important.

## COMMODIFICATION

Ewan is one of the two participants represented by a commercial gallery. He sold “*most*” of the paintings in his first solo show but “*didn’t make much money*” as individual works were between two and three thousand pounds. Prices then rose steadily. Ewan organised a show with commercial sponsorship enabling him to produce high quality marketing materials. These were targeted to the commercial galleries he was interested in showing with. One dealer from Switzerland bought two paintings to take home and sell on. The first painting he showed with his current gallery was priced at £26,000. “*I thought that [price is] ridiculous and they said, ‘no it’s not, that makes sense in the context of our other artists and the quality of this painting you’ve presented’ [...] they said ‘you haven’t got much of a CV but the work is of a standing, we couldn’t put it for any less’.*” It sold from that exhibition. In fact, Ewan says he’s “*pretty much sold everything*” he’s produced. His prices are now around £37,000. Ewan doesn’t know “*how*



*they work it out really to be honest...I don't know if they're going on square inch or inch".* He goes on to outline the various costs involved, including VAT [purchase tax], which means that he takes away less than forty percent of the sale price with the gallery keeping the same amount. As Ewan can only make three or four paintings a year his earnings amount to *"a good professional wage"* but not the fabulous wealth that the sales figures might imply.

Ewan is selling to the super rich. One buyer was a hedge fund manager. Ewan thought him *"a lovely chap"* while remarking, *"it's a level of wealth that I don't understand"*. One of Ewan's paintings is currently under discussion with one of the presidents at American Mutual. Another was shipped out to Dubai. And, buyers usually haggle: *"It's kind of like, 'well what can you do me on this, what can we come down to?' [...] so obviously there's a period of negotiation."* Of his buyers he says *"it's not people who we might know in normal life"* going on to articulate the gallery's role in attracting and closing a sale with the super-rich. This group *"only have a tiny part of their time to think about buying a painting... or if not a painting a speedboat or whatever"*. In this context one has to effectively court as *"powerful a dealer as possible"*.

What galleries have and jealously guard is their client list. The number of individuals with enough money to spend thirty or forty thousand pounds on a painting is limited. What justifies the galleries' fifty percent take is their information: *"I mean a gallery is only a list of clients [...] a mobile phone full of addresses"* with access to networks of "ultra high net worth individuals".

Although Ewan's paintings have sold for figures that are almost double the national average wage in the UK, his personal income does not reflect these staggering prices. Ewan could never afford one of his own works. This is an odd situation that almost all of the artists in this cohort faced. Billy's work sells for far less, five to six hundred pounds a painting, but nevertheless, this is a sum he could not possibly spend on art himself. Although print runs make art more accessible they are not printed via cheap printing processes even though these improve at exponential rates year on year. The "market" then produces situations where relatively poor artists are producing work that neither they nor their neighbours can afford. Although technology exists to produce very cheap work because such copies are limitless they are perceived as inauthentic.

The Giclée limited print is based on nineteenth century processes of editions where plates are struck so that no more runs can be made. But, as Dave pointed out, *"the [digital] source material is hard to erase [...] it's probably backed up on some hard drive somewhere"*. The possibility of artists printing more editions than they said they would print is also something that buyers worry about.

Clearly the interviews raised a great many issues relevant to designers of technology and information management. The

following sections begin to sketch some initial notions of alternative approaches to printmaking developed in participation with the artists.

## CONCEPT DESIGNS AND PROTOTYPES

The researchers are currently producing a number of concept designs and prototypes in association with the artists engaged in the project. These are intended to articulate emerging insights. They will undergo several iterations in negotiation with individuals or through participatory group activities during the life cycle of the wider research. They are included here not as solutions to the problems described above but as illustrations of the ways that design might connect in different ways to questions of reproduction in the digital age.

### Layered Landscapes

During the interview with Mike he demonstrated his work process. The example Mike discussed was a view of the seaside town of Staithes. This began with a pencil drawing which he managed to find after some rummaging around in his studio. This had been scanned into Photoshop and new black lines were added with a pen tool inside shapes such as the windows and buildings. This was done so that when the fill function was used there was sometimes a small gap of white between the lines. Mike explained that the straight fill function looked too mechanical and precise. There were some 13 or 14 layers of colour which Mike turned on and off to demonstrate the make up of the picture. Interested in the effect the researcher asked him to save each layer as a separate file. These were then loaded onto a digital frame to form a sequence starting with the black line drawing (see Figure 2).



Figure 2. Mike's Layered Landscape

The view of Staithes is well known and other artists "look down" on this kind of commercial work. However the piece sells very well as a Giclée print. The researcher bought a print of it and hung it in his house. He also put the digital frame version on a sideboard and currently lives with both. The layered landscapes can be flicked through with the remote control or left to play automatically at a range of speeds from every three seconds to every hour.

Such digital frames are more commonly used to show sequences of different images, most often family photographs. But using it to display Mike's digital artwork



in this way captured elements of the work which the Giclée print does not approximate. Looking at the image on Mike's computer it was clear that the back lighting from the screen did not translate to printed mediums such as Giclées. As Hockney has remarked, back lit screens are particularly effective in representing luminous subjects such as skies and glass [18]. As the setting for change is usually slow visitors do not usually notice the changes immediately – *did that just change colour?* Because this image is in a state of flux it calls attention to itself in ways which the family so far find interesting.

When Billy and Dave were hanging paintings for an exhibition of their work the researcher took the frame to the gallery and showed it to them. Billy was not impressed, *"that's not art"* he declared. He said that he would never reveal the layers in his own Photoshop work in this way. This work draws on scans of multiple monoprints which are then composited. The gallery owner was more interested and suggested that it could be used for sketchbooks or conceptual pieces. Billy thought there might be scope for developing a conceptual piece that might include a digital frame pre-loaded with monoprints bundled with a paper print, but he was very concerned about giving anyone access to files which he was determined to control. There are then interesting security aspects around this design space which future work will explore. Though Billy was skeptical he was open to considering other configurations of the design though nervous about revealing his process. For Billy the final product was *"revealing enough"*. Ewan on methods.

### Slow Print

A digital camera is currently being installed in Ewan's painting studio. This will capture the creation of his next painting as it develops over a four-month period. Images recorded daily will be relayed to a server and made available for public display. We are still negotiating possible venues and Ewan's role in vetting images as they are realised (see Figure 3).

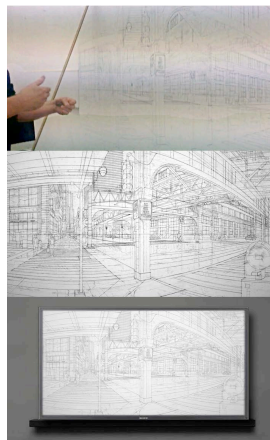


Figure 3. Ewan's Slow Print

Ewan identifies the physical role that the artist takes in enacting and making the autographic gesture as key. *"There would have to be some more interaction between me and the process"* he says. In other words: more than providing a painting for the purposes of its documentation. He is uninterested in *"just duplicat[ing] what we've already got"* or making *"a poorer version of the actual painting"*.

During the interview Ewan described at length the different stages involved in making his hyper-real paintings. Each one starts with lines drawn on the canvas with a pencil and rule. General outlines of shapes and buildings are sketched in then mapped out with vanishing points and perspective lines. The drawing stage lasts for two to three weeks. When the drawing is complete he begins to paint in thin oils. The first marks might indicate a swathe of light cutting through the picture. Gradually the painting is built up over a period of three to four months. Reflecting on this process Ewan noted that lots of interesting effects were lost as the next stage of the painting began. The drawing for instance is first obliterated by the paint. Successive layers of paint continually remake the work until a final image is produced. The nature of the medium is such that many images, some very beautiful, are destroyed as the final piece is created. Reflecting on this the artist and researcher discussed the notion of a digital reproduction of the work that would capture and display in "slow time" these successive stages.

A digital camera positioned in the painter's studio would record the image on canvas as it develops. The technique of stop-motion animation could iteratively capture individual shots at regular intervals generating a sequence of reproductions. These might then be played back day-by-day to reveal the painting's evolution over time.

As successive painting apps have appeared a new genre of YouTube video has also developed. These utilise a form of stop-motion to show speeded up portrait painting in various media (e.g. "Finger Painting on the Apple iPad from the live model David Kassan") [42]. Clearly a stop-motion recording of Ewan's work could be played back or forward at any speed and it might be interesting to make an entirely controllable version. But as Gaver and colleagues have argued in relation to designs such as the drift table, it may be more interesting to constrain interaction [17]. A "slow print" might only change in real time so that the playback would take as long as the painting did to make. Viewers of Ewan's work sometimes assume that it was created digitally. Because it is hyper real they suppose that photography and Photoshop must have been heavily involved in the production of the paintings. Part of the appeal of the prototype for the artist is that it would expose the actual process as well as being visually interesting in its own right. It would make a piece which was interesting *because* it was a digital reproduction rather than in spite of it. It would also be something that might be affordable to buyers other than hedge fund managers.

## DISCUSSION

Clearly there are a number of problems with the concepts discussed here. The shelf life of digital frames is limited. As display technologies became defunct such reproductions would have to be re-rendered. But renovation is a standard practice in all art. Many scholars believe that the "Mona Lisa" which hangs in the Louvre in Paris bears little resemblance to what Leonardo created [e.g. 32]. Successive restorations and layers of varnish have darkened what would once have been a much brighter image. But as the discussion of what constitutes a Giclée reveals quite clearly: authenticity is always culturally negotiated. There is never a pure original, rather an agreed framework and this can be exploited by design.

The current art market is more concerned with investment than aesthetics. The obscene sums paid for paintings as investments have distorted even the smallest art markets such as those described in this paper where artists produce work that they themselves cannot afford. Printing and computing technology have advanced at a staggering rate but this has not made art more affordable perhaps because a scarcity model of value persists where if something is not unique it is not worth having. This paper has argued that new models must be explored to fully exploit the liberating potential of digital media.

It may be that the notion of a digital original is at best a paradox or at worst an oxymoron. But it captures something of the dilemmas of artists working in digital media or making digital prints. The filmmaker Peter Greenaway suggests that facsimiles of old masters are far more interesting than the originals because they can be manipulated and interrogated in ways that would destroy the work on the wall or canvas. His most recent projects involve manipulating masterpieces such as "The NightWatch" and the "Last Supper" by projecting light directly onto them. Greenaway is unconcerned with originality, noting that there is no original of "Gone with the Wind". But cinema has always been a mass and arguably a democratic art form. Art has previously required the patronage of one elite or another. It is possible that this will change as the digital makes a scarcity of images impossible.

## CONCLUSION

This paper has reported findings from an in depth qualitative study of artists working in traditional and digital media. It has described some of the dilemmas and paradoxes for artists attempting to make a living through sales of analogue and digital work. It argues that the models of scarcity and limited reproduction which dominated the nineteenth century are unsustainable in the twenty first. Ideas of how new and emerging technologies might provide alternatives to limited runs are illustrated with concept designs around the notion of a slow print [10]. An approximation of a digital slow print was made by appropriating off the shelf technology with Mike's

"Layered Landscape". Living with this experience prototype suggested that digital prints that reveal rather than conceal process might be interesting to explore further. A slow print concept design for Ewan's work was also described.

Currently this "slow print" notion is purely illustrative and future iterations with the artist may radically change the concept. However it exemplifies a shift towards slowness also marked in other research designs such as the drift table [17], which can in part be considered as a reaction against the affordances of digital technology towards speed and maximal efficiency. This in turn relates to wider critiques of social drives to produce and consume more at increased rates and in ever-greater quantities. Such critiques are also reflected through projects such as Hillis' "Clock of the Long Now", a clock conceived with a year and a century hand [38]. Painting itself can be thought of as a slow art and in a sense a measure of the long now. The 30,000-year-old cave paintings at Chauvet for instance, convey very powerfully a sense of what Hillis calls "deep time".

Picasso once remarked that the problem with any painting is that eventually it is hung on a wall and nobody ever looks at it again [20]. It may be that new forms of reproduction can make possible new ways of looking.

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